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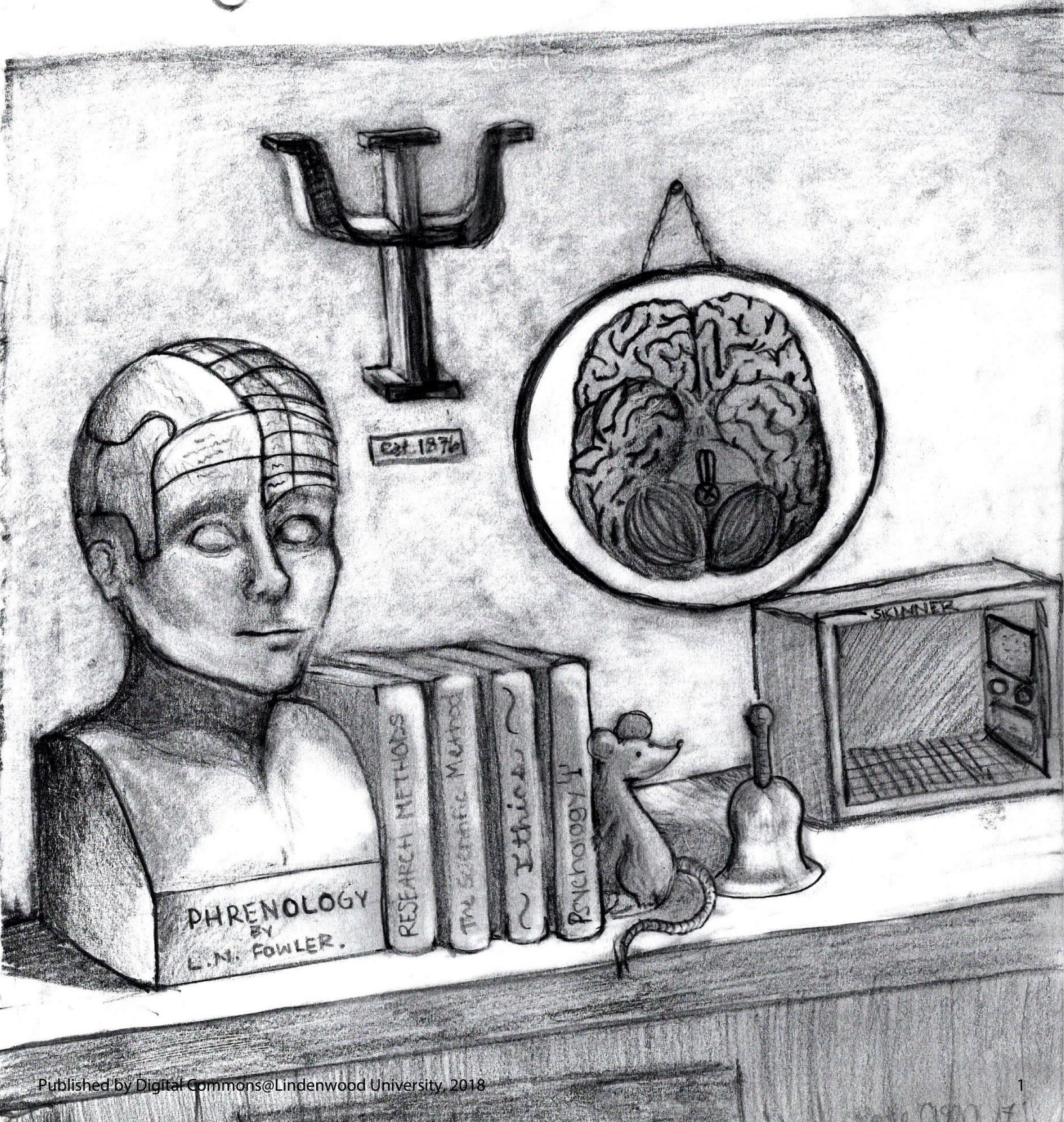
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Prologue

I am very excited to present this journal, packed with 19 research papers written by 18 different students in the academic year 2017-2018. These student authors were either enrolled in my PSY40400: Advanced Research Methods class in the spring semester of 2018 or were taking PSY48000.ARMNL: Psychology Research Labs with me in the fall semester of 2017 and/or spring semester of 2018. Many of these students have already presented their work at student conferences or will be doing so soon. Some have since gone on to pursue graduate studies and/or have gone on to take on more research opportunities.

To commemorate the largest volume of the journal to date, I have renamed this journal, previously called the Spring Research Methods Journal, to the more inclusive name of 2017-2018 Student Research Journal. I am very proud to present this journal, and I am confident that in these 438 pages, you will find many fascinating studies and creative endeavors, which are all original research projects designed and implemented by my students.

I would also like to acknowledge Katie Olson for her beautiful artwork, which was chosen by her classmates to be the cover of our journal this year. Last but not least, many thanks go to Elizabeth (Libby) Schaiff, for serving as a very patient editor for this journal.

Michiko Nohara-LeClair

Course Instructor

Students' Perceptions of Body Image

Noor Fons[1]

A primary problem with the current criminal justice system in the United States is that it almost solely relies on a jury to determine whether a defendant is guilty or not guilty of committing a crime. While this system has been in place for many years, it is flawed because it ignores the fact that people tend to make judgments based on extralegal factors, or variables that are not related to a case, which may lead them to have implicit biases toward or against an alleged offender. Previous findings indicate that extralegal factors that impact juries include gender, race and ethnicity, facial maturity, dress, perceived socioeconomic status, attractiveness, emotional engagement, and jurors' views of their own attractiveness. The present study evaluates whether the presence of visual information (i.e. what a juror can visually observe about a defendant) affects the verdict of a trial. Participants were divided into three groups who heard a fictional crime scenario about an armed robbery incident. Along with the scenario, participants in the first group saw a picture of an attractive offender, participants in the second group saw a picture of an unattractive offender, and participants in the third group did not see a picture of an offender at all. It was hypothesized that participants who saw the attractive offender would find him guilty less often and recommend less harsh sentences when convicted, but the findings were not significant for either of these hypotheses.

Body image is a concept that in Western societies, is influenced by the pressure of having an ideal body (Toselli & Spiga, 2017). Women with very thin figures and men with muscular bodies represent that ideal in Western societies. Throughout the years, media has been representing the ideal body for both men and women. A very recent study conducted by Dutta et al. (2018) looked at the social media platform called "Instagram," and the relationships between body image and posting selfies, testing university students. They found that posting more selfies is related to having a positive body image. Having a positive body image leads to many positive

results such as having self-acceptance, self-determination, and efficacy. When specifically looking at the student population, females tend to have a negative body image more frequently than males (Toselli & Spiga, 2017). There are gender differences in how male and female individuals perceive their own body. For example, women perceive themselves as being overweight more often than men, whereas men can be more concerned about being underweight. For a long time, men in general, frequently had a more positive body image than women. However, more males are now experiencing body dissatisfaction as well (Toselli & Spiga, 2017).

Yoshie, Kato, Sadamatsu, and Watanabe (2017), defined body image as "an individual's perception of his or her own body," (p. 943). This study examined the relationship between depression, eating attitudes, and body-checking behavior among female university students in Japan. The researchers found that body-checking, depression, and obsessive behavior were positively correlated with eating disorders. It was also mentioned that body dissatisfaction has an association to a higher risk of a distorted body image (Yoshie et al., 2017). Additionally, individuals who developed healthier eating attitudes tended to have a higher body satisfaction. One of the limitations in Yoshie et al.'s (2017) study was their exclusive focus on female students.

Adolescents and teenagers (e.g. ages 11-24) are in a life phase that is more at risk and vulnerable to body dissatisfaction (Chaudhari, Kumar, Saldanha, Tewari, & Vanka, 2017). Factors such as, gender, age, Body Mass Index (BMI), and culture are considered to have a big impact on an individual's body image. Chaudhari et al. (2017) measured the concerns that individuals have about their weight, body appearance, shape, and body dissatisfaction through a 16-item questionnaire. The questions focused on the individual's opinion to his/her own body. The results showed that, 34.2% of the male and 66.7% of the female participants had no concern

about their body shape. Furthermore, a total of 53.9% of the participants reported having a positive body image, and 46.7% said they had mild, moderate, or marked concerns about their body image. In other words, a majority of the participants had a positive body image (Chaudhari et al., 2017).

Reeves, Boyd, Roul, McGowan, and Cameron (2017) conducted a study to find out how individuals who participate in the sport of rock climbing experience body image. It is known that athletes in general are at a higher risk to be dissatisfied with their bodies (Reeves et al., 2017). This risk is due to the pressure and emphasis that is put on athletes, their performance, and the expected body shape visualized by trainers, coaches, and teammates. Reeves et al. (2017), found that among many things, athletes' body image is influenced by the presentation of the other successful athletes on social media and magazines. Additionally, the study concluded that, female athletes participating in rock climbing experience more body dissatisfaction than the male athletes who participate in the same sport.

Similar to the study conducted by Chaudhari et al. (2017), I will create a survey/questionnaire that will focus on student's opinion about their own body. I would like to include both female and male students. The majority of my participants will be in the phase of life development called emerging adulthood. The purpose of this study will be to see if students generally have a negative or positive body image. I also hope to see if there is a difference between male and female students, and between student-athletes and non-student-athletes. Based on previous research, I hypothesize that the majority of students have a positive body image, and that the majority of female students have a negative body image compared to male students. Focusing on the student-athlete population, I hypothesize that male student athletes are more satisfied with their body than female student athletes.

Method

Participants

A total of 78 college students participated in my study. I recruited a small amount of the participants from the Psi Chi website and the fast majority from the Lindenwood Participation Pool (LPP). The participants who were recruited through the LPP received one extra credit point towards participating classes, which include GE- and introductory level courses in sociology, anthropology, psychology, criminal justice, exercise science, and athletic training. The participants who took part in the study through the Psi Chi website, received no compensation. Out of the 78 individuals who took part in the study, 12 were male participants and 64 were female participants. The participants reported the following ages, 11 were 18 years old, 21 were 19 years old, 11 were 20 years old, 13 were 21 years old, 12 were 22 years old, and 10 participants selected the option "other." There was a large variety in what the participants reported to be their class status in college. A total of 23 of those who participated reported their class rank as freshman, 17 said sophomore, 19 said junior, 17 said senior, and 2 said other. When the participants were asked if they were a student athlete of not, 28 were athletes, and 50 were not athletes.

Materials and Procedure

I constructed the online survey using Qualtrics, before it was posted on the Psi Chi website and Sona Systems. The informed consent statement was the first to appear on the survey, followed by the demographic questionnaire. The demographic survey asked the participants about their gender, age, class status in college, and if they were a student-athlete or not. After the demographic questions, the body image survey, consisting of 16 items, was presented to the participants. Participants were asked to rate their satisfaction on the 16 parts of their own body. The ratings/possible answers were, "not at all satisfied," "not quite satisfied,"

"somewhat satisfied," or "satisfied. At the end of the survey, participants received the feedback

statement (see Appendix A, to see a copy of my survey). The computer program Excel was used

to summarize and analyze the final results of the study.

The first step in this study was creating the demographic survey, along with the feedback

letter, informed consent statement, and the body image survey on Qualtrics. The questions asked

in the demographic survey were mainly created in relation to the purpose and hypothesis of this

study. The body image survey questions were partly based off a previously conducted study

by Chaudhari et al. (2017), where the researchers used a 16-item questionnaire to measure the

concerns about body shape and dissatisfaction. A link was provided on the Psi Chi website and

Sona Systems through which participants could take the survey on Qualtrics (URL).

To make sure only students would participate, the recruitment description on Psi Chi

explained that the study focused on students (see Appendix B). Only students can be part of the

LPP, which automatically excluded non-students from taking the study through Qualtrics. There

was no time limit to complete the survey. After the participants completed the survey the

feedback letter popped up on their screen. When 78 participants successfully completed the

survey, I transferred the demographic and body image survey results into a table

in Microsoft Excel that I used to see if students generally had a negative or positive body

image. I used Excel to analyze my findings to test my hypotheses.

Results

After gathering all the data, I scored all the participant's responses by adding up the

number of point they received for each item on the questionnaire (e.g. dissatisfied = 1, not quite

satisfied = 2, somewhat satisfied = 3, satisfied = 4). As following, I did a frequency count on

how many students had a final score equal or above 40, and how many had a score below 40 to

examine if students generally have a positive or negative body image. The number 40 was

chosen because it represents exact middle score out of all the possible scores a participant could have. The frequency count indicated that 2 students had a negative body image, and 76 students had a positive body image. This result supports my research hypothesis that the majority of students have a positive body image.

I also hypothesized that the majority of female students would have a negative body image compared to the male students. Originally, I wanted to conduct an independent *t*-test, however, due to unequal sample sizes (12 men, 64 women), I decided to use a descriptive analysis. I did another frequency count which showed that 100% of the male students had a positive body image, and 96.875% of the female students had a positive body image. The findings do not support my hypothesis.

Lastly, I conducted an independent *t*-test to find out if there is a difference between male student-athletes' and female student-athletes' body image scores. An independent *t*-test revealed no significant difference between male student-athletes' body image scores ($M = 52.57$, $SD = 8.08$) and female student-athletes' body image scores ($M = 53.62$, $SD = 6.92$); $t(7, 21) = 0$, $p = 0.37$ (one-tailed), $d = 0$. These results do not support my hypothesis that a larger number of male student-athletes would have a positive body compared to female student-athletes.

Discussion

After conducting the frequency analysis that looked at students' body image perception, I found that the majority of students had a positive body image, which supported my hypothesis. Even though college students are in a life phase where they are more at risk and vulnerable to body dissatisfaction is experienced (Chaudhari, et al., 2017), there was only a very small amount of students who had a negative body image. Previous research done by Dutta et al. (2018) showed that posting more selfies is related to having a positive body image. This

finding could explain my results since that posting selfies is a common aspect of many college student's daily life which is related to a positive body image. Another explanation for such an extremely small amount of students with a negative body image score could be that, students who have a negative body image did not want to sign up for this particular study. A negative body image can make an individual insecure and therefore not preferring to participate in my research. A third explanation could be that due to the answer options lacking an option that indicated a neutral body image, led to participants answering towards a positive body image more often.

The finding that none of the male participants, and only a roughly 3% of the female participants reported a negative body image was not expected. This finding is very low in reliability since there were only 12 male participants who were being compared to 64 female participants, which could explain why there were no male participants whose results reported a negative body image. The research done by Toselli and Spiga (2017) explained that there are gender differences in "how" male and female individuals perceive their own body. When I specifically analyzed the scores below 3 (e.g. below "somewhat satisfied"), I found that except for the body part waist, both male and female participants scored below three on the exact same body parts (see Table 1). This shows that both male and female college students have a lower body satisfaction related to the body parts legs, hips, stomach, arms, and additionally for women, waist.

The third analysis showed that there was no significant difference between female student-athletes', and male student-athletes' body image, which is inconsistent with previous findings that showed results of female athletes experiencing more body dissatisfaction than male athletes (Reeves et al., 2017). When conducting the independent t-test, the male student-athletes' scores were more varied (65.29), and the female student-athletes' scores were more

clustered (47.95). This could also be due to the number of male student-athletes participants being 7, while there were 21 female student-athletes who participated.

One limitation to this study was the limited number of male participants. It was difficult to make a comparison between male and female participants since only 15% of the total participants were male. Another limitation was that the questions were modified so that they would not be too personal. Keeping the questions very neutral limited the data since I did not ask more specifically about participants' opinion about their own bodies. For example, I could not ask "mention one body part of yourself that you are not satisfied with and why."

Future modifications that could improve this study would be to give participants a fifth, neutral option to rate their body satisfaction. The current rating scale has four options that include dissatisfied, not quite satisfied, somewhat satisfied, and satisfied. I would create a fifth option called "neutral", and place it between not quite satisfied and somewhat satisfied. This could provide more accurate and reliable results. Also, changing the study's name might have a positive effect. The title of the study makes it very clear that the research focuses on body image. Not all student are attracted to participate in a study focusing on something that they might not be willing to share anything about. If the study would have a more neutral name such as "Body perceptions", some students who have a negative body image may be willing to participate.

The next step after this research is to study what students currently see as the idealistic body image. Over time the ideal body has changed (Toselli & Spiga, 2017). How has this influenced our student generation and how they perceive their own bodies? As a society we expect young people to be insecure about their appearance, yet is this really an accurate statement, or are we basing this on assumptions and inaccurate beliefs about how adolescents see themselves? I believe it is important to find suggestions and answers to these questions.

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Table 1

Average Body Image Scores

Scores < 3 were reported

Body part	Average score men	Average score women
Legs	2.92308	2.922
Waist	2.71795	2.688
Hips	> 3	2.906
Stomach	2.4487	2.3906
Arms	2.89744	2.891

Appendix A

Informed Consent/Demographic Survey/Body Image Survey/Feedback Letter

Q35 **Survey Research Information Sheet**

You are being asked to participate in a survey conducted by Noor Fons and faculty supervisor Michiko Nohara-LeClair at Lindenwood University. I am doing this study to measure if students generally have a negative or positive body image. I also hope to see if there is a difference between male and female students, and between student-athletes and non-student-athletes. Participants will complete a short survey, focusing on their own body image. It will take about 7 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. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.

If you are 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.

WHO CAN I CONTACT WITH QUESTIONS?

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

information:

Noor Fons: noorfons@upcmail.nl

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 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.

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.

- ○   Agree (1)
- ○   Disagree (2)

End of Block: consent

Start of Block: Block 4

Q37 How would you identify yourself?
- o   Male (1)
- o   Female (2)
- o   Other (3)

Q41 What is your age?
- o   18 (1)
- o   19 (2)
- o   20 (3)
- o   21 (4)
- o   22 (5)
- o   Other (6) _____

Q38 Which of the following best describes you?
- o   Freshman (1)
- o   Sophomore (2)
- o   Junior (3)
- o   Senior (4)
- o   Other (5)

Q39 Are you a Student-Athlete?
- o   Yes (1)
- o   No (2)

End of Block: Block 4

Start of Block: Rate your satisfaction of the following parts of your own body

Q1 Rate your satisfaction with the following parts of your own body.
(Click on the arrow after each question)

Q40 Feet
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q2 Legs
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q3 Hips
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q4 Waist
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q5 Stomach
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q6 Chest
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q7 Shoulders
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q8 Arms
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q9 Neck
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q10 Lips
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q11 Nose
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q12 Eyes
- o Not at all satisfied (1)
- o Not quite satisfied (2)
- o Somewhat satisfied (3)
- o Satisfied (4)

Q13 Ears
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q14 Head
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q15 Hair
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

Q16 Hands
- o   Not at all satisfied (1)
- o   Not quite satisfied (2)
- o   Somewhat satisfied (3)
- o   Satisfied (4)

End of Block: Rate your satisfaction of the following parts of your own body

Start of Block: feedback

Q36 Feedback Letter

Thank you for participating in my study. The present study was conducted in order to determine whether students generally have a negative or positive body image. I also hope to see if there is a difference between male and female students, and between student-athletes and non-student-athletes. Based on previous research, I hypothesize that the majority of students have a positive body image and that male student athletes are more satisfied with their body than female student athletes.

Please note that I am not interested in your individual results; rather, I am only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for me to trace your responses on an individual basis.

If you are interested in obtaining the final results of this study based on aggregate data, or if you have any questions or concerns regarding any portion of this study, please do not hesitate to let me know 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:
Noor Fons (noorfons@upcmail.nl)

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

IRB Director:
Michael Leary 636-949-4730 Mleary@lindenwood.edu

Appendix B

Recruitment Description

This study focuses on the body image of students. You will be asked to complete a short survey about body image. The entire procedure should take no more than 15 minutes of your time.

What's Your Motivation?

Jacob Klein[2]

Motivation is the backbone of reasoning as to why human beings accomplish any task. This makes it essential that we study the effects of different styles of motivation. There is a large amount of supporting evidence that claims intrinsic motivation can be more beneficial to quality of performance than extrinsic motivation. (Pink 2012) This is exactly why I conducted this study. Going to a university that is so keen on athletics, motivation is a very hot topic. What motivates us can be an important factor to being successful in any endeavor. This research studied the effects of both intrinsic and extrinsic motivation on two groups of participant's abilities to throw a ball into a cup. Two groups were split and defined as intrinsically and extrinsically motivated. I compared the amount of balls made between both groups. I hypothesized that the group that was intrinsically motivated will throw more balls into the cup than the extrinsically motivated group.

Extrinsic motivation can be defined by performing for an external reward, such as trophies, money or incentives. Intrinsic motivation can be defined as the desire to do things because they matter, because we like it, they're interesting, or part of something important (Pink 2012). Pink (2012) also believes that extrinsic motivation can actually have a negative effect on the quality of one's performance. Extrinsic motivation can turn a fun task into an unwanted job. On the other hand, intrinsic motivation is said to be beneficial to the quality of one's performance because of the autonomy and self-interest that is associated with an intrinsically motivated mindset.

One important aspect of intrinsic motivation is autonomy. Autonomy is the ability to have freedom of choice. When we have autonomy, we are able to govern ourselves and make our own decisions. Research has found that an autonomous style of teaching is correlated to an

[2]Jacob Klein Department of Psychology, Lindenwood University. Correspondence concerning this article should be addressed to Jacob Klein, Department of Psychology, Lindenwood University, MO 63303. Email: JNK004@lindenwood.edu

intrinsic style of motivation in students. An autonomous teacher is one who lets their

students work independently as well as gives them options that allow for personal initiative.

When a teacher uses this style of teaching, the students are found to be more intrinsically

motivated in the activities they participate it. (Balaguer, Cstillo, Duda, Quested, & Morales,

2011)

A study based off self-determination theory looked at the relationship between self-

reported work effort and motivation in a group of 206 Dutch participants who volunteered to

work for non-profit organizations. Self-determination theory, otherwise known as (SDT) is

a systematic approach to studying human motivation as well as personality. SDT goes off the

basis that humans have an evolved inner desire for personality development and behavioral self-

regulation (Ryan, Kuhl, & Deci, 1997). "The basic assumption of SDT is the belief that the

quality of motivation is at least as important as the quantity of motivation" (Deci and Ryan 1985

as cited in (Bidee et al., 2013, para. 7)). This study categorized their participants in

two categories: controlled motivation or autonomous motivation. The research suggested that the

volunteers that had a more autonomous motivation style showed a better work effort than those

that showed a more controlled motivation style. (Bidee et al., 2013, para. 7).

Reward can have an interesting effect on behavior. Pink (2012) references Mark Lepper,

David Greene and Robert Nisbett's work in his book *Drive*. The three researchers conducted a

study that has become legendary in the field of psychology. The researchers went to a preschool

classroom for a couple days where they identified the children who spent their "free play" time

drawing. They then made an experiment dividing these students into three separate groups:

expected-award, unexpected-award and no-award. The expected-award group was told that if

they wanted to draw they would receive a "Good Player" certificate that had a blue ribbon as

well as their name printed on the certificate. The unexpected-award group was just asked if they

wanted to draw. The participants that drew received the "Good Player" certificate. The no-award

group was asked to draw as well. This group was not told about the "Good Player" certificate nor

given one if they decide to draw. A couple weeks later, the teacher of the classroom placed

markers and paper out during free play. The researchers secretly monitored the students. They

found that the participants that were in the unexpected-award and no-award groups drew the

same amount as they previously did before the study. The children in the expected-award group

showed a lot less interest in drawing as well as spent a lot less time drawing. This type of if-then

reward system can be detrimental to interest. Research in 128 experiments has shown that

tangible reward can negatively affect one's intrinsic motivation (Pink, 2012, p. 39).

External reward is diminishing motivation not just in the classroom, but in the workforce

as well. In the nursing field, there are constantly new technological and medical advances

happening on the regular. What was said to be the best treatment a year ago may be completely

outdated today. This makes it essential that these nurses are constantly continuing their

education even though they may already have had the same job title for quite some time. Sadly,

many of the educational programs for nurses are driven by extrinsic motivation. A lot of the

nursing programs only give rewards that are extrinsic in value. These tactics encourage these

trainees to avoid penalties as well as only promotes simple engagement (Tranquillo and Stecker,

2016, para. 9). In a field that requires lifelong learning, it is essential that nurses are constantly

continuing their education not for external reward or avoidance of penalties, but because they

want to pursue their craft to the best of their ability.

All of this research has led me to create this study. I have measured the amount of ping-

pong balls two separate groups can make into an individual cup in five tries. I separated the two

groups as either intrinsically or extrinsically motivated. My hypothesis is that the intrinsically

motivated group will make more cups that extrinsically motivated group.

Method

Participants

All of the students that took part in the study were students at Lindenwood University. There were 8 total participants that took part in this study, 4 males and 4 females. The average age of the intrinsically motivated group was (*M = 21.5).* The average age for the extrinsically motivated group was (*M = 20.75).* Participants had two different ways to sign up for the study. Participants could either sign up through The Lindenwood Participant Pool (LPP) or through personal contact with me through A Facebook posting. Those that would have chosen to sign up through the LPP would have received 2 extra credit points. Although, all 8 participants signed up through personal contact. None of the participants were recruited through the LPP program. There for, none of these participants received extra credit points for their participation. All participants were eligible to be entered into a drawing for a $30 Starbucks gift card.

Materials and Procedure

Participants were split into one of two groups, "Intrinsic" or "Extrinsic" motivation. Each group was given a different informed consent form to ensure the nature of the study (see Appendices A & B). The groups were split evenly across the entire sample size. All participants were tested individually. Those that were in the "Intrinsic Motivation" group, began the study by watching a short clip (TED 2009) of a speech by author Daniel Pink (see Appendix C). The purpose of this video was to ensure an intrinsic mindset for this group of participants. After the completion of the video, the participants were asked to play a game to the best of their ability. The participants were handed a ping pong ball and asked to stand behind a tapped line that was 8 ft. away from a table standing approximately 27 in. in height. On the table is a singular cup filled halfway with water to ensure stability. (see Appendix D).

The participants were asked to toss the ball into the cup to the best of their ability. They received

five attempts total. Those that made three out of five attempts into the cup, were entered into a

drawing to win a $30 Starbucks gift card (see Appendix E). Participants will be asked to write

down their email address so they can be contacted if they win the drawing (see Appendix F). The

Intrinsic Motivation group was not told about the Starbucks drawing until after all

five tosses were completed. The Extrinsic Motivation group did not watch the Daniel Pink

clip. Instead, they were told about the Starbucks gift card drawing before they attempted the

game. This ensured an extrinsic mindset for this group of participants. After both groups

completed the game, the participants were debriefed with a feedback letter to ensure

comfortability and an understanding of the study (see Appendix G).

Results

I hypothesized that the intrinsically motivated group would throw more balls into the cup

than the extrinsically motivated group. I conducted a between subjects independent samples *t*-

test comparing the number of balls made between the intrinsically (*M =.5, SD = .5744*) and

extrinsically motivated groups (*M =0, SD = 0)*. Analysis revealed a statistically nonsignificant

difference between the two groups, $t(6) = 1.7320$, $p = .067$. Even though there was a statistically

nonsignificant difference between the two groups, my hypothesis as supported numerically. The

intrinsically motivated group did throw more balls into the cup than the extrinsically motivated

group. The intrinsically motivated group made 2 out of 20 shots as a group. The extrinsically

motivated group made 0 out of 20 shots as a group. In both groups, 0 participants qualified

themselves for the Starbucks gift card drawing.

Discussion

Although the results showed that there was no statistical significant between the two

groups, the data suggests a trend in support of my hypothesis. The intrinsically motivated

group did make more cups than the extrinsically motivated group. The intrinsically motivated group was actually the only group that threw a ball into the cup. This statistical non-significance can be attributed to the small sample size as well as the small number of trials each participant was given. Although there was not a large number of balls made in the intrinsically motivated group, there is something to be said about the fact that the extrinsically motivated group did not even make one shot. According to Pinks (2012), it is possible that the external reward ($30 Starbucks gift card) had a negative effect on the performance of the extrinsically motivated group.

There were a few limitations of this study. If I could have, I would have increased the amount of time I had to collect data. This would have allowed me to gather a larger sample size. I also think that a larger amount of shots for each participant may have led to more overall shots made because of the difficulty of the task.

If this study was to be done again in the future, I feel there are a couple areas of the study that could potentially be changed or done differently. As for both groups, I think they were both true to their labels of being intrinsically or extrinsically motivated. In the future, I would have physically shown the extrinsically motivated group the Starbucks gift card before they completed their trials. As stated in the literature before, A key aspect to intrinsic motivation is autonomy. When it comes to the intrinsically motivated group, allowing for more autonomy in certain areas may have led to a more intrinsically motivated mindset. I think it would be interesting to find out if I did not tell the participants where to stand, where they would have stood when doing their trials. Another way to do this study is time trials instead of a set 5 throw limit. This could potentially allow the participants to have more shots to try different techniques of the most ideal way to throw the ball into the cup. I decide to use a set number of shots over a set interval of time based on Ryan and Deci's self-determination. These researchers

stated that quality is just as important as quantity. For this study, I feel that a larger quantity of shots may have hindered the quality of each shot. This study does suggest the potential negative influence if-than reward can have on quality of performance as well as the potential positive influence intrinsic motivation can have on quality of performance.

I decide to put this research together because of the importance of understanding motivation. Many corporations and sports team are always looking for the best ways to motivate their employees or team members to insure the most quality performance on a day to day basis. Further research needs to be done on motivation to continue to come up with ideal training programs and methods to ensure quality performance. Enjoy the next task you do not for the external reward behind completion, but for the sole purpose of completing the task to the best of your ability.

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Appendix A

Informed Consent Form for Intrinsic Motivation Group

What's Your Motivation?

You are asked to participate in a research study being conducted by Jacob Klein under the guidance of Dr. Nohara-LeClair at Lindenwood University. Being in 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?
I am doing this study to explore the effects of intrinsic and extrinsic motivation. I will be asking about 20 other people to answer these questions.

What am I being asked to do?
You will watch a short 8-minute speech by Daniel Pink, author of the book *Drive*. Pink explains the difference between intrinsic and extrinsic motivation as well as both their effects on the human mind. After completion of the video, you will be asked to toss a ping pong ball into a plastic cup. After completing this task, you will be given a feedback letter and the session will be over.

How long will I be in this study?
15-20 minutes

What are the risks of this study?
Privacy and Confidentiality
I will not be collecting any data that could identify you.
The data will be kept securely and will only be accessible to the researcher.

What are the benefits of this study?
You may benefit from this study. These potential benefits are more knowledge of intrinsic and extrinsic motivation.

Will I receive compensation?
To thank you for taking part in my study, you will receive 2 extra credit points through the LPP if you were recruited through the Lindenwood Participant Pool. No other compensation will be guaranteed.

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 benefits. If you would like to withdraw from the study, please notify the researcher immediately.

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. I will notify you as soon as possible if such information becomes available.

How will you keep my information private?
I will do everything we can to protect your privacy. I 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: the researcher, qualified staff of Lindenwood University, and 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. You can contact the researcher, Jacob Klein directly at 631-316-4966 or JNK004@lindenwood.edu. You may also contact Michiko Nohara-LeClair at 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. I verify that I am at least 18 years of age or have a parental consent form filed with the LPP.

_____   _____

Participant's Signature   **Date**

_____

Participant's Printed Name

_____   _____

Signature of Principal Investigator or Designee   **Date**
_____

Investigator or Designee Printed Name

Appendix B

Informed Consent Form for Extrinsic Motivation Group

What's Your Motivation?

You are asked to participate in a research study being conducted by Jacob Klein under the guidance of Dr. Nohara-LeClair at Lindenwood University. Being in 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?
I am doing this study to explore the effects of intrinsic and extrinsic motivation. I will be asking about 20 other people to answer these questions.

What am I being asked to do?
You will be asked to toss a ping pong ball into a plastic cup. After completing this task you will be given a feedback letter and the session will be over.

How long will I be in this study?
15-20 minutes

What are the risks of this study?
Privacy and Confidentiality
I will not be collecting any data that could identify you.

The data will be kept securely and will only be accessible to the researcher.
What are the benefits of this study?
You may benefit from this study. These potential benefits are more knowledge of intrinsic and extrinsic motivation.

Will I receive compensation?
If you get three out of five shots in the cup, you will be entered into a drawing for a $30 gift card to Starbucks. Students who sign up through the LPP will receive two extra credit points.

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 benefits. If you would like to withdraw from the study, please notify the researcher immediately.

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. I will notify you as soon as possible if such information becomes available.

How will you keep my information private?

I will do everything we can to protect your privacy. I do not intend to include information that could identify you in any publication or presentation. Any information I collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: the researcher, qualified staff of Lindenwood University, and 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. You can contact the researcher, Jacob Klein directly at 631-316-4966 or JNK004@lindenwood.edu. You may also contact Michikko Nohara-LeClair at 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. I verify that I am at least 18 years of age or have a parental consent form filed with the LPP.

_____								_____

Participant's Signature											**Date**

_____

Participant's Printed Name

_____							_____

Signature of Principal Investigator or Designee						**Date**

_____

Investigator or Designee

Appendix D

Water Pong Game

Appendix E

$30 Starbucks Gift Card

Appendix F

Contact sheet for Starbucks Drawing

If you would like to be entered into the drawing for the $30 Starbucks gift card, please provide us with an email address we can contact you at. If you would not like to provide this information you will still receive your two extra credit points from the LPP only if you sign up through the LPP. You will not be entered into the drawing if you do not provide this information.

Email:

Appendix G

Feedback letter

Feedback

The purpose of this research is to study the differences between those that are intrinsically motivated and those that are extrinsically motivated through a game that involves tossing a Ping-Pong ball into a cup. It is important to not just look towards external reward when completing a task but looking for a deeper purpose internally. Many people go to college because they want to make a lot of money not because they want to increase their intelligence. Many people play sports because they want to get a trophy, not because they want to experience trying their hardest. There were two different groups in this study. One group driven by extrinsic motivators and the other driven by intrinsic motivators. I hope you enjoyed this study as well as learned how either intrinsic or extrinsic motivation effects your performance. Any question you can contact Jacob Klein at JNK004@lindenwood.edu or Dr. Michiko Nohara-LeClair at mnohara-leclair@lindenwood.edu. Thank you for participating.

Sincerely,
        Jacob Klein

Appendix H

Facebook Recruitment Post

Hello!
What motivates you? Come find by playing every college students favorite game, water pong. I am conducting a research study on behalf of my advanced research methods class at Lindenwood University. This research will take about 15-20 minutes to complete. This research is completely anonymous, and your participation is voluntary. You have the ability to stop being a part of the research at any point you feel necessary. Please share this post so I can reach as many people as possible!

Thank you,
Jacob Klein (Primary Researcher)
JNK004@lindenwood.edu

LPP Description

What motivates you? Come find by playing every college students favorite game, water pong. This research will take about 15-20 minutes to complete. This research is completely anonymous, and your participation is voluntary. You have the ability to stop being a part of the research at any point you feel necessary.

Appendix I

Debriefing Questionnaire

1. What is your gender identity?

2. How old are you?

3. On a scale of 1-5, 1 being did not like at all and 5 being favorite study ever, how much did you like this study?

4. Please explain answer for 3?

5. What motivates you?

6. Are you more motivated by money or self-fulfillment? Circle one.

    Money   Self-fulfillment

Perceptions of Coaches and Athletes on Motivation Methods

Tereza Melicharkova[3]

The purpose of this study is to compare the coaches' and athletes' perception on motivational techniques. The interest of this study was to see if the coaches' perception on the motivational techniques match with the perceptions of the athletes. Therefore, I used two different surveys; one for coaches and one for athletes. These surveys were really similar to each other. However, they differ in one section where coaches were asked to answer questions about motivational techniques that they apply to their athletes. Whereas the athletes were asked to give their personal opinion on the coaches' motivational techniques. My hypothesis was that coaches would apply different motivational techniques for different athletes. My data did not support my study. When I compared coaches' and athletes' open questions, I found that coaches and athletes agreed on most of them. I also found that most of the athletes were happy with the motivational techniques that their coaches used; therefore, the athletes reported that they would not like to change anything in the way their coaches use the motivational techniques. Finally, I also ran 3 Independent Samples t-tests that did not show any significant differences between coaches' and athletes' responses.

This study was focused on perceptions of coaches and athletes on motivation methods. As we know, motivation is one of the biggest parts in today's sports and life. Every single person has different methods of how to motivate themselves to do something.

There are a lot of studies that look at the perceptions of coaches and athletes on motivation methods. All the studies are focused on communication, relationships between the coach and athlete, age of the athletes and coaches' motivational techniques and styles. For instance, Lester (2015) was looking at intrinsic motivation through the satisfaction of basic psychological needs such as relatedness, autonomy and competence. This study was also focused on different types of motivational techniques. Lester (2015) found that there is a relationship

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between coaches' motivational techniques and basic needs. His study also found that coaches'

motivational techniques and behaviors affect the athletes' intrinsic motivation. This study

brought a profound realization on the importance of the different athletes' personality, age, or

gender among all of the athletes.

Another study which was conducted by Bozidar, Ivana, Milan, and Miran (2014) was

focused on psychological skills of young tennis players and their relations with coaching

feedback and leaders' behavior. This study was also focused on age, gender and the town where

the young athletes practiced. They found out significant differences in psychological

characteristics of athletes based on their age, gender and town where they practice, as well as a

significant correlation between the feedback of coaches and their leadership style and

psychological characteristics of the athletes (Bozidar, et al., 2014). Bozidar et al. (2014)

found important aspects of motivation which can bring alertness and awareness of the

importance of motivation in sports.

Frederick and Morrison (1999) were concerned about the motivational styles of the

National Collegiate Athletic Association (NCAA) Division I and II male and female

head coaches. This study was focused especially on the differences between male and female

motivational styles and techniques and their intrinsic and extrinsic motives. Frederick and

Morrison (1999) found that the coaching styles and techniques are based on their decision-

making style and their personality characteristics.

There was also a study that was focused just on the intrinsic and extrinsic motivation of

the athletes in their sport. However, Mallett, Kawabata, Newcombe, Otero-Forero, and Jackson

(2007) wanted to develop a revised version of the Sport Motivational Scale (SMS), including

integrated regulation. They found a positive correlation between the SMS-6, which was a

revision of a six-factor 24-item scale, and the dispositional flow scale-2 (DFS-2) factors. This correlation supported the concurrent validity of the revised scale.

Le Roux (2010) was focus on the importance of coaches' knowledge about sport psychology and motivational techniques. He wanted to see if coaches receive any practice in sport psychology. What he found was that coaches have little knowledge about the importance of sport psychology and therefore they are not able to apply nor present the motivational techniques to their athletes. Le Roux (2010) asked the participants to assess the importance of a selected number of 26 aspects about coaching of sports on a 9-point Likert scale. He found that from these 26 aspects, coaches ranked the children as a number 16. Therefore, this study found out that coaches put less importance on the children that they are coaching and more importance on goal setting.

Nicholls, Perry, and Calmeiro (2014) were focused on cognitive-motivational-relational theory of emotions along with the effect on stress appraisals, coping, emotions and goal achievement of the athletes. This study was looking at a bigger range of athletes; they were looking at contact and noncontact individual or team sports. Nicholls et al. (2014) were also looking at coping styles. In other words, this study was looking at different techniques and tasks that could help increase positive emotions and motivations of the athletes. Therefore, Nicholls et al. (2014) found that unpleasant emotions were positively correlated with treatments, motivational relevance was positively correlated with unpleasant emotions and also partly associated with a negative correlation of pleasant emotions.

Finally, all previous studies showed that there is a relationship between the coaches' motivational techniques on their athletes and the satisfaction of their athletes. Therefore, I conducted the present study to see if the perception of the coaches' motivation methods fits and match the perception of the athletes. I was interested in different coaches' motivational

techniques, their attention to the motivation, purpose of their motivation and anything that could possibly influence their motivational techniques. I was also interested to see if athletes found the motivational methods of their coaches suitable for them. I wanted to know if they like the way their coaches motivate them, if they think it is helpful to them and if there is anything they would like to change about the motivation their coaches provide to them.

I created an online survey to give out to coaches and athletes. Lester (2015) used three different questionnaires which can also be found in my study. Bozidar et al. (2014) also used three different types of measurements that I found helpful for my study. They were looking at many different aspects that could possibly influence the effectiveness of the motivational techniques. Thanks to their findings I was able to create more specific questions for the athletes and coaches. Frederick and Morrison (1999) used four different measurements from which I also drew ideas for my own questions that I included in my study. The reason why I used the study from Mallett et al. (2007) was because I really liked their revision of the SMS scale and I found it helpful for my study. Le Roux (2010) pointed out that our coaches do not have enough education in sport psychology, therefore it is difficult for these coaches to use the motivational techniques in an effective way. That is why I asked a question about the highest earned degree in my demographic questions because I was curious to see if any of the coaches had earned a degree that was somehow related to sports.

Nicholls's et al. (2014) study helped me to see how important it is to try different motivational techniques. Their questionnaire was also a good inspiration for my own survey questions. My study could be beneficial to both athletes and coaches. If coaches know how to motivate their athletes, the success of the team will increase, thus, the coaches and athletes could have better results.

Method

Participants

Athletes and coaches from Lindenwood University were recruited through the coaches' email addresses that I got from the Lindenwood University Athletic website. An email was sent to Lindenwood University coaches, and these coaches were asked to send this survey to their athletes. There were 4 coaches, and 32 student-athletes total that took the survey. The average age of the coaches was 33 years old ($SD = 4.32$) and the average age of the athletes was 20.09 years old ($SD = 1.47$). In this survey, there was 1 female coach, 3 male coaches, 9 female student-athletes, and 23 male student-athletes. I included in my demographic inquiry a question about the highest level of education they have completed or the highest degree they have received. Findings showed that 14 athletes reported that they have received some college degree, 9 athletes reported that they have received high school graduate (GED), 4 athletes reported that they have received associate degree in college (2-year), and 5 athletes reported that they have received bachelor's degree in college (4-year). Findings also showed that 3 coaches reported that they have received master's degree and only one coach reported that he or she received bachelor's degree in college (4-year).

Materials and Procedure

To create my survey, I began by logging onto Qualtrics where I composed my informed consent statement where I acquainted coaches and athletes with my study, along with demographic questions about their sex, age, and highest earned degree. Both coaches and athletes had three sections which were the same for both of them. They also had a different section of my own questions which were focused on motivation. In an online survey platform, I uploaded 30 types of questions from Lester (2015) (see Appendix A). From Lester (2015), I used only 30 questions from her question sequences; Leadership Scale for Sports, Why Do You

Participate in Sport, and The Basic Needs Satisfaction in Sport Scale, because I did not find the rest of the questions important for my survey. I also used three questions from Mallet et al. (2007), because I found them suitable for my survey. I added these questions into my sequence questions of "I participate in my sport because…." I finished my survey with a debriefing statement where I thanked the coaches and athletes for completing my survey.

In the beginning of my survey, coaches and athletes first read the informed consent statement that acquainted them to my survey and the types of questions. I also assured them that there will be full confidentiality and that this study does not contains any risks. Then I provided them my contact information along with contact information for my faculty supervisor, Michiko Nohara-LeClair if my participants would have any questions. Each participant was asked to agree with the informed consent statement if they were at least 18 years or older. If not, they could not participate in my study.

My survey then flowed into questions from the Leadership Scale for Sports (Lester, 2015). These questions were focused on leadership skills, communication, and understanding of the coaches and athletes. From these questions I could see how coaches and athletes communicate and understand each other and how strong their leadership skills are. The next sequence of questions was about why athletes and coaches participate in their sport (Lester, 2015; Mallett et al., 2007). From these questions I could see what factors drive and motivate athletes and coaches to participate in their sport. The last sequence of questions was focused on The Basic Needs Satisfaction in Sport Scale (Lester, 2015). From these questions I could see if coaches and athletes enjoy what they are doing and if they are motivated in their sport. After participants answered these three sequences of questions, I asked them demographic questions focused on gender, age, the highest degree they have received and if they are athletes or coaches. At the end of my survey, I provided a debriefing statement along with information

about the purpose of my study to the coaches and athletes where I also thanked them for taking

my survey. I also mentioned that I am not allowed to provide them any individual

findings because my survey was anonymous. Nevertheless, I provided them my contact

information and told them that if they would have any further questions they are more than

welcome to contact me in that way I could provide them the final results upon completion of my

study. After I closed my survey, I conducted data analysis on Microsoft Excel.

Results

I hypothesized that coaches would apply different motivational techniques for different

athletes. I clarified this idea with other articles that supported the fact that every person is

different. Therefore, each athlete will respond differently to varying motivational techniques. I

also took a look at how the coaches' perception on motivation match with the perception of

athletes. That is why I hypothesized that there would not be a positive correlation between

coaches' and athletes' perception on motivation. However, my hypotheses were not supported.

First, I took a look at the open questions from coaches and athletes. For the question:

"Please give an example of how you use different motivation methods for your athletes," most

of the coaches said that they are using different motivational techniques based on the personality

of their athletes, and they also said that they are using positive reinforcement as a motivational

technique. One coach said that he also uses positive punishment. The next question asked:

"Please explain why you find it more difficult to motivate athletes of one gender over the other."

However, only two coaches answered this question. One coach said that if the athletes do not

listen they lose their motivation. Another coach said "Female athletes require more consistent

communication and positive reinforcement. Male athletes require more structure and a strong

leader both within the team and from the coaching staff. Once male athletes buy-in it is easier to

keep them motivated. Female athletes typically show more instability in their mental fitness and

have to feel supported more often." I found this answer really suitable and true. I was also

wondering how many hours coaches spend motivating their athletes a week. The majority of

the coaches reported that they spend between 10 to 20 hours a week motivating their athletes.

Another question that I found really important to ask was: "How effective do you think your

motivation methods are in helping your athletes?" Three coaches reported very effective and 1

reposted moderately effective. Therefore, I asked them: "What evidence do you have that

indicates the effectiveness of your motivation methods? Please provide examples." The majority

of the coaches said that they indicate the effectiveness of their motivation methods by success of

the team. However, only one coach said that he indicates it by feedback from his/her athletes. I

found these answers really surprising because I think that the most important way to find if the

motivation methods are effective is by the feedback from the athletes. I also wanted to know if

the coaches use different motivational techniques in the beginning and the end of the

season. However, only 2 coaches reported "Yes." Finally, I asked them, "Why do you use

different motivation methods at different points in a season?" Those who said yes reported that

they use different motivational methods because the same methods can get old or

the team/athlete can get used to them. However, only one coach said that it depends on what the

individual or team needs.

Second, I looked at the open answers from athletes and tried to match them with the

coaches' answers. The first question I asked was if the athletes like the way their coach

motivates them, and 75% said "Yes" and 21.88% said "No". I then wanted them to explain their

answer. The majority of the athletes who reported that they like the way their coaches motivate

them said that their coaches motivate them, they use real life situations, or make sure that they

are being loved. On the other hand, those who reported that they do not like the way their

coaches motivate them said that the coaches bully the athletes or push the athlete way too much

over their boundaries. Then I asked if the athletes think that their coaches use different

motivational techniques, and 50% of athletes reported "Yes" and 46.88% reported "No." Again,

I asked them to explain their answer. However, a lot of athletes skipped this

question. Nevertheless, those who answered said that the coaches used different drills, speeches,

or achievable goals. On the other hand, some athletes reported that their coaches use threats,

pressure, no attention, or they yell at them. Next, I wanted to know if the athletes find these

motivational methods helpful to them, and 62.5% reported "Yes" and 18.75% reported "No." I

again asked them to explain their answer. Once more, a lot of athletes did not answer this

question. The majority of the answers where positive, and the athletes said that their

coach pushes them to become better and more successful. Other athletes said that their coaches

do not know how to motivate them at all, or that they treat them really badly. Finally, I wanted to

know if there is anything the athletes would like to change in the way their coaches motivate

them, and 31.25% said "Yes" and 50% said "No." I also asked them to explain their answer.

Even though a lot of athletes skipped this answer, half of the athletes said that they would not

change anything, and the other half that reported that they would like their coach to use more

positive reinforcement, and that they would also want their coach to be more positive and

supportive.

After I collected these data I ran 3 Independent Samples t-tests to see if there is any

correlation between the coaches' and athletes' answers. First, I ran the Independent Samples t-

test to compare coaches' and athletes' answers for the motivational techniques questionnaire. A

related sample t-test was conducted and found that the athletes' answers ($M = 3.46$, $SD = 1.01$)

were not significantly different than coaches' answers ($M = 3.52$, $SD = 0.18$), $t(26) = -0.12$, $p =$

0.90. Therefore, there was no difference between the athletes' and coaches' responses.

Next, I also ran the Independent Samples t-test to compare coaches' and athletes' answers in the basic needs satisfaction questionnaire. A related sample t-test was conducted and found that the athletes ($M = 3.63$, $SD = 1.19$) were not significantly different than the coaches ($M = 4.07$, $SD = 0.81$), $t(24) = -0.62$, $p = 0.54$. Therefore, there was no difference between the athletes' and coaches' answers.

Finally, I ran the last Independent Samples t-test to compare coaches' and athletes' answers for "I participate in my sport… questionnaire." A related sample t-test was conducted and found that the athletes ($M = 3.91$, $SD = 0.64$) were not significantly different than the coaches ($M = 3.96$, $SD = 0.51$), $t(26) = -0.15.$, $p = 0.89$. Therefore, there was no difference between the athletes' and coaches' answers.

Despite the fact that my hypotheses were not supported, these results could help coaches to improve their motivational techniques or learn new ideas about these techniques. This study can also help them to realize the importance of the different motivational methods as well as the fact that listening to what their athletes say is crucial.

Discussion

It is important to realize that motivation is the most important aspect of success in today's sports. That is why it is important to make sure that coaches' perception on motivational techniques match with the perception of their athletes. This study found that coaches' and athletes' perceptions on motivational techniques match. I also found that athletes like the way their coaches use the motivational techniques; therefore, the athletes mostly reported that they would not like to change anything about the motivational techniques their coaches are using.

Previous studies found out that coaches' and athletes' perception does not match with each other. These studies also found that coaches do not pay enough attention to the athletes needs and that they do not take into consideration differences among these athletes. Based on

these findings, studies also found that it is important to use different motivational techniques for each athlete. However, my study did not support the previous studies as well as my hypotheses. There could be a lot of reasons why my study did not support any of these findings nor my hypotheses. One could be the sample size. I had a lot of athletes; however, I only had 4 coaches who finished my survey. Also, the length of my study could be the reason why my study did not show any significant differences between the coaches' and athletes' perception on motivational techniques. There were a lot of athletes and coaches who stopped answering the question as the survey continued.

There could also be one confounding variable that could affect my study and that was busy schedules of both athletes and coaches. I had only a month to post my survey and collect my data. I posted my survey in March, and a lot of athletes and coaches were in a season at that time. That could be one reason why I did not get enough participants or why a lot of participants skipped a lot of my questions. Another factor that could influence my data could be fatigue. A lot of participants gave me feedback that my survey was way too long and that they got tired of it after a while. That is why next time I would definitely make my survey shorter, with more specific and clear questions, and with only one target.

Finally, the reason my study did not support any of the other studies or my hypotheses could be because of an improvement of the coaches' knowledge about motivational techniques and individual needs and differences of their athletes. Future studies should look more specifically at motivational techniques that positively or negatively influence those athletes. Studies should also take a look at how difficult it is for coaches to apply specific types of motivations (e.g. external vs. internal motivations).

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Appendix A

Informed Consent form/Leadership Scale for Sports/ Why Do Athletes and Coaches Participate in their Sport/ The Basic Needs Satisfaction in Sport Scale/Debrief Statement form

Perceptions of Coaches and Athletes of Motivation Method

Start of Block: Informed Consent Statement

Q10 Informed Consent Form Introduction
   My name is Tereza Melicharkova and I am conducting this project at Lindenwood University, I am also enrolled in the PSY40400: Advanced Research Methods.

Procedures

This survey asks you to respond to a few demographic items as well as questions asking about your Leadership Scale for Sports, Behavioural Regulation in Sport Questionnaire, and The Basic Needs Satisfaction in Sport Scale (Lester, 2015 & Mallett, Kawabata, Newcombe, Otero-Forero, & Jackson, 2007). The Leadership Scale for Sports is focuses on leadership skills, communication and understanding of coaches and athletes. The Behavioural Regulation in Sport Questionnaire is focus on what drives and motivates athletes and coaches to participate in their sport. The Basic needs satisfaction in Sport Scale is focus on if coaches and athletes enjoy or not what they are doing and if they are demotivated or motivated in their sport . This survey can be used in order to see how the perceptions of coaches and athletes match up with each other. This study will be conducted online through a 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. 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
   You will gain experience taking part in a psychological survey project and potentially learn more about the field. The whole team, coaches, and individual athletes could benefit from this study. Coaches may gain more ideas into how best to motivate their athletes, which can lead to increased success of the team. Athletes can gain more awareness of their needs and the right motivational techniques for them.

Confidentiality

No personally identifying information will be collected, including your IP Address and sport. 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 Melichárková at tm787@lindenwood.edu or (636)288-9653 or direct your inquiries to the course professor, Dr. 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 read the above information. You voluntarily agree to participate. You are at least 18 years of age, and you are a coach or athlete at Lindenwood University.

Q11 I have read and understood 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 and understood the above consent form and desire of my own free will to participate i... = Do Not Agree

Display This Question:

   If I have read and understood the above consent form and desire of my own free will to participate i... = Agree

Q12 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

End of Block: Informed Consent Statement

Start of Block: Demographic questions

Q8 What is your sex?

○ Male (1)

○ Female (2)

Q11 How old are you?

_____

Q10 What is the highest level of schooling you have completed or the highest degree you have received?

○ Less than high school degree (1)

○ High school graduate (high school diploma or equivalent including GED) (2)

○ Some college but no degree (3)

○ Associate degree in college (2-year) (4)

○ Bachelor's degree in college (4-year) (5)

○ Master's degree (6)

○ Doctoral degree (7)

○ Professional degree (JD, MD) (8)

Q59 Are you a coach or an athlete?

◯ Coach (1)

◯ Athlete (2)

End of Block: Demographic questions

Start of Block: For Coaches

Q77 Do you use different motivation methods for your athletes?

◯ Yes (1)

◯ No (2)

Display This Question:

    If Do you use different motivation methods for your athletes? = Yes

Q60 Please give an example of how you use different motivation methods for your athletes.

_____

Q78 Which athletes do you coach?

◯ men only (1)

◯ women only (2)

◯ both men and women (3)

Display This Question:

    If Which athletes do you coach? = both men and women

Q76 Do you find it more difficult to motivate men or women?

○ men are more difficult (1)

○ women are more difficult (2)

○ men and women are about the same (3)

Display This Question:

  If Do you find it more difficult to motivate men or women? != men and women are about the same

Q61 Please explain why you find it more difficult to motivate athletes of one gender over the other.

_____

Q62 How important is an athlete's level of motivation for you?

○ Extremely important (1)

○ Very important (2)

○ Moderately important (3)

○ Slightly important (4)

○ Not at all important (5)

Q63 How many hours a week do you spend on motivating your athletes?

_____

Q79 Do you read any books or articles on motivation?

◯ Yes (1)

◯ No (2)

Q64 What are examples of some books or articles you have read on motivation?

_____

Q65 How did you learn to motivate your athletes?

_____

Q80 How effective do you think your motivation methods are in helping your athletes?

◯ Extremely effective (1)

◯ Very effective (2)

◯ Moderately effective (3)

◯ Slightly effective (4)

◯ Not effective at all (5)

Q66 What evidence do you have that indicates the effectiveness of your motivation methods? Please provide examples.

_____

Q81 Do you use different motivation methods at the beginning of a season compared to the end of the season?

○ Yes (1)

○ No (2)

Q67 Why do you use different motivation methods at different points in a season?

_____

Q68 Please indicate the factors you consider when choosing the appropriate motivation methods for your athletes.

_____

Page Break ——————————————————————————————————————

Q88 Please read the following statement and indicate how often each statement is true.

	Never (1)	Sometimes (2)	About half of the time (3)	Most of the time (4)	Always (5)
I make sure that each athlete's part in the team is understood by all the athletes. (1)	○	○	○	○	○
I instruct every athlete individually in the skills of the sport. (2)	○	○	○	○	○
I explain to every athlete what he/she should and what he/she should not do. (3)	○	○	○	○	○
I figure out ahead on what should be done. (4)	○	○	○	○	○
I explain how each athlete's contribution fits into the total picture. (5)	○	○	○	○	○
I point out each athlete's strengths. (6)	○	○	○	○	○

I point out each athlete's weaknesses. (7)	○	○	○	○	○
I give specific instructions to each athlete as to what he/she should do in every situation. (8)	○	○	○	○	○
I ask for the opinion of the athletes on strategies for specific competitions. (9)	○	○	○	○	○
I get group approval on important matters before going ahead. (10)	○	○	○	○	○
I let my athletes share in decision making. (11)	○	○	○	○	○
I encourage athletes to make suggestions for ways of conducting practices. (12)	○	○	○	○	○
I let the group set its own goals. (13)	○	○	○	○	○
I let the athletes try their own way even if they make mistakes. (14)	○	○	○	○	○
I ask for the opinion of the athletes on important coaching matters. (15)	○	○	○	○	○

I let athletes work at their own speed. (16)	○	○	○	○	○
I let the athletes decide on the plays to be used in a game. (17)	○	○	○	○	○
I refuse to compromise a point. (18)	○	○	○	○	○
I compliment an athlete for his/her performance in front of others. (19)	○	○	○	○	○
I tell an athlete when he/she does a particularly good job. (20)	○	○	○	○	○
I express appreciation when an athlete performs well. (21)	○	○	○	○	○

End of Block: For Coaches

Start of Block: For Athletes

Q69 How do you assess your coach's motivation methods towards you?

○ Really good (1)

○ Good (2)

○ Acceptable (3)

○ Poor (4)

○ Very poor (5)

Q82 Do you like the way your coach motivates you?

○ Yes (1)

○ No (2)

Q70 Please explain your answer.

_____

Q83 Does your coach apply different motivation techniques on you?

○ Yes (1)

○ No (2)

Display This Question:

If Does your coach apply different motivation techniques on you? = Yes

Q71 Please give an example of how your coach uses different motivation techniques on you.

_____

Q84 Is your coach's motivation methods helpful to you?

○ Yes (1)

○ No (2)

Q72 Please explain your answer.

_____

Q73 Please describe the way your coach motivates you in some detail.

_____

Q85 Does your coach generally listen to your needs?

○ Yes (1)

○ No (2)

Q74 Please explain your answer.

_____

Q86 Is there anything you would like to change in the way your coach motivates you?

○ Yes (1)

○ No (2)

Q75 Please explain your answer.

_____

Page Break

14 Please read the following statement and indicate how often each statement is true.

	Never (1)	Sometimes (2)	About half of the time (3)	Most of the time (4)	Always (5)
My coach makes sure that my part in the team is understood by all the athletes. (1)	◯	◯	◯	◯	◯
My coach instructs every athlete individually in the skills of the sport. (2)	◯	◯	◯	◯	◯
My coach explains to me what I should and what I should not do. (3)	◯	◯	◯	◯	◯
My coach figures out ahead on what should be done. (4)	◯	◯	◯	◯	◯
My coach points out each athlete's strengths and weaknesses. (5)	◯	◯	◯	◯	◯

My coach gives specific instructions to me as to what I should do in every situation. (6)	○	○	○	○	○
My coach explains how each athlete's contribution fits into the total picture. (7)	○	○	○	○	○
My coach specifies in detail what is expected of each athlete. (8)	○	○	○	○	○
My coach asks for my opinion on strategies for specific competitions. (9)	○	○	○	○	○
My coach gets group approval on important matters before going ahead. (10)	○	○	○	○	○
My coach lets his/her athletes share in decision making. (11)	○	○	○	○	○
My coach encourages me to make suggestions for ways of conducting practices. (12)	○	○	○	○	○
My coach lets the group set its own goals. (13)	○	○	○	○	○

My coach lets me try my own way at practices or during matches even if I make mistakes. (14)	○	○	○	○	○
My coach asks for the opinion of the athletes on important coaching matters. (15)	○	○	○	○	○
My coach lets me work at my own speed. (16)	○	○	○	○	○
My coach lets me decide on the plays to be used in a game. (17)	○	○	○	○	○
My coach does not explain his/her action. (18)	○	○	○	○	○
My coach refuses to compromise a point. (19)	○	○	○	○	○
My coach compliments me for my performance in front of others. (20)	○	○	○	○	○
My coach tells me when I do a particularly good job. (21)	○	○	○	○	○
My coach expresses appreciation when I perform well. (22)	○	○	○	○	○

Q115 Please read each statement and rate how well it corresponds to you.

Q38

I participate in my sport...

	Does not correspond at all (1)	Corresponds a little (2)	Corresponds moderately (3)	Corresponds a lot (4)	Corresponds exactly (5)
...because I enjoy it. (1)	○	○	○	○	○
...because of the pleasure I experience when I feel completely absorbed in my sport. (2)	○	○	○	○	○
...because I enjoy the feeling of success when I achieve something important. (3)	○	○	○	○	○
...because of the excitement I feel when I am really involved in the activity. (4)	○	○	○	○	○
...because it is fun. (5)	○	○	○	○	○
...because I find it pleasurable. (6)	○	○	○	○	○
...because I like learning how to apply new techniques. (7)	○	○	○	○	○

...because of the positive feelings that I experience while playing my sport. (8)	○	○	○	○	○
...because I get a sense of accomplishment when I strive to achieve my goals. (9)	○	○	○	○	○
...I don't know if I want to continue to invest my time and effort as much in my sport anymore. (10)	○	○	○	○	○
...Because participation in my sport is an integral part of my life. (11)	○	○	○	○	○
...I don't seem to be enjoying my sport as much as I previously did. (12)	○	○	○	○	○

End of Block: I participate in my sport...

Start of Block: The basic needs satisfaction

Q52

Please read each statement and indicate how true it is for you.

	Not true at all (1)	True a little (2)	Moderately true (3)	True a lot (4)	Very true (5)
In my sport, I agree with the way decisions are made. (1)	○	○	○	○	○
In my sport, I feel free to express my ideas. (2)	○	○	○	○	○
In my sport, I can take part in the decision making process. (3)	○	○	○	○	○
In my sport, I feel welcomed. (4)	○	○	○	○	○
In my sport, I get emotional support. (5)	○	○	○	○	○

End of Block: The basic needs satisfaction

Start of Block: Feedback/Debriefing Statement

Q58
Thank you for taking the time to complete this survey. The primary purpose of this study was find out whether the perception of coaches' motivation match with the perception of the athletes.
I hypothesized that the perception of coach's motivation does not match perfectly with the perception of the athletes. My hope is that the results of my research would lead to further research in this field, which ultimately can lead to improved methods for both coaches and athletes.

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 and provide you with the final results upon completion of my 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
mnohara-leclair@lindenwood.edu

End of Block: Feedback/Debriefing Statement

Does Lyrical Music Affect Cognitive Performance?

Andrew Stone[4]

Many students listen to music while studying or doing homework, and many are looking for ways to maximize this time. Students at Lindenwood University in St. Charles, MO were asked to take two different basic math tests. One was taken with normal, lyrical songs playing in the background. The other was taken with the instrumental versions of these same songs playing in the background. I hypothesized that students would take longer to complete the test with the lyrical music in the background than with the instrumental music playing. The results showed no significant difference in the completion times between those taking the test with lyrical and instrumental music. This was mainly due to an incredibly small sample size.

Every college student tries to find ways to maximize their study time. Some use coffee, energy drinks, or more potent drugs to increase their energy and focus. While these may be effective in the short term, these solutions are not very productive for one's physical health and students can easily become dependent on these chemicals to be productive. Many have figured this out, so they find other ways to increase focus and energy while studying. In a world where music is everywhere, many students have turned to music to create a more productive study environment.

There are lots of studies that have shown music's effects on academic performance, memory, and physiological changes, one of which was looking at the relationship between certain types of music and test anxiety and performance. The researchers played music for undergraduate students 5 min before they were to take a math test that may or may not have affected their grade for the math course they were enrolled in. Some students heard calming music and others were played obnoxious music. They found that those students who listened to

[4]Andrew Stone, Psychology Department, Lindenwood University. Correspondence regarding this paper should be addressed to Andrew Stone at Parker Hall, Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301. Email at aks334@lindenwood.edu

the calming music before the test experienced symptoms such as lower blood pressure and heart

rate, as well as actually performing better on the test itself (Lilley, Oberle, & Thompson, 2014).

Therefore, it seems that music had an effect on the students' bodily processes and academic

performance.

The belief that listening to music while studying can increase learning is widely accepted

(Jäncke, Brügger, Brummer, Scherrer, & Alahmadi, 2014). According to this study, they found

no difference in the influence on learning of lyrical and instrumental music. However, Jancke et

al. (2014) focused on learning new information instead of performing mathematical

computations. A similar study was conducted to see if the style of background music

affected mathematical computation, and no significant difference was found based on music

style (Chen & Wen, 2015). However, this study only focused on whether the music was

"favorable" to the listener or not; it did not take into account the presence or absence of lyrics.

Similarly, Etaugh and Ptasnik (1982) used music to see if it would impair or facilitate

more productive studying. They began by having 20 college students study a passage in a silent

room and 20 studying the same passage with music of their choice in the background. They then

had 10 from each condition relax, while the other 10 were tasked with reading some unrelated

material. After this all participants were given a five-question comprehension test regarding the

original passage. The condition of silence and relaxation performed the best on the test, followed

by the music and relaxation condition. The condition requiring the subjects to read unrelated

material significantly impaired their memory (Etaugh & Ptasnik, 1982). Interestingly, they also

asked subjects beforehand if they preferred to listen to music while studying. Those who

preferred a silent study environment supported their claim by performing better in silence and

worse with music, and the opposite could be said of those who prefer to study with music

(Etaugh & Ptasnik, 1982).

One of the most relevant studies to the present study was conducted by Salamé and Baddeley (1989). They wanted to see what types of music would interfere with a participant's ability to remember a nine-digit sequence. They found that vocal or lyrical music was more disruptive than instrumental music, and both were more disruptive to memory than silence (Salamé & Baddeley, 1989). In a second experiment they replicated the first design, but this time the subjects received focus training before completing the trials. With more highly trained subjects, vocal or lyrical music disrupted memory far more than instrumental music, and there was no significant difference found between the instrumental music and silent conditions (Salamé & Baddeley, 1989).

The focus of the present study is on completing mathematical computations with lyrical and instrumental music playing in the background. I hypothesized that students would complete a basic math test faster and more accurately when listening to instrumental versions of songs than when they listen to the lyrical (original) versions because the words are a distraction. The songs played were exactly the same except for the presence or absence of lyrics, in order to limit the effects of differences in genre or song flow. This study will provide students who choose to listen to music while studying and doing homework a way to better maximize their time by customizing their playlist to include less lyrical music.

Method

Participants

Participants were recruited through a Facebook post containing a brief description of the study and a link to sign up. These participants were not compensated in any way for their efforts. All participants in this study were Lindenwood students between the ages of 18 and 21. There were 3 male participants and 2 female participants. Participants also reported class standing and major, which came out with 2 freshmen and 3 juniors, 4 Business majors and 1 Psychology

major. None reported any hearing difficulties, and all reported 4 or 5 when asked to rate their comfort level with basic mathematical computations on a scale from 1-5. They were also asked how often they listen to music while studying and 2 marked "Occasionally," 2 marked "Usually," and 1 marked "Never."

Materials and Procedure

The study was conducted at Lindenwood University in St. Charles, MO in a variety of locations, including quiet dorm rooms and quiet classrooms in Harmon Hall. Participants were given two copies of the Informed Consent form upon arrival (see Appendix A). Once this was read and signed, they were given a short demographic survey regarding things like age, gender, and grade level (see Appendix B). This survey also contained a question asking if the participant had any form of hearing impairments.

After the demographic survey was completed and collected, I verbally explained the directions to the participants thoroughly. They were tasked with completing two separate basic math tests, each containing 30 questions of equal difficulty (see Appendices C and D). They were informed that there would be music playing in the background. During one test, a Lyrical (with words) playlist of five songs was played, including "Viva La Vida" (Coldplay, 2008), "Centuries" (Fall Out Boy, 2014), "Renegades" (X Ambassadors, 2015), "7 Years" (Lukas Graham, 2015), and "Closer" (The Chainsmokers, 2016). During the other test, an Instrumental playlist of these same five songs was played, including "Viva La Vida" (Dallas String Quartet, 2010), "Centuries" (Brooklyn Duo, 2014), "Renegades" (Simply Three, 2015), "7 Years" (Brooklyn Duo, 2016), and "Closer" (Brooklyn Duo, 2016). To view this song list and get audio links, see Appendix E.

The order of the two tests, as well as the order the playlists, were counterbalanced in an attempt to eliminate any order effects. Both playlists were associated equally with both tests to

eliminate the relative difficulty of either test influencing the results. After both tests were completed, I verbally debriefed each participant, explaining the purpose of the study and the hypothesis. During this time, the participants were provided with a feedback letter thanking them for participating and encouraging them to contact me with any future questions or concerns (see Appendix F). Each test was measured for completion time and entered into a data sheet once the participant exited the study.

Results

I hypothesized that students would complete the math tests faster while listening to the instrumental music than the lyrical music. The independent variable of this study was the type of music played, featuring two levels: Lyrical and Instrumental. The dependent variable was the time taken to complete the test, measured in seconds. A related samples t-test was conducted to compare the mean completion time of the tests with instrumental music and the tests with lyrical music. There was not a significant difference between the mean times of completion for the instrumental (M=175, SD=46.61) and lyrical tests (M=165.2, SD=17.88); t(4)= -.445, p=.679).

Discussion

Considering my hypothesis of faster completion times for the Instrumental playlist, the data above do not support such a claim. In fact, the Lyrical playlist tests were completed faster on average than the Instrumental playlist tests was. These findings are in direct contrast to those of Salamé and Baddeley (1989). However, the difference was nowhere near statistically significant. This is due to a number of factors, the most influential of which being the small sample size. If a larger sample could have been tested, the results could have been drastically different and have some actual significance. Not to mention that order effects such as the practice effect and fatigue effect may have been at play. These were counterbalanced for as much as

possible, but with only 5 participants it was difficult to fully counterbalance these to avoid any extra variance.

This study is important because it can show students who listen to music while studying what type of music will maximize their cognitive abilities. This study proved somewhat relevant in that regard, because 80% of participants reported listening to music while studying "occasionally" at the very least. Future researchers could first replicate this study with a larger sample size, then expand to include middle school and high school aged students. It would be interesting to see if the results would differ with younger students. I would also recommend looking at other dependent variables such as their actual scores on the tests and a post-test rating of how distracting or helpful they found the music.

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Appendix A

Informed Consent Form

LINDENWOOD

Research Study Consent Form

How Lyrical Music Affects Cognitive Performance

You are asked to participate in a research study being conducted by Andrew Stone, under the guidance of 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?
I am doing this study to determine if certain types of music have a significant effect on cognitive performance while studying. I will be asking about 20 other people to answer these questions.

What am I being asked to do?
You will be given two basic addition and subtraction tests, each 30 questions in length. There will be music playing in the background as you take these tests. You may take your time and skip around as much as you like, just be sure to eventually answer all 30 questions.

How long will I be in this study?
This study will last between 15 and 30 minutes.

What are the risks of this study?
- Privacy and Confidentiality

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

What are the benefits of this study?
You may learn how to best maximize your study time with a certain type of music. I also hope what I learn may benefit other people in the future.

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 benefits. If you would like to withdraw from a study, please let me know immediately.

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

How will you keep my information private?
I will do everything I can to protect your privacy. I 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: myself, qualified staff of Lindenwood University, representatives of state or federal agencies.

How can I withdraw from this study?
Notify me 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. You can contact the researcher, Andrew Stone, directly at (636) 357-1226 or aks334@lindenwood.edu. You may also contact Dr. Michiko Nohara-LeClair at (636) 949-4371 or 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 verify that I am at least 18 years old. I consent to my participation in the research described above.

_____   _____
Participant's Signature   **Date**

_____
Participant's Printed Name

_____   _____
Signature of Principal Investigator or Designee   **Date**

_____
Investigator or Designee Printed Name

Appendix B

Demographic Questionnaire

Please do not put any identifiable information on this questionnaire.
Please feel free to skip any questions you do not feel comfortable addressing.

1.) Are you… (circle one)　　　　MALE　　　　FEMALE　　　　Other

2.) How old are you? _____ years

3.) What is/are your major(s)? List all that apply.

4.) Which of the following best describes you? (Circle one)

FRESHMAN　　　SOPHOMORE　　　JUNIOR　　　SENIOR　　　Other

5.) Do you have any difficulty hearing? (Circle one)　　　　YES　　　NO

6.) Please rate your comfort level in completing simple math problems involving addition and subtraction? (1=Not at all comfortable…5=Completely comfortable) (Circle one)

1　　　　　　2　　　　　　3　　　　　　4　　　　　　5

7.) How often do you listen to music while studying or doing homework? (Circle one)

ALL THE TIME　　　USUALLY　　　OCCASIONALLY　　　NEVER

Appendix C

Math Test 1
(You may complete the problems in order or skip around as much as you like.)

1. $19 + 25 =$
2. $94 - 24 =$
3. $53 + 43 =$
4. $50 - 12 =$
5. $39 + 53 =$
6. $84 - 23 =$
7. $76 + 13 =$
8. $42 - 31 =$
9. $49 + 23 =$
10. $35 - 32 =$
11. $79 + 22 =$
12. $85 - 43 =$
13. $47 + 53 =$
14. $65 - 30 =$
15. $25 + 63 =$
16. $49 - 43 =$
17. $22 + 33 =$
18. $89 - 54 =$
19. $55 + 39 =$
20. $60 - 28 =$
21. $49 + 51 =$
22. $91 - 18 =$
23. $68 + 23 =$
24. $82 - 69 =$
25. $74 + 18 =$
26. $65 - 49 =$
27. $83 + 10 =$
28. $22 - 13 =$
29. $80 + 19 =$
30. $55 - 28 =$

Appendix D

Math Test 2

(You may complete the problems in order or skip around as much as you like.)

1. $17 + 61 =$
2. $92 - 23 =$
3. $23 + 33 =$
4. $54 - 14 =$
5. $35 + 53 =$
6. $86 - 69 =$
7. $77 + 17 =$
8. $89 - 18 =$
9. $83 + 11 =$
10. $95 - 38 =$
11. $59 + 17 =$
12. $85 - 36 =$
13. $30 + 29 =$
14. $78 - 20 =$
15. $29 + 57 =$
16. $95 - 89 =$
17. $39 + 59 =$
18. $84 - 27 =$
19. $66 + 26 =$
20. $70 - 18 =$
21. $17 + 62 =$
22. $84 - 29 =$
23. $66 + 32 =$
24. $39 - 22 =$
25. $63 + 27 =$
26. $74 - 58 =$
27. $74 + 10 =$
28. $75 - 34 =$
29. $73 + 11 =$
30. $88 - 64 =$

Appendix E

Song Lists

Lyrical Song List (with Links through Apple Music)
- "Viva La Vida" (Coldplay) https://itun.es/us/sMc7cb?i=1122773680
- "Centuries" (Fall Out Boy) https://itun.es/us/sCnJ4?i=948754235
- "Renegades" (X Ambassadors) https://itun.es/us/L2o86?i=988868008
- "7 Years" (Lukas Graham) https://itun.es/us/O73Dab?i=1081573445
- "Closer" (Chainsmokers) https://itun.es/us/2t3Xfb?i=1170699703

Instrumental Song List (with Audio Links through Apple Music)
- "Viva La Vida" (Coldplay) https://itun.es/us/YCM9K?i=620128228
- "Centuries" (Fall Out Boy) https://itun.es/us/-wvD4?i=947213932
- "Renegades" (X Ambassadors) https://itun.es/us/HNPzab?i=1080465993
- "7 Years" (Lukas Graham) https://itun.es/us/FH6Zbb?i=1104128459
- "Closer" (Chainsmokers) https://itun.es/us/jb-efb?i=1158930638

Appendix F

Feedback Letter

Thank you for participating in this study. The present study was conducted in order to determine whether the type of music one listens to while studying or completing homework affects their cognitive performance. I hypothesized that the test taken with the instrumental versions of songs playing in the background would be completed faster and more accurately than the tests taken with the lyrical (original) versions of the same songs playing in the background, because the lyrics are a distraction from the task at hand (the math test). Please note that I am not interested in your individual results; rather, I am only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for me to trace your responses on an individual basis. If you are interested in obtaining the final results of this study based on aggregate data, or if you have any questions or concerns regarding any portion of this study, please do not hesitate to contact me now or in the future. My contact information is included at the bottom of this letter. Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:
Andrew Stone
(636) 357-1226
aks334@lindenwood.edu

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

Music's Effects on Memory

Madyson Carroll[5]

Many people believe that studying while background music is present enhances their eligibility to remember the criteria better. The effects of music on memory was examined through the completion of a memory card game. Young adults were asked to take part in this task twice. One game included background music, while the other did not include background music. Throughout each game, the amount of time it took the participant to complete the game in seconds, was measured. I hypothesized that the inclusion of background music will have a positive influence on one's performance when completing a memory card game. However, the findings suggest that there is no statistically significant difference between speed of solving the game with the presence of background music or the absence of it.

Frequently, people encounter situations that involve immediately remembering an idea or thought to complete a task. It is therefore of great importance for one's brain to have the ability to receive, process, store, and organize this information (Kirkweg, 2009). This ability can be disrupted by different environmental variables, including background music. Music is typically used on a day to day basis within humanity. Previous research has suggested that music can influence listeners' physiological, cognitive, and emotional states (Radocy & Boyle, 1997).

Additionally, music has previously been correlated with increased reminiscence. Durnham and Whittemore (1993) conducted a study involving 12 older adults, who were also women, listening to The Golden Age radio programs. During this process, the women were also being asked multiple trivia questions. These stimuli created a common reaction among all the participants, indicating that music can evoke memories and encourage reminiscence.

[5]Madyson L. Carroll, Department of Psychology, Lindenwood University. Correspondence concerning this article should be addressed to Madyson Carroll, Department of Psychology, Lindenwood University, St. Charles, MO 63301. Contact: MLC612@lindenwood.edu

Similarly, El Haj, Antoine, Nandrino, Gély-Nargeot, and Raffard (2015) wanted to see if exposure to music could enhance self-defining memories in Alzheimer's Disease patients. An experiment was conducted using 22 mild-stage Alzheimer's Disease patients who were asked to produce autobiographical memories in silence, while listening to researcher-chosen music, and to their own-chosen music. Also, there were 24 healthier patients, which were used as a control group. Results showed that the patients suffering from the disease showed better autobiographical recall when listening to their own-chosen music than the other two conditions.

However, other studies have had varying results. Nguyen and Grahn (2017), wanted to see how background music that varied in mood, arousal, and context affected verbal memory performance. Three experiments were conducted involving a recall task, a recognition task, and an associative memory task. In all three tasks, the background music was presented in three different contexts, consisting of music played during studying only, music played during testing only, and music played during both studying and testing. Their results concluded that background music had either no effect or significantly hindered memory performance compared with silence.

These prior studies have been conducted to determine whether the presence of background music can influence a person's memory. However, based on the results of the previously discussed research, it is hard to tell if this influence is positive, negative, or if there is one at all. The results are not consistent, clearly proving that this topic should be investigated more, which is what this research is intended to do.

Method

Participants

Young adults (ten women, two men, age range: 18-32 years) were recruited through the Lindenwood Participant Pool (LPP) on Lindenwood University's main campus in St. Charles, Missouri. Participants were compensated two LPP points, a form of credit to be exchanged for grade points, for participation in this study. The students who were recruited as participants for this research project were enrolled in select sections of general education or introductory-level courses in Anthropology, Athletic Training, Criminal Justice, Exercise Science, Psychology, and Sociology. There were three freshmen, three sophomores, four juniors, and two seniors among the participating. There were seven participants recruited as described above. The participants accessed the information regarding my study and the sign-up process through the website Sona Systems. Only one participant had never completed a memory card game, similar to the one they were asked to complete.

Materials

The experiment took place in a small room consisting of four chairs, two desks, and two computers. Each participant sat across from the researcher when attempting to complete each task. Before beginning, each participant signed in and was given a research study consent form (see Appendix A). This form provided the participants with the information needed to understand the nature of the study. The research study consent form had to be read and signed by all the participants, in order to continue their participation. Along with this form, the participant was given a demographic questionnaire (see Appendix B). This questionnaire consisted of six questions regarding gender, age, year in school, any hearing or vision impairments, and whether they had completed a memory card game before.

The memory card game depicted in my study, consisted of 10 various fast food illustrations that were adapted from a random graphic design website. Each illustration was used on 2 playing cards for a total of 20 cards (see Appendix C). Each card was 2 x 2 in. The cards were placed face down in front of the participant. The participant was asked to turn over two cards to reveal the two illustrations, trying to find matching cards. If the cards did not match, the participant turned the cards back over and repeated the process until a match was made. All the participants played this memory card game twice.

During one of the two games, background music was provided from a personal laptop at the volume of 70. The song that was played was the instrumental version of Havana by Camila Cabello, which was the number one song on the Billboard Hot 100 list, at the time the study was conducted, thus, being popular and possibly being more common to the participant. I used a stopwatch to time each trial, which was then recorded in a personal notebook.

At the end of both trials, all participants were given a feedback letter (see Appendix D). This letter thanked them for their participation in the study and provided all the information needed for any further questions. Overall, the experiment took approximately 12 min.

Procedure

Before starting the experiment, the participant was given a research study consent form to read and sign. Along with this form, the participant was given a demographic questionnaire to complete. Once these forms were completed, the study commenced.

Each game began with the cards being shuffled and presented faced down in front of the participant. Participants turned over two cards to reveal the 2 images, while trying to find matching images. If the cards did not match, the participant had to turn the cards back over and try again until a match was made. This process was repeated until all 10 images were matched to their pair. This process was completed once with background music and

once without background music, and I measured the time it took the participant to complete each task. These conditions were counterbalanced. Participants were instructed to complete the task as quickly as possible. The time of both trials were recorded and later compared.

After completing both trials, all the participants were given a feedback letter. Once given their feedback letter, the researcher answered and clarified any questions asked by the participants, before they exited the room.

Results

During the analyses of the data, a related samples t-test was conducted to see if there was a significant difference between all of the participant's time, in seconds, to complete the memory card game with and without background music. This related samples t-test established that there was not a significant difference between all participants completion time with background music ($M = 87.17$, $SD = 28$) and without background music ($M = 82.33$, $SD = 22.97$), $t(11) = 1.11$, $p = .29$.

Discussion

As outlined previously, there were two possible outcomes for the participant's performance in the experiment: The participant's speed could have increased when completing the task with background music rather than without background music or the participant's speed could have decreased when completing the task with background music rather than without background music. The results lent more support towards the second outcome, similar to the study conducted by Nguyen and Grahn (2017).

Although the results are opposite of my hypothesis, it can be due to many variables. The most influential variable that could have contributed to the study being statistically non-significant, can be the very small sample size. A small sample size makes it hard to calculate a difference between the results. However, some of the participants' speeds did vary, meaning

further work is required to gain a more complete understanding of the influence of music on

one's memory.

Additional limitations can be only having two conditions, the song choice, bad shuffling

of the playing cards, or even fatigue within the participants. In the future, to better the study, I

would like to do a few things differently. Firstly, I would include another condition involving

lyrical music. Secondly, I would like to ask the participants what their preferred music genre is,

before performing the task, so I can then choose music based off of this. Thirdly, I would want to

ask the participants which condition they prefer, before and after performing the task. Fourthly, I

would want to consider making this an online study. This would allow more people to

have access to it, as well as, the possibility of creating an algorithm to better the shuffling of the

playing cards. In conclusion, I would want to see how these changes would affect the results.

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Appendix A

Research Study Consent Form

LINDENWOOD

Research Study Consent Form

Music's Effect on Memory

Before reading this consent for, 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 without being penalized
- You are free to ask questions about the study at any time

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

- Why I am 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:

- I am interested in learning about whether a person's performance during a memory card game is impacted by listening to music while completing the task or by not listening to music.
- You will complete a memory card game twice, as fast as you can. You will complete the task once while listening to music and once without listening to music.
- Risks of participation include feelings of anxiety when trying to finish the task in a timely fashion and feelings of embarrassment if performance did not go as planned.

LINDENWOOD

Research Study Consent Form

Music's Effect on Memory

You are asked to participate in a research study being conducted by Madyson Carroll under the guidance of Dr. Michiko Nohara-LeClair at Lindenwood University. Being in a research study is voluntary, and you are free to stop at any time without being penalized. 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?
I am doing this study to observe whether a person's performance during a memory card game is impacted by listening to music while completing the task or by not listening to music. I will be asking about 75-100 other people to answer these questions.

What am I being asked to do?
When beginning the experiment, you will be provided with a consent form that you must sign to participate. Some demographic questions will then be asked, but your identity will be kept confidential. After these questions, you will begin the first trial with the memory card game with or without music and then a second trial with the memory game with or without music, differing the condition from the one experienced during the first trial.

How long will I be in this study?
In total, the experiment will take approximately 10-12 minutes.

Who is supporting this study?
No grant or funding agency is funding this study.

What are the risks of this study?
- Privacy and Confidentiality:

   I will not be collecting any information that will identify you, such as your name.

What are the benefits of this study?
A potential benefit could be the feeling of accomplishment when completing the task at hand.

Will I receive any compensation?
Participants recruited from the LPP will be granted two bonus points for participation in the research 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 benefits.

What if new information becomes available about the study?
During this study, I may find information that could be important to you and your decision to participate in this research. I will notify you as soon as possible if such information becomes available.

How will you keep my information private?
I will do everything I can to protect your privacy. I do not intend to include information that could identify you in any publication or presentation, like your name. Any information I 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 researcher 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. You can contact the researcher, Madyson Carroll directly at 618-920-5745 or MLC612@lindenwood.edu. You may also contact Michiko Nohara-LeClair at 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 verify that I am at least 18 years of age or have a parental consent form filed with the LPP Office. I consent to my participation in the research described above.

_____   _____

Participant's Signature   **Date**

_____

Participant's Printed Name

_____   _____

Signature of Principal Investigator or Designee   **Date**

_____

Investigator or Designee Printed Name

Appendix B

Demographic Questionnaire

DEMOGRAPHIC QUESTIONNAIRE

Please do not put any identifiable information on this questionnaire.
Please feel free to skip any questions you do not feel comfortable addressing.

1. Are you MALE OTHERFEMALEPREFER NOT TO ANSWER

2. How old are you? _____ years

3. Which of the following best describes you? (Circle one)

   FRESHMANSOPHOMOREJUNIORSENIOROTHER
4. Have you ever completed a memory card game prior to today?

   Yes No

Appendix C

Memory Card Game
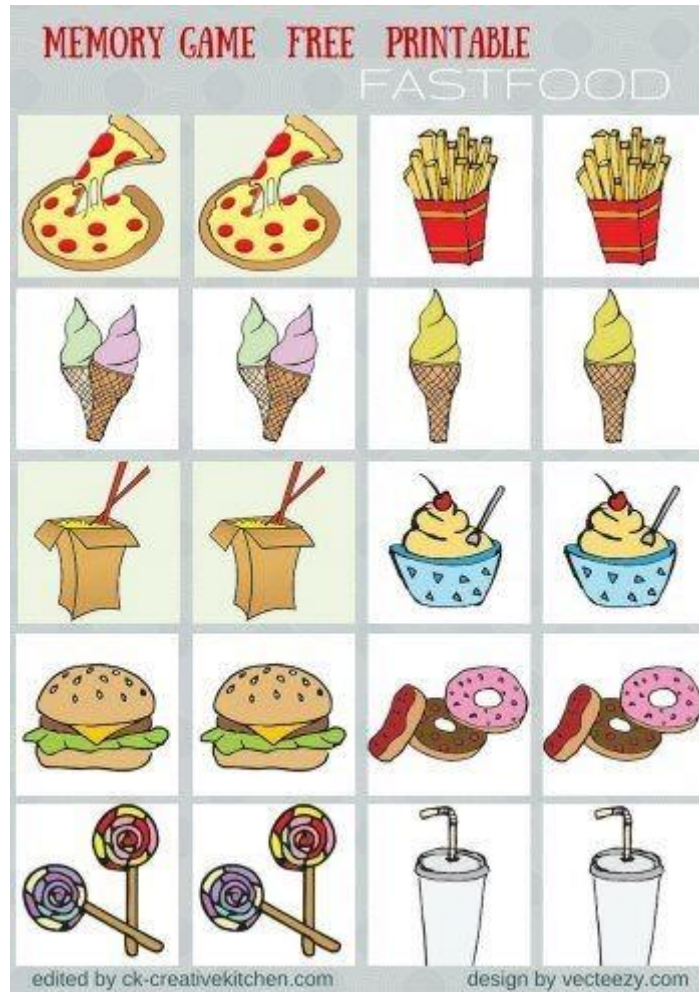
Appendix D

Feedback Letter

Feedback Letter

Thank you for participating in my study. The present study was conducted to determine whether a person's ability to complete a memory card game can be impacted by listening to music during the task or not listening to music during the task. I hypothesized that a person's speed will increase when listening to music compared to no music. I believe that the music will help them stay focused on the task and will be eager to finish it.

Please note that I am not interested in your individual results; rather, I am only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for me to trace your responses on an individual basis.

If you are interested in obtaining the final results of this study based on aggregate data, or if you have any questions or concerns regarding any portion of this study, please do not hesitate to let me know now or in the future. Our contact information is found at the bottom of this letter.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:
Madyson Carroll 618-920-5745 (MLC612@lindenwood.edu)

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

Correlation of Myers-Briggs Personality Traits Inventory and Moral Decision Making

Kamden Havens[6]

Myers-Briggs personality trait inventory was examined against modified moral scenarios by philosopher, Victor Grassian. The research conducted was a non-directional correlational study between personality types, extroversion/introversion, observation/intuition, thinking/feeling, judging/prospecting and the five moral scenarios presented. There was no significant correlation between any of the personality traits and any of moral scenarios.

Part of the human experience is having to make difficult decisions in life. Whether it is to experience something for yourself or make a decision that will impact the life of another, we are faced with these choices. There are many systems and facets that are apart of making different moral decisions such as, who is involved, what are the outcomes for either the decider or the people involved in the scenario, etc. According to Grassian (1992) there is a right way and a wrong want to make this decision. Grassian's model demonstrates that a person in a situation has two choices within a given scenario: one choice provides the decision maker with an outcome that would be beneficial to them, whereas the other choice would not be. If the decider chooses something that is more beneficial to the decider then, he or she has made the incorrect decision, verses if he or she chooses the least beneficial of the two decisions, then he or she has made the correct decision (1992).

This model for moral decision making may seem simple to some, but in a study done in 1976 by Candee, D suggest that moral decision-making is based off a set of 6 stages modeled after Kohlberg's moral judgement theory. Each stage is labeled as to how morality is developed in people and is then sorted in to five stages; obedience and punishment, instrumental relativists,

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[6]Kamden Havens, Department of Psychology, Lindenwood University. All correspondence concerning this research should be addressed to Kamden Havens, Department of Psychology, Lindenwood University, St Charles, MO, 63301 or email ch381@lindenwood.edu or the research facilitator, Michiko Nohara-LeClair by email mnohara-leclair@lindenwood.edu

personal concordance, law and order, social contract and individual principles (Candee, 1976; Haan, Smith & Block, 1969). Before distributing the study, Candee hypothesized that those who have an increase of Kohlberg's moral judgement theory structure and choice in moral reasoning.

To conduct this study, 372 participants, mostly in the New England area, were recruited and consisted between the ages of 17 to 25. Participants were given a 20 question survey with different moral scenarios pertaining to the Watergate and Leuitenent Calley scandal, such as 'Was Hunt and Libby's break-in at Ellsberg's psychiatrist justified? (No)' (Candee, 1976). Upon the conclusion of the survey and measuring the data by chi-ssquare, Candee found there was a significant positive correlation between moral structure and choice $F(3,356)= 59.37, p < .001$, For the stages measure on the rights index, stages two through five yielded means of 48, .57, .70, and .86 (1976).

Another study that used Kohlberg Moral Judgement Scale was Haan, Smith and Block in 1969. This study conducted aimed to focus on identifying moral types of college youth and Peace Corps volunteers and examine the difference between each of the five stages type of political-social behavior, family background, ideal self, etc (Haan, Smith & Block, 1969). For the purposes in relation to this present study, just the correlation between the stage types and means of ideal self-description will be reported.

Before beginning the study, Haan, Smith and Block recruited a total of 957 subjects that had been sent letters randomly at school or within their organization at University of California, San Francisco State College and the Peace Corps volunteers in training. Each participant was given 5 out of 10 stories from Kohlberg's scale and was then classified into the respective stage of moral choice, which was categorized into one of three broader categories; pre-moral, conventional and principled (Haan, Smith & Block, 1969). To measure the ideal self, participants

were asked to self-report as having or not having selective personality traits, i.e; ambitious, aloof, stubborn, etc.

After concluding the study, results yielded a positive difference between moral stage and the ideal self-description. Haan, Smith and Block found that participants who scored into the principled category of moral structure also show a 'firm sense of autonomy' in regard to life, tend to be more open about who they actually are, and illustrate high social activity (1969). For participants who fall under the conventional category, there was a high demonstration of personal confidence in self, report modelling self after parents, and tend to be politically/socially uninvolved (Haan, Smith & Black, 1969). The last category of pre-moral participants measured as the highest social participants, are forthcoming about who they are and who they want to be and were dubbed the most 'radical' (Haan, Smith & Black, 1969).

Somewhat examined and reported by Hann, Smith and Black, was the source of personal identification from family background. Researchers, Vukasovic and Brakto expanded upon further in a meta- analysis of genetic influence on heritability as a possible explanation for personality. These researchers examined about 134 published primary studies that totaled about 100,000 participants from 12 different countries (Vukasovic & Brakto, 2015).

Upon examining direct heritability, there was no significant correlation overall, with one study showing a small correlation in extroversion and introversion being heritable (Vukasovic & Brakto, 2015). Another facet examined was the personality being genetic was the use of three different personality model scales to measure personality, which all concluded there was no correlation between any of the models and heritability of personality (Vukasovic & Brakto, 2015). The final correlation tested was to see if there was a gender difference in heritability of personality, which again yielded no significant results (Vukasovic & Brakto, 2015).

<div align="center">

Method

</div>

Participants

Participants were of all ages (18 plus) and were either Lindenwood University students or

were parts of the general population. Some of the Lindenwood University students were

recruited from the Lindenwood Participant Pool, also known as the LPP, which includes

introductory courses in departments such as psychology, anthropology and sociology. Every

participant recruited through the LPP was either over the age of 18 or had a parent

permission form from the LPP if they were under the legal age of 18. The LPP students were

recruited via internet with the survey being link to in to the program Sona Systems (47). The

other Lindenwood University students were recruited through fliers posted around campus and

provided a direct link to the survey (0). Participants recruited through the general public were

recruited through a direct link posted on Psi Chi (0). Each participant recruited through the LPP

received one extra credit point toward their LPP eligible course. Participants recruited through

survey fliers or Psi Chi received no compensation for their time.

Materials and Procedures

The study was conducted by an online survey posted on Qualtrics.com. In order to access

the survey, participants who were recruited through the LPP had to log into Sona Systems where

they saw my study posted. Upon selecting the study, participants would them be redirected to the

survey in Qualtrics. Lindenwood University participants recruited by flier, upon receiving the

link would then enter the URL in to their internet search bar and be directed to the survey on

Qualtrics. (see Appendix A) Participants recruited through Psi Chi were provided a link

upon viewing active studies and were directed to the survey in Qualtrics upon selecting the

survey. Before participating in the stud, the participants read the consent statement and only

those who were at least 18 years old or were minors who have a parental consent filed with the

LPP who consented to taking part on the study were directed to the survey questions. (see Appendix B)

The first part of the survey was a measurement of the Myers-Briggs Traits Inventory personality type designed by Briggs and Briggs-Myers (2015). Personality type on this survey is measured by; introversion/extraversion, intuition/observation, thinking/feeling, and judging/prospecting. Introversion and extraversion is a measurement of the mind and defines how we are to interact with our environment. Intuition and observation is a measurement of energy and defines where our mental energy is directed. Thinking and feeling is a measurement of our environment and defines how we make decisions and cope with our emotions. Finally, judging and prospecting is a measurement of strategy and defines our approach to work, planning and decision making. (The Myers & Briggs Foundation, 2014) This portion of the survey consisted of 70 multiple choice questions. Each question asked the participants to select one of two answers about factors such as how they interact in social settings, personal preferences, and who they are as a person. (see Appendix C)

Upon finishing the personality portion of the survey, the participants were then presented with five moral dilemma questions modified from Victor Grassian's Moral Reasoning: 2nd Edition (Grassian 1992). This portion of the survey asked participants to respond to these morally ambiguous scenarios by selecting one of the two answers presented. One answer was considered the correct answer while the other was considered the incorrect answer. The correct answer to each scenario was based on the moral outcome being least beneficial to the decider whereas the incorrect answer would be the moral outcome being most beneficial to the decider. Each participant selected the answers based on their own personal analysis of the dilemma presented and took participants an estimated 10 to 15 min to complete. (see Appendix D)

After the completion of the survey, participants where then given a feedback letter restating the hypothesis of the study along with what the study specifically was measuring. Each participant was informed as well to his or her privacy and provided the primary instigators contact information as well as the faculty supervisor's information to answer any potential questions he or she may have had. (see Appendix E)

Results

Each adjoining personality trait, extroversion and introversion ($M= 1.79$, $SD= .62$), intuition and observation ($M= 1.43$, $SD= .45$), thinking and feeling ($M=1.70$, $SD= .46$) and lastly, judging and prospecting ($M= 1.17$, $SD= .38$) were all measured against each of the 5 moral decisions. Each moral decision is reported as follows; Moral A ($M=1.51$, $SD= .51$), moral B ($M= 1.64$, $SD= .49$), moral C ($M= 1.30$, $SD= .46$) moral D ($M= 1.28$, $SD= .43$), and finally moral E ($M= 1.26$, $SD= .44$).

For extroversion and introversion there was a weak, negative correlation between moral a, ($r= -.2$), moral b, ($r= -.004$), moral d, ($r= -.14$) moral e, ($r= -.04$), and a weak positive correlation between moral c ($r=.15$).

For intuition and observation yieldeda weak positive correlation between moral a ($r= .07$), moral b ($r= .02$), moral c ($r= .004$) and moral c ($r= .13$) while having a weak negative moral d ($r= -.01$)

For thinking and feeling there was a weak negative correlation between moral b ($r= -.006$), moral c ($r= -.19$), moral d ($r= -.19$) and moral e ($r= -.26$) and a weak positive correlation between moral a ($r= .12$)

For judging and prospecting there was a weak negative correlation between moral b ($r= -.13$), and moral c ($r= -.05$). There was a weak positive correlation between moral d ($r= .02$) and moral e ($r= .25$). There was only a moderately positive correlation between Moral a ($r= .33$)

Overall, there was no significant strong correlation between any one the personality traits and any moral decisions made, thus rejecting my null hypothesis of being a significant correlation.

Discussion

In the future, I'm unsure if I'd like to continue with this research topic. If I were to, I would experiment using different morality models like using Kohlberg's model or pulling from other philosopher's ideals of 'what is moral'. I'd also would consider examining the moral difference between generations to see if there is a trend in differences instead of focusing on personality. After reading my literature; I believe it has changed my initial idea that there was some significance between personality and the moral decisions we make.

A few limitations to this research were potentially the number of participants; having more of a sample to pull from could be more effective. Another limitation could have been the questions themselves that were given. I acknowledge that they 'right answer' could have been too easy to figure out by selecting one of two answers, instead I think a open answer could have been more effective. As far as my participants as I was reviewing my data, many of them had only taken about ten to five min to complete the survey, when it really should have been around twenty min to complete. This leads me to believe people were just clicking answers, especially since every participant was in the LPP, to just receive the extra credit point instead of accurately self-reporting.

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Appendix A

Survey Flier

Appendix B

Informed Consent Form

Informed Consent Statement
Informed Consent Form
Introduction
        The researcher conducting this project is an undergraduate student at Lindenwood University who is enrolled in the PSY40400: Advanced Research Methods course. The primary purpose of this research project is to find if there is a correlation between your Myers-Briggs personality type and the moral decisions you make. The preliminary findings of this project may be presented at the Student Research Conference April 18, 2018 at Lindenwood University.
Procedures
        This survey asks you to respond to a few demographic items to gather a general knowledge of the participants. After the quick demographic portion, the first part of the survey will begin and will be a series of questions to determine your personality type from Harley Friedman, MD at Dartmouth Hitchcock Medical Center. The second portion of the survey will present a set of dilemma scenarios modified from Victor Grassian's book; Moral Reasoning. This survey is to be conducted online using a Qualtrics-created survey and should take between 20-25 minutes.
Risks/Discomforts
There are no known risks associated with this study. You are free to skip questions or withdraw anytime without penalty if you do not feel comfortable completing any part of this survey.
Compensation and Benefits
        If you are recruited through the LPP, 1 bonus point will be accredited toward your LPP participating course. If you are recruited via Psy Chi or in person flier, then there will be no compensation presented. You will also gain more knowledge about yourself and 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 Kamden Havens at ch381@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 will have access to individualized data. 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 Kamden Havens at ch381@lindenwood.edu or direct your inquiries to the faculty supervisor, Dr. NoharaLeClair 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 read the above information
• Voluntarily agree to participate
• If you were recruited through the LPP; you are at least 18 years of age or you are a minor but have a signed parental consent form filed with the LPP Office if need be.
• If you were not recruited through the LPP; you are at least 18 years of age.

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
Do Not Agree

Appendix C

Myers-Briggs Traits Inventory Survey Portion

Please read following questions in regards to your personality type and select one of the two answers below. Answer with how you truly are and not how you want to be. There is no penalty for how you answer.

At a party do you:

Interact with man, including strangers

Interact with few, known to you

Are you more:

Realistic than speculative

Speculative than realistic

Is it worse to:

Have your "head in the clouds"

Be "in a rut"

Are you more impressed by:

Principles

Emotions

Are you more drawn toward the:

Convincing

Touching

Do you prefer to work:

To deadlines

Just "whenever"

Do you tend to choose:

Rather Carefully

Somewhat impulsively

At parties do you:

Stay late, with increasing energy

Leave early with decreased energy

Are you more attracted to:

Sensible people

Imaginative people

Are you more interested in:

What is actual

What is possible

In judging others are you more swayed by:

Laws

Circumstances

In approaching others is your inclination to be somewhat:

Objective

Personal

Are you more:

Punctual

Leisurely

Does it bother you more having things:

Incomplete

Completed

In your social groups do you:

Keep up with other's happenings

Get behind on the news

In doing ordinary tasks are you more likely to:

Do it the 'usual' way

Do it your own way

Writers should:

Be forward with what they mean and say

Use analogies as expressions

What appeals to you more:

Consistency of thought

Harmonious human relationships

Are you more comfortable in making:

Logical judgements

Value judgements

Do you want things:

Settled and decided

Unsettled and open

Would you say you are more:

Serious and determined

Easy-going

When making a phone call do you:

Adjust to however the conversation goes

Rehearse what you'll say beforehand

Facts:

'Speak for themselves'

Illustrate principles

Are visionaries:

Somewhat annoying

Rather fascinating

Are you more often:

A cool-headed person

A warm-hearted person

Is it worse to be:

Unjust

Merciless

Should one usually let event occur:

By careful selection and choice

Randomly and by chance

Do you feel better about:

Having purchased

Having the option to buy

In company do you:

Initiate Conversation

Wait to be Approached

Common sense is:

Rarely questionable

Frequently questionable

Children often do not:

Make themselves useful enough

Exercise their fantasies enough

In making decisions do you feel more comfortable with:

Guidelines

Intuition

Are you more:

Firm than gentle

Gentle than firm

Which is more admirable:

The ability to organize and be methodical

The ability to adapt and make do

Do you put more value on:

Infinite

Open-mindedness

Does new and non-routine interaction with others:

Stimulate and energize you

Tax your reserves

Are you more frequently:

A practical sort of person

An imaginative sort of person

Are you more likely to:

Try to see how others are useful to you

Understand others point of view

Is it more satisfying:

To discuss an issue thoroughly

To arrive at an agreement for an issue

Which rules you more:

Your head

Your heart

Are you more comfortable with work that is:

Done under a contract

Done under a casual basis

Do you tend to look for:

Order and neatness

Casualty and disorder

Do you prefer:

Many acquaintances

Few close friends

Do you go more by:

Facts

Principles

Are you more interested in:

Production and distribution

Design and research

Which do you find more complimentary:

'You are a very logical person.'

 'You are a very sentimental person.'

What do you value more about yourself:

You are unwavering

You are devoted

Do you more often prefer the:

Final and unalterable statement

Tentative and preliminary statement

Are you more comfortable:

After the decision

Before the decision

Do you:

Speak easily and at length with stranger

Find little to say to strangers

Are you more likely to trust your:

Experience

Hunch

Do you feel:

More practical

More ingenious

Which person is more to be complimented-one of:

Clear reason

Strong feeling

Are you inclined more to be:

Fair-minded

Sympathetic

Is it preferable mostly to:

Make sure things are arranged

Just let things happen

In relationships should most things be:

Re-negotiable

Random and circumstantial

When the phone rings do you:

Hasten to get it first

Wait and hope someone else will answer

Do you prize more in yourself:

A strong sense of reality

A vivid imagination

Are you more drawn to:

'The big picture'

Small details

Which seems the greater error:

To be too passive

To be too objective

Do you see yourself as basically:

Hard-headed

Soft-hearted

Which situation appeals to you more:

The structured and scheduled

The unstructured and unscheduled

Are you a person that is more:

Routinized

Whimsical

Are you more inclined to be:

Easily approachable

Somewhat reserved

In writings do you prefer:

The more literal

The more figurative

Is it harder for you to:

Identify with others

Utilize others

Which do you wish more for yourself:

Clarity of reason

Strength of compassion

Which is the greater fault:

Being indiscriminate

Being critical

Do you prefer a:

Planned event

Unplanned event

Do you tend to be more:

Deliberate

Spontaneous

Appendix D

Victor Grassian's Modified Moral Scenarios

Moral Decisions

Please read these morally ambiguous scenarios and select one of the two answers. Please answer with how you truly feel or would do since there is no penalty for how you answer. All scenes depicted are fiction.

You are protesting peacefully at a local event. An officer is going to arrest a friend of yours if you keep protesting. You both protest to the arrest, but the officer tells you that if continue to protest he'll arrest a random citizen as well as your friend. If you stop, then he'll only arrest your friend. What do you do?

Stop protesting and let the officer arrest your friend. Keep protesting and let the officer arrest your friend and the citizen.

Your parent or guardian was diagnosed with a rare form of cancer which only one treatment has proven successful. The treatment is very costly, however, and you, even with the help of friends, cannot afford it. There is a miserly and eccentric old woman known to store her wealth in her home. If only there was way you could get some of the wealth. She has so much, you know she probably wouldn't even notice it. It is her property, but your guardian still has so much life to experience. If there was a way you could steal the money without any punishment you would right? So, what would you do?

Steal the money and get your parent treatment.

Don't steal the money and let the cancer take over

A friend confides in you that he/she have committed a particularly heinous crime and you promise to never tell. Upon over hearing the news on television, you find that an innocent person is accused of the crime and you plead your friend to give himself/herself up. He/she refuse and remind you of the promise you made. What should you do?

Allow the innocent person to be accused.

Break your promise and friendship.

Your co-worker, admits hating his/her partner and wanting he/she dead, puts poison in his/her coffee, thereby killing his/her partner. Your best friend also admits to hating his/her partner and wants he/she dead. One day, your best friend accidentally puts rat poison in his/her partner's coffee thinking it's creamer. Your best friend has the antidote and knows he/she are the

only one that can save his/her partner. Is your best friend's failure to act just as bad as your co-worker's action?

No

Yes

You are responsible for hiring a new associate for your workplace. Your best friend applies and is qualified, but someone else applies who seems to be more qualified. You want to give the job to your friend, knowing if you don't, this could ruin your friendship since you know he/she really need it. Maybe the more qualified candidate needs it too, you note? Who do you give the job too?

The more qualified candidate, risking your friendship.

Your best friend, risking being unethical.

Appendix E

Feedback/ Debriefing Letter

Feedback/Debriefing Statement

Thank you for taking the time to complete this survey. The primary purpose of this project was for the primary researcher to examine any relation between personality traits to your moral decisions. The questions on this particular survey allowed me to find out your person personality type and present morally ambiguous scenarios. The personality type is modeled using the Myers-Briggs introversion/extroversion, intuition/observation, thinking/feeling, and judging/prospecting. The model to measure moral decisions is Victor Griassian's model of whether the decisions made is the right or wrong decisions.

Being this is a correlational study, I am examining a non-directional correlation hypothesis between Myers-Briggs personality type and moral decisions.

Although I cannot provide you with individual findings due to the fact that this survey was conducted anonymously, 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 research!

Primary Researcher: Kamden Havens ch381@lindenwood.edu

Faculty Supervisor: Dr. Michiko Nohara-LeClair 636-949-4371

mnohara-leclair@lindenwood.edu

Correlational Study Between Conservatism and Altruism

Aleksander Mansdoerfer[7]

This study was designed and executed with the intention to discover if there was a relationship between the amount of altruistic acts they have performed, and the attitudes towards political topics. Participants were registered voter's in the United States and were not asked any demographic questions. This study purely focused on the responses to an Altruism Personality Assessment and a Political Attitudes Questionnaire. This study concluded with the discovery of no correlation between the amount of Altruistic acts they have performed in their life and their political opinions. It was discovered this study used an Altruism Assessment Scale that incorrectly assessed altruism. In addition, the lack of demographic questions allowed no other conclusions to be drawn.

The enlightenment thinker Jean Jacques Rousseau proposed the notion that humans are inherently good, however it is society that makes them cruel (Rousseau, 1974). Many would argue that his thinking had a good notion of truth to it. However, in our modern society there are more complex social problems that affect our everyday lives and the lives of those around us. The question of this study is to answer, are certain groups in our society more likely to be altruistic than others? Specifically, are those with liberal or conservative values more altruistic than their counterparts?

The first question to answer is, what is altruism? Altruism has been studied a great deal since the 1950s. Originally, it was thought that there was no such thing as 'pure altruism' but rather every social interaction actually had an underlying selfish desire behind it (Pillivian & Charng, 1990). However as time went on, altruism studies moved from learning about the underlying drives behind people being good to one another, and instead by 1986 beginning to recognize that altruism can be defined by how does the action, benefit another

[7]Aleksander Mansdoerfer, Department of Psychology, Lindenwood University St. Charles. Correspondence concerning this article should be addressed to Aleksander Mansdoerfer, Department of Psychology, Lindenwood University, St. Charles, MO 63301. Email: AEM987@Lindenwood.edu

person, the act being done voluntarily and intentionally, and done without expecting any external

reward (Bar-Tal as cited in Pillivian & Charng, 1990). Acts of altruism described like that are

pure altruism, the trouble sometimes is learning if the act in question actually meets that

standard. An example of this can be seen in how some people vote in a democracy. Rationally,

no one would vote to raise taxes on themselves. In contrast, people do vote to raise taxes on

themselves for a variety of reasons, such as to better pay teachers at a local school, or take care

of the elderly. This is often seen as establishing welfare or interfering with capitalism.

The second question is how does altruism develop? Some would suppose that people's

altruistic tendencies might develop the same as other personality traits. However, altruism is not

a personality trait. Instead it is an adjective as it describes an action or activity. Researchers

instead believe such as modeling, child rearing practices, role-identities, and attribution lead to

the development of altruism (Pillivian & Chang, 1990). In addition, there is the concept

of 'awe' which is "an emotional response to perceptually vast stimuli that transcend current

frames of reference" (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015, p.1). This sense of awe

translates into something called "small self" which is how someone may feel when he or she

experience awe. In research, it was found that those who experience awe demonstrate more pro-

social behavior because they have seen or experienced sensations that override parts of their

innate selfish behaviors (Piff et al., 2015).

The third question is what causes people to develop their political opinions? Similar to

altruism, some would guess that there is a connection between political attitudes and their

personality. However, longitudinal research suggests weak or a statistically non-significant

relation between political dimensions and personality dimensions (Openness, Conscientiousness,

Extraversion, Agreeableness, Neuroticism), (Hatemi & Verhulst 2015).

The last question is how has political opinions affected people's social behavior in the past? In recent studies, it was found that conservatives and liberals rely on different moral foundations. Those with more liberal tendencies have been shown to be more preoccupied issues of harm and fairness while conservatives were more focused on in-groups, purity, authority, moral relevance and moral judgment (Graham, Haidt, & Nosek 2009).

My study will be correlating the results of the Altruism Assessment Score and the Score of the Political Attitudes Questionaire. It is possible that the questions about political opinions and altruism may cause participants to reflect upon their personal choices and prior actions resulting in feeling unsatisfactory. This potential for unsatisfactory self-reflection has the possibility of resulting in false response. The potential for lying on an anonymous survey was examined in 2010. In that study 1000 adults were anonymously surveyed regarding number of lies they told in a 24 hour period, all lies admitted to being told only came from 5% of the sample (Serota, Levine, & Boster 2010). With their study, we can propose that around 5% of responses given to this survey may contain falsehoods.

Although Jean Jacques Rousseau proposed than people are inherently good, does that make them inherently altruistic? Since altruism is a learned behavior, and political beliefs are not linked to some sort of intrinsic part of a person what does that mean for their relationship. I hypothesize that the relationship, if any exist between altruism and political values, will show that those with conservative values will be less altruistic overall.

Method

Participants

Consenting adults over the age of 18 were recruited through the Lindenwood Participant Pool and Aleksander Mansdoerfer's Facebook Account (76 volunteers attempted, 59 completed). Participants in participating Lindenwood courses were awarded 1 point of extra credit for taking

the survey. All participants who completed the survey were registered voters in the United

States.

Materials and Procedure

To assess participant's level of altruism, the Altruism self-report

scale (Rushton, Chrisjohn, & Fekken, 1981) was adapted to a digital format (Appendix 1). There

were 20-questions each with the same five response options available. The participants were

tasked with answering whether or not they have done each altruistic act by responding: Never,

Once, More than Once, Often, or Very Often. Each of these options was given a point value, the

more times the altruistic action was taken, the greater the score. The Most altruistic score that

can be answered is 100 and the least altruistic is 20.

The second part of this research was the participants, political opinions. To assess this the

Political Attitudes Questionnaire (Koleva, Graham, Iyer, Ditto, & Haidt, 2012) was adapted to a

digital format (Appendix 1). The participants were asked 11 questions, each with answers

that corresponded numeric scores. The more conservative option had higher the point

values. The most conservative score of this questionnaire is thirty while the most liberal

score was eleven because each score had a non-negative and non-zero number associated with

the choice.

Results

For my survey, I wanted to examine the correlation between the responses of the

Altruism Survey, and the Political Attitudes Questionnaire. I hypothesized that Conservatism has

a negative correlation with altruistic activity. Of the 79 people who participated in the study,

only 59 people reached the survey's conclusion. To analyze the political responses, the pairs of

scores were sorted by placing them in descending order (Appendix 2). The most liberal score

(11) was the lowest, and the most conservative score (30) were on opposite sides of

the spectrum. To study the results I had to operationally define what constituted conservatives,

liberals, and moderates. To categorize the three, I divided the range of the

highest possible conservative and liberal scores into three categories. I was able to determine

that: the liberal scores ranged from 11 to 16 (N1=33), The moderate scores ranged from 17-

23 (N2=25), and conservative scores ranged from 24-30 (N3=1). Upon running a

Pearson's *r* correlation for the pairs of summed political attitudes and the average altruistic

actions score (Appendix 3) no statistically significant correlation was found. To follow up with

that analysis, a second Pearson's *r* correlation was run with the summed political attitudes and

the summed altruism altruistic actions score (Appendix 4) also revealed no statistically

significant correlation either.

Discussion

Upon calculating the results of my survey, and reading the feedback given to me by my

participants I discovered several flaws in my study that may have caused my lack of statistically

significant results. From the analysis of my responses I discovered that with the way I

operationally defined conservatives, which was a political attitude sum greater than 24, I had

only one conservative response. However, my study also had the responses from 33 liberal

responses, and 25 moderate responses. As a result of this skew, I discovered I had a major

confounding variable, a lack of conservative participants. The lack of conservative responses

could have been due to the type of people I am connected with through Facebook. The

confounding variable, could also have been the way the political attitudes questionnaire is

designed to measure political attitudes on a simple left to right scale. This system measures

social opinions and economic opinions on the same spectrum, instead of accounting for

combinations of socially liberal, socially conservative, economically liberal, and economically

conservative. By failing to account for these differences, those who could have been on any of

four extremes came out appearing as moderates. An additional overlooked confounding variable within my study was the altruism self-report scale asked questions that did not take account into individual abilities to complete the altruistic activities asked about. An example of this issue, can be found in the first question of the altruism self-report scale. The first question asked the participants if they "had helped a stranger who was pulled over on the side of the road" (Appendix 1). The action of helping a stranger who was pulled over on the side of the road is altruistic, however it may be something a participant may not do because of the risk to their personal safety they may incur. The value of their own personal safety may be the reason they have never done this altruistic action but that doesn't mean they are not an altruistic person.

Although my research was ultimately inconclusive, I learned a great deal that could dramatically improve further investigation into my research question. I intend to do this research again, however I need to do two things before I can release an updated survey. The first thing that needs to be updated is my political attitudes questionnaire. I believe, that by maintaining the current scoring method but separating the scores of each question by whether or not the question is asking about their economic or social political opinions I can differentiate the results on a more complicated spectrum. In addition, I could write my own altruism self-report scale. A complication with writing my own altruism self-report scale, is it may need a research project on its own to establish validity and reliability. However, I could start by removing questions that may be influenced by the individuals safety risk. Alternatively, I could pose hypotheticals to participants about what they would do, instead of what they have done.

In conclusion my research question asked if there was a correlation between the altruistic actions someone has done, and their political opinions. I hypothesized that those who are more conservative who be less altruistic than those who were liberal. My research resulted in statistically insignificant findings.

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Appendix 1.

Q0 Consent Form
Introduction

The researcher conducting this project is an undergraduate student at Lindenwood University who is enrolled in the PSY40400: Advanced Research Methods course. The purpose of this survey is to gather data regarding individual feelings about social issues and how they have interacted with other people in the past. The results of this survey will be published in a course wide research journal.

Procedures
This survey asks you to respond to a few demographic items as well as questions asking about your level of altruism and about your perspective on social issues. Altruism is a trait that shows how involved in the well being of others you are. This survey can be used in order to see whether there is a relation between altruism and a person's social views. 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. 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
By taking part in this study, you will earn 1 bonus point toward your LPP participating course. You will also gain experience taking part in a psychological survey project and potentially learn more about the field. 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

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. 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)

End of Block: Consent Form

Start of Block: `

Q5 You can legally vote In the United States of America and its territories.
    ○ Yes (1)
    ○ No (2)

Q6 Are you over the age of 18?
    ○ Yes (1)
    ○ No (2)

End of Block: `

Start of Block: Block 1

Q1 Please select the option for each topic that most applies to you.

	Never (1)	Once (2)	A few (3)	Often (4)	Always (5)
I have helped a stranger that had pulled over on a highway (1)	○	○	○	○	○
I have given directions to a stranger. (2)	○	○	○	○	○
I have made change for a stranger. (3)	○	○	○	○	○
I have given money to a charity. (4)	○	○	○	○	○
I have given money to a stranger who needed it (or asked for it). (5)	○	○	○	○	○
I have donated goods or clothes to a charity. (6)	○	○	○	○	○
I have done volunteer work for a charity. (7)	○	○	○	○	○
I have donated blood. (8)	○	○	○	○	○

I have helped carry a stranger's belongings (Books, boxes, furniture). (9)	○	○	○	○	○
I have delayed an elevator and held the door open for a stranger. (10)	○	○	○	○	○
I have allowed someone to go ahead of me in a line (Supermarket, restaurant, amusement park). (11)	○	○	○	○	○
I have given a stranger a lift in my car. (12)	○	○	○	○	○
I have corrected a clerk or teller at a super market for UNDERCHARGING me for an item. (13)	○	○	○	○	○
I have let a neighbor I did not know borrow an item that had some value to me. (14)	○	○	○	○	○
I have bought 'charity' holiday cards deliberately because I knew it was for a good cause. (15)	○	○	○	○	○
I have helped a colleague who I did not know well, with an task that I had a greater amount of skill in. (16)	○	○	○	○	○

I have, before being asked, voluntarily looked after a neighbor's pet or children without being paid for it. (17)	○	○	○	○	○
I have offered to help a disabled or elderly stranger across the street (18)	○	○	○	○	○
I have offered my seat on a bus or train to a stranger who was standing (19)	○	○	○	○	○
I have helped an acquaintance to move households. (20)	○	○	○	○	○

End of Block: Block 1

Start of Block: Block 5

Q19 Please respond to each question with the statement that comes closest to your view.

End of Block: Block 5

Start of Block: Block 4

Q7 Which statement about abortion comes closes to your view?
   o   Abortion should not be permitted at all (4)
   o   Abortion should be against the law except in cases of rape, incest, and to save the woman's life (3)
   o   Abortion should be available but under stricter limits than it is now. (2)
   o   Abortion should be generally available to those who want it (1)

Q8 Which statement about defense spending comes closest to your view?
- o   The federal government should decrease defense spending (1)
- o   The federal government should maintain current defense spending (2)
- o   The federal government should increase defense spending (3)

Q9 Which statement regarding teaching 'intelligent design'/'creationism comes closest to your view?
- o   Public schools should only teach Intelligent design/ creationism (instead of evolution) (3)
- o   Public schools should teach Intelligent design/ creationism along with evolution (2)
- o   Public school should only teach the theory of evolution (1)

Q10 Which statement regarding illegal immigration comes closest to your view?
- o   Illegal immigrants do more to weaken the US economy overall because they do not all pay taxes but can use public services. (2)
- o   Illegal immigrants do more to strengthen the US economy overall because they provide low-cost labor, pay taxes, and spend their money. (1)

Q11 Which statement regarding terrorism comes closest to your view?
- o   In the long run, the US will be safer if it CONFRONTS the countries and groups that promote terrorism in the middle east (2)
- o   In the long run, the US will be safer if it STAYS OUT of other countries affairs in the middle east. (1)

Q12 Which statement regarding torture comes closest to your view?
- o   It is OFTEN justified to use forceful interrogation techniques/torture to get information from suspected terrorist (4)
- o   It is SOMETIMES justified to use forceful interrogation techniques/torture to get information from a suspected terrorist (3)
- o   It is ALMOST NEVER justified to use forceful interrogation techniques/torture to get information from a suspected terrorist (2)
- o   It is NEVER Justified to use forceful interrogation techniques/torture to get information from a suspected terrorist. (1)

Q13 Which statement regarding STEM cell research comes closest to your view?
- o The federal government SHOULD NOT fund research that would use newly created STEM cells obtained from human embryos (2)
- o The federal government SHOULD fund research that would use newly created STEM cells obtained from human embryos (1)

Q14 Which statement regarding flag-burning comes closest to your view?
- o I favor a constitutional amendment that would make it illegal to burn the American flag (2)
- o I oppose a constitutional amendment that would make it illegal to burn the American flag (1)

Q15 Which statement regarding gun control comes closest to your view?
- o It is more important to protect the right of Americans to own guns. (2)
- o It is more important to control gun ownership (1)

Q16 Which statement regarding global warming/climate change comes closest to your view?
- o The government should decrease current restrictions because global warming is a theory that has not yet been proven. (3)
- o The restrictions currently in place are sufficient to reduce the effects of global warming. (2)
- o The government should increase the restrictions on emissions from cars and industrial facilities such as power plants and factories in an attempt to reduce the effects of global warming. (1)

Q17 Which statement regarding same-sex marriage comes closest to your view?
- o Same-sex couples should NOT be allowed to marry nor have civil unions. (3)
- o Same-sex couples should be allowed to have a civil union, but not to marry. (2)
- o Same-sex couples should be allowed to legally marry. (1)

End of Block: Block 4

Start of Block: Block 2

Q4
Feedback Letter
Thank you for participating in my study. The results will be used in order to determine if there is a correlation between how someone may handle ambiguous situations, and how they feel about social issues.

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

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. If you are interested in obtaining a summary of the findings of this study at a later date, please contact me and I will make it available to you at the completion of this project

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 2

Appendix 2.

Political Attitude Sum	Altruism Sum	Political Attitude	Altruism Average
11	46	L	2.3
11	53	L	3.631578947
11	48	L	2.35
11	41	L	2.65
11	52	L	4.15
11	49	L	3
11	50	L	4.2
11	76	L	2.1
12	69	L	3.05
12	61	L	2.75
12	81	L	2.894736842
12	65	L	4.05
12	58	L	3.6
12	46	L	2.4
13	42	L	3.95
13	55	L	3.25
13	72	L	2.4
13	52	L	2.5
13	52	L	2.4
13	74	L	2.85
14	55	L	2.75
14	36	L	2.95
14	88	L	2.8
15	55	L	2.8
15	48	L	3.9
15	78	L	2.6

15	62	L	2.45
16	60	L	2.05
16	84	L	2.1
16	59	L	2.15
16	86	L	2.9
16	49	L	4.3
17	47	M	2.25
17	79	M	2.45
17	50	M	2.75
17	48	M	2.6
17	56	M	2.65
17	53	M	2.85
17	53	M	1.8
18	57	M	2.1
18	56	M	2.6
18	45	M	3.1
19	41	M	3.7
19	70	M	1.8
19	45	M	2.45
20	49	M	2.8
20	42	M	3
20	36	M	2.05
20	74	M	2.25
20	60	M	3.7
20	45	M	2.3
21	43	M	2.65
21	56	M	2.5
22	83	M	3.5
22	55	M	3.8

| 22 | 42 | M | 4.4 |
| 24 | 57 | C | 2.25 |

Appendix 3.

Correlations

		Political_Attitudes	Altruism_Avg
Political_Attitudes	Pearson Correlation	1	-.103
	Sig. (2-tailed)		.445
	N	57	57
Altruism_Avg	Pearson Correlation	-.103	1
	Sig. (2-tailed)	.445	
	N	57	57

Appendix 4.

Correlations

		Political_Attitudes	Altruism_Sum
Political_Attitudes	Pearson Correlation	1	-.090
	Sig. (2-tailed)		.506
	N	57	57
Altruism_Sum	Pearson Correlation	-.090	1
	Sig. (2-tailed)	.506	
	N	57	57

How Social Media is Perceived to Affect Romantic Relationship Satisfaction

Hannah S. Shockley[8]

This research discusses the perceived effects of social media on relationship satisfaction. It was hypothesized that social media is perceived to affect romantic relationships in a negative way, especially in the form of jealousy and mistrust, with increased usage. Past research about monitoring romantic partners on social media, the fear of missing out in relation of social media, social media addiction, and mental and psychological effects of social media were explored in relation to the research being presented. Participants took an online survey through Qualtrics which resulted in statistically significant data that partially supported the hypothesis. The perceived effects of social media are negative on romantic relationships when it comes to trust, satisfaction of the relationship and with one's significant other regarding their usage of social media. The perception that jealousy of significant others social media usage having a negative impact on relationship satisfaction was mot supported by the hypothesis.

Social media is one of the main attractions of society today, as it is a way that the entire world can stay in tune with each other and communicate. Through social media one can watch videos, send messages, pictures, and more. Social media is seen all over the world as a valuable resource because of the different avenues of communication available to everyone. However, when in a committed and romantic relationship, social media can sometimes be seen as the enemy. In my research study, I looked at how social media was perceived to affect romantic relationships. Research about social media and its perceived effects on romantic relationships of adults would benefit today's society by increasing societal awareness of the role social media plays in our relationships in general and pose the question as to why we have let social media become so influential in our relationships with our loved ones. The results of this research may also help couples see how much social media really does appear to affect their relationship and may prompt them to change their behavior for the better. These changes may lead to the

[8]Hannah Shockley, Psychology Department, Lindenwood University. Correspondence regarding this paper should be addressed to Hannah Shockley, at Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301. Email at hss606@ lindenwood.edu

enhancement of trust in themselves and in their partners to make for a relationship that is better and stronger. My hypothesis is that social media is perceived to affect romantic relationships in a negative way, especially in the form of jealousy and mistrust, with increased usage.

In a study conducted to investigate the monitoring of former and current romantic partners on social media, 328 college students were recruited from a Midwestern university to take an online survey (Fox & Warber, 2015). In the sample of college students recruited, 201 of them were currently in a relationship, and 127 had broken up with their romantic partners within a year from when the study was conducted (Fox & Warber, 2015). The three measures that were of focus in this online survey were interpersonal electronic surveillance (IES), relational uncertainty, and attachment.

When looking at IES, Tokunga's IES scale was used when measuring people monitoring their significant others on Facebook. The participants were asked to answer questions, based on this scale, such as "I visit my (ex-) partner's social networking site page often" on a 5-point Likert scale (Fox & Warber, 2015). The Knobloch and Solomon's scale was used in this study to measure relational uncertainty (Fox & Warber, 2015). Participants were asked to answer questions, based on this scale, such as "How certain you about the current status of this relationship?" (Fox & Warber, 2015). Attachment was measured by Bartholomew and Horowitz's categorical attachment measure. The participants had to analyze their relationship and pick a description that best matched how they felt about their relationship. The descriptions included things like "It is easy for me to become emotionally close to others…" (Fox & Warber, 2015).

The results of this study showed that there was no correlation between IES and relational uncertainty but there was a correlation between IES and attachment styles (Fox & Warber, 2015), meaning that if there was any uncertainty in the relationship, there was not

much evidence saying that one would go and surveil their partner on social media. However, those who are more fearful and preoccupied through their attachment style, have higher rates of IES in both current and terminated relationships. The results did show that those who were in a committed relationship did not report as much uncertainty about their relationship and themselves than those who were in a terminated relationship did. This study also indicated that the attachment theory is a successful framework for comprehending IES among romantic and ex-partners on social media, such as Facebook.

The darker side of social media was explored in a study that was conducted to shed light on its negative effects with a focus on relational and psychological stressors associated with the use of Facebook. In this study focus groups of 44 adult Facebook users, 27 women and 17 men, were conducted by three mediators trained in conducting groups such as these (Fox & Moreland, 2015). The focus group's sessions were video recorded while mediators guided and encouraged their conversations to stay on topic of the subject of the research.

The focus group's session results revealed participants' personal stories surrounding their experiences with Facebook that included negative psychological and relational effects. In these negative experiences, five themes emerged in the results and analysis from the video recordings: managing inacceptable or bothersome content, feeling bound, absence of confidentiality and control, social evaluation and suspiciousness, and relationship strain and disagreement (Fox & Moreland, 2015). This study showed that even though Facebook users experience negative psychological and relational emotions, they still feel as if they have to access Facebook on a regular basis due to the fear of missing out and relationship surveillance (Fox & Moreland, 2015).

A study, conducted to explore the all-encompassing use of social media among young adults and the effects that it may have on their mental health and functioning in general,

was focusing on three areas of health: psychological symptoms, span of attention,

and bodily symptoms (Baker, Krieger & LeRoy, 2016. The fear of missing out was

also analyzed in this study which is related to the experience and the origin of social media and

its usage (Baker et. al., 2016). A survey was taken online by 386 participants, who consisted of

undergraduate students from a large and diverse university.

The fear of missing out (FoMO), time spent on social media, physical symptoms,

depressive symptoms, and mindful attention were all of the things that were measured

throughout this study. FoMO was measured by a previously constructed FoMO 10-point scale

which asked the participants to indicate how true each statement asked of them was to their

experiences in general (Baker et. al., 2016). Time spent on social media was measured by asking

the participants to specify the amount of time spent on social media in hours and minutes for

each day. Physical symptoms were measured by the previously constructed Physical Symptoms

Checklist, which asked participants to select all that applied out of 10 physical symptoms that the

participant had felt or experienced within the past week (Baker et. al., 2016). Depressive

symptoms were measured by the previously created Depression Scale from the Center for

Epidemiological Studies. This is a 20-item scale that asks participants to answer in a scale from 1

to 4 how often they felt or behaved in certain ways over the past 7 days (Baker et. al.,

2016). Mindful attention was measured with the 15-item Mindful Attention Awareness

Scale (MAAS) which asks participants to rate the frequency of several experiences that they may

have had in their life (Baker et. al., 2016).

The results of this study show that the fear of missing out had a positive association with

the amount of time spent on social media (Baker et. al., 2016). This means that the more amount

of time that you spend on social media, the higher level of fear of missing out you will have and

vice versa. Also if you have a higher level of FoMO, you are more likely to have more

depressive symptoms, less mindful attention, and more physical symptoms associated to social media usage as a young adult (Baker et. al., 2016).

In China, a study was executed that examined social media addiction among adolescents involving middle schools from urban cities all over the country. This study was focused on revealing whether or not social media addiction existed within the adolescents of China. If addiction did exist in these adolescents, the researcher wanted to clarify three things: who the addicts were, what their symptoms were, and to what extent they are addicted to social media. Questionnaires were given to the participants to gather the majority of the data. Surveys given to focus groups as well as interviews given to parents and teachers of the participants, after the main data collection, were also used to gather data. With a total of 1,549 participants, 90% of the participants used social media and 15.6% were considered addicts (Huang, 2011).

The study found that most of the participants that were considered addicted participants had the following personality traits and characteristics: self-absorbed, leisurely bored, and manipulative of their impression on people through social media (Huang, 2011). The participants of this study that were defined as addicts also experienced addictive symptoms which included preoccupation, opposing consequences, relief of negative emotions, and loss of appeal in social events (Huang, 2011). The addicted participants were able to share gratifications for using social media. These gratifications were used to predict the signs of oncoming or current social media addiction by parents, peers, and by oneself. The results also indicted that social media addiction and its symptoms did have a severe and significant impact on the adolescent's academic progress and social life (Huang, 2011). This research shows how much of an impact social media has on one's life and how seriously it can influence it.

Two studies were conducted examining associations between romantic relationship-oriented activities regarding Facebook, relationship satisfaction, and the perceived effects

of Facebook on relationships. In Study 1, an online survey was completed by 93 participants that examined relationship-oriented behaviors on Facebook, relationship satisfaction and demographics (Seidman, Langlais, & Havens, 2017). Study 1 was mainly focused on different ways Facebook could be used and the wide range of Facebook behaviors. Study 2 consisted of an online survey that was completed by 255 participants. The participants assessed Facebook behaviors and the satisfaction of relationships the same way that they were assessed in Study 1 (Seidman et. al., 2017). Other things that were measured in Study 2 consisted of how participants felt that Facebook effected the closeness of the relationship being examined, how frequently they experience certain experiences on Facebook, feelings evoked by Facebook, and how frequently they saw other people on their partners Facebook page.

Both Study 1 and Study 2 indicated in their results that there was a positive association between relationship satisfaction and displaying relationship status on Facebook, but were negatively correlated with displaying more affection online than offline (Seidman et. al., 2017). This means that if people publically display their relationship on social media, then they are more satisfied with their relationship in relation to the usage of social media. In contrast, if one is posting too much information and showing too much affection toward their partner on Facebook, the relationship satisfaction is usually lower. Study 2 uncovered that those who experience high levels of jealousy, monitoring was unrelated to the idea that Facebook helped their relationship (Seidman et. al., 2017). This means that those who are the most jealous, who are usually the people who feel that they need to monitor their partner on social media, found no correlation between whether or not the monitoring made them feel as if it helped or hurt their relationship. In contrast, the people who feel lower levels of jealousy found that monitoring was associated with them feeling as if Facebook helped their relationship because they have nothing to be jealous of (Seidman et. al., 2017). These results provide evidence that if one is feeling

disconnected from their relationship, they are more likely to overcompensate for those feelings by posting excessively about their relationship on Facebook. How people's perceptions of the effects Facebook may have on their romantic relationship all depends on how Facebook is used, which could encourage or obstruct the quality of the relationship (Seidman et. al., 2017).

Method

Participants

Of the 67 participants, there were 45 participants that were between the ages of 19 and 25, there were 16 participants between the ages of 26 and 30, there were 4 participants between the ages of 31 to 34. There were also 2 participants that were a bit older than the rest, with one being 50 years old and the other 58 years old. As for how long the participants have been in a romantic relationship, there were 4 participants that have been in a relationship for less than 6 months, 23 that have been in a relationship for 1 to 2 years, 21 that have been in a relationship for 3 to 5 years, 15 who have been in a relationship from 6 to 10 years, 1 participant that has been in a relationship for 15 years, 1 participant that has been in a relationship for 21 years, and 1 participant that has been in a relationship for 35 years.

There were 2 males, 55 females, and 1 participant that identified as a cis female, and 1 participant who identified as non-binary. There were 4 participants that did not specify their gender. As for ethnicity, 60 identified themselves as Caucasian, 3 Hispanic/Latinos, and 4 participants that did not specify. There were 44 who identified themselves as heterosexual, 4 as homosexual, 8 as bisexual, 3 as pansexual, and 9 participants that did not specify. Of the 67 participants, 12 said that they were married, 16 engaged, and 32 were still dating, being considered a boyfriend or girlfriend.

One of the variables examined was the type of social media that is used by both the participants and their significant others. According to the survey, there were 56 participants that

use Facebook with their partners, 13 participants use Instagram with their partners, 52

participants that use Snapchat with their partners, 11 participants that use Twitter with their

partners, 2 participants that use LinkedIn with their partners, 3 participants that use Tumbler with

their partners. There were 5 participants that said that they use other forms of social media with

their partners such as texting, phone calls, and Skype.

Materials and Procedure

The research survey, available in Appendix A, consisting of 19 questions, was

constructed by the primary researcher on Qualtrics and the link to the survey was posted on

Facebook from February 20, 2018 to April 10, 2018. The survey focused on participants who are

18 years and older and that have been in a consistent romantic relationship for at least 6

months. Demographic information was also asked of the participants including age, how long

they have been in a romantic relationship, gender, ethnicity, sexual orientation, and relationship

status.

To participate in the survey, the participants started by clicking on the link to Qualtrics on

Facebook. When the survey appeared, the informed consent letter was presented for the

participants to read, giving them information about the survey, the researcher, the qualifications

of the survey, and letting them know that they could choose to stop participating in the survey at

any point in time. After reading the consent form, the participants could either choose to consent

to take the survey, or deny consent and to not take the survey. After the participants

have consented to take the survey, he or she would start on the demographic questions that were

stated above. If the participant did not give consent, he or she would be redirected to the end of

the survey where the thank you letter would appear, thanking them for their time.

After the participants filled out the demographic information and have met the

qualifications, being 18 years of age or older and having been in a romantic relationship for at

least 6 months, the participants were directed to the research questions of the survey. These

questions were focused on social media and the types the participants and their partners use, the

amount of time spent on social media for the participants and their partners, and emotions that

the participants may feel in certain situations regarding social media and their partners. Other

areas of focus include: whether or not social media has ever caused any arguments between the

participants and their partners and how often, how much the participants trust their partners in

general and in regards to social media, and how satisfied the participants are with their

relationship in general and in regards to social media.

Once participants have completed all of the questions in the survey they were directed to

the end of the survey which included the thank you letter. This thank you letter debriefed the

participants and informed them about the reasoning behind the research and thanked them for

their participation and time. It also gave them the contact information of two resources just in

case the participants started to feel any emotional distress or feel like they need assistance after

taking the survey, and then gave the contact information of the researcher and the faculty

supervisor in case of questions about the results or the research. After the survey deadline, the

data was collected and multiple statistical and correlational analyses were conducted to analyze

the data. If a participant were to stop taking the survey for any reason, the data

would not be put into the pool of data that was later analyzed and it would be deleted from

Qualtrics.

Results

My hypothesis was that social media is perceived to affect romantic relationships in a

negative way, especially in the form of jealousy and mistrust, with increased usage. A series of

correlational analyses were conducted to see how social media usage was associated with trust

and jealousy. These correlational analyses included two one-tailed Pearson's *r* tests and two two-

tailed Pearson's *r* tests. There was a one-tailed Pearson's *r* correlational analysis conducted to

see whether or not there was a relationship between the amount of social media usage

between the participant's significant other and the overall satisfaction of the relationship. The

results of this analysis shows that the more hours the participant's significant other spends on

social media, the less satisfied they are with their relationship ($r = -.299$, $p = .009$). A one-

tailed Pearson's *r* correlational analysis was conducted to see if there was a relationship

between the amount of social media usage between the participant's significant other and the

overall trust of the significant other in the relationship. This analysis displayed that the more time

the participants significant other spends on social media, the less the participant trusts them in

their relationship ($r = -.395$, $p = .001$). A two-tailed Pearson's *r* correlational analysis

was conducted to associate the amount of trust that the participant has in their significant

other compared to the amount of trust that they have in their significant other in regards to social

media. According to this correlational analysis, the more the participant trusts their significant

other in general, the more they will trust them in regards to their social media usage ($r =$

$.881$, $p < .001$). A two-tailed Pearson's *r* correlational analysis was also conducted to

associate the amount of satisfaction that the participant has in their relationship in general

compared to their satisfaction with their significant other regarding social media usage. This test

demonstrated that the more satisfied the participant is with their relationship, the more satisfied

that they will be with their significant others social media usage ($r = .659$, $p < .001$).

There were multiple descriptive analyses conducted for situations that were created to

display what may occur on social media to see if there were certain emotions that were perceived

to be felt more predominantly by the participants (see Table 1). The emotions that were analyzed

included rage, betrayal, jealousy, contentment, happiness, and love. For almost every

situation, the majority of the participants felt content about the possible situations that may arise

when using social media (see Table 1). For the sake of this research, the second most felt

emotion by the participants will be discussed.

Of the participants, 1% said that they would feel jealous in a situation where someone of

the opposite sex of the participant likes their significant others posts or pictures. In

a situation that someone of the same sex as the participant likes their significant others posts or

pictures, 2% said that they would feel happy. Of the participants, 3% thought they would

feel jealous in the situation when the participants significant other was tagged in a post by

someone of the opposite sex of the participant. In a situation where the participants significant

other is tagged in a post by someone of the same sex as the participant, 2% said that they would

feel happy. In a situation where the participant's significant other messages or talks to others of

the opposite sex of the participant on social media, 32% perceived to feel jealous. Of all of the

participants 1% of the participants thought they would feel jealous and 1% thought they would

feel happy in a situation where the participant's significant other messages or talks to others of

the same sex of the participant on social media. If a situation where the participant's significant

other shares personal information on social media were to present itself, 1% of the participants

said they would feel betrayed and another 1% said they would feel happy. The situation where

the participant's significant other posts pictures of the participant and the participant's romantic

relationship on social media was the only situation where the majority of the participants did not

feel content. The majority of the participants, 51%, said that they would feel loved in this

situation and 41% said that they would feel happy.

Discussion

Social media plays a big role in society, and in the romantic relationships of the people

who participate. My hypothesis was that social media is perceived to affect romantic

relationships in a negative way, especially in the form of jealousy and mistrust, with increased

usage. The results of the survey and the statistical analyses of the data, partially support this hypothesis. The perceived effects of social media, with increased usage, are negative on romantic relationships when it comes to trust, satisfaction of the relationship and satisfaction with one's significant other in regards to their usage of social media. But when it comes to jealousy, my hypothesis was not supported in full.

The correlational analyses ran support my hypothesis in that social media's perceived effects on romantic relationship satisfaction are indeed negative in the aspect of trust. These results show that if there is any doubt of one's significant other and their integrity, then one's significant other's social media usage will be doubted as well causing increased feelings of mistrust toward one's significant other. These increased rates of mistrust lead to decreased rates of relationship satisfaction. I also hypothesized that increased usage of social media will have negative effects on romantic relationship satisfaction and this aspect of my research was also supported. The correlational analyses ran showed that the more time one's significant other spends on social media, the rates of mistrust increase and the rates of relationship satisfaction decrease.

When the participants were presented with eight different situations that could present themselves when using the same social media as one's significant other, the majority of the participants said that they would feel content with all of the situations except for one. The situations that had to do with people of the opposite sex of the participant had higher rates of jealous emotions compared to those situations that had to do with people of the same sex as the participant. The situation that had the closest margin of participants feeling content and jealous was the situation on which the participants significant other was messaging or talking to someone of the opposite sex of the participant, with content emotions at 48% and jealous

emotions at 32%. This information suggests that social media and its perceived effects on romantic relationships are geared toward trust issues more than jealousy issues.

Limitations

Being that this study was designed, and completed in a spring semester Advanced Research Methods course at Lindenwood University, some limitations were apparent. The source in which the participants were recruited was limited the Facebook. Because of this, a lot of the participants that took this study were friends or acquaintances of myself leaving possibilities for biases in recruiting the participants. To prevent this limitation, I would broaden my horizons with recruiting participants. I would make sure that multiple venues of social media were used to recruit and I could also make sure to post the survey on different community pages and not just to my friends, family, and peers. Facebook being the only social media site that I used to recruit participants is a limitation in another way as well. If I would have used other sources of recruitment, I may have gotten a more diverse assortment of participants to partake in the study. The amount of time that was given to conduct the study was also a limitation because if more time was given, a bigger sample size may have been able to be had, which could lead to more accurate results. Another limitation of this study includes whether or not the participants were truthful when filling out the survey. Even though the survey was anonymous, which was put in place to help keep this limitation from happening, there is always a chance that the truth is not shared with the researchers in full. The fact that the survey was also only available through the internet, this could impact the results because this would mean that the participants would have to have access to a technological device of some sort as well as complete understanding of the questions being asked. If there was a bad connection, or they were not able to access the survey through the internet, or they did not fully understand the questions being asked in the survey, these limitations could have a negative impact on the accuracy of the data.

Regarding future studies on this topic of research, I would suggest looking into whether or not social media and jealousy has a more statistically significant perceived effect on relationship satisfaction than I found in my study. Because of some of the limitations that presented themselves in this study, I believe that the results of the aspect of effects of jealousy were skewed and therefore deemed inaccurate. I do believe that age may have a bigger effect on whether or not these perceived effects do have an influence on one's romantic relationship. I would like to look farther into this aspect as well to get a more well-rounded and accurate look at this research question.

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Table 1

Percentages of Participant's Perceived Emotions Regarding Situations That May Occur on Social Media						
	Enraged	Betrayed	Jealous	Content	Happy	Loved
When someone of the opposite sex likes your significant other's posts or pictures.	0%	0%	1%	80%	0.4%	0%
When someone of the same sex likes your significant other's posts or pictures	0%	0%	0.1%	83%	2%	0%
When your significant other is tagged in a post by someone of the opposite sex.	0.4%	0.3%	3%	60%	0.4%	0%
When your significant other is tagged in a post by someone of the same sex.	0%	0%	0.1%	79%	2%	0.1%
When your significant other messages or talks to others of the opposite sex on social media.	0.4%	1%	32%	48%	0.3%	0%
When your significant other messages or talks to others of the same sex on social media.	0%	0%	1%	76%	1%	0.1%
When your significant other shares personal information on social media.	0.4%	1%	0.1%	68%	1%	0.1%
When your significant other posts pictures of you and your relationship on social media.	0%	0%	0%	0.6%	41%	51%

Appendix A

How Social Media Is Perceived to Affect Romantic Relationship Satisfaction

Start of Block: Informed Consent

Q1

Hello and Welcome to this Research Study.

You are being asked to participate in a survey conducted by Hannah Shockley at Lindenwood University. This study examines social media and its perceived effects on romantic relationships. You must be at least 18 years of age and have been in a romantic relationship for at least 6 months to meet the qualifications to take this survey. It will take approximately 10 to 15 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. You may also skip any questions that make you feel uncomfortable.

WHAT ARE THE BENEFITS ASSOCIATED WITH THIS STUDY?

There are no direct benefits to you participating in this study. However, your participation is an opportunity to contribute to psychological science as well as your romantic relationship. There is a chance the data from this survey could be presented at a psychological conference or published in an academic journal in the future.

WHAT ARE THE RISKS ASSOCIATED WITH THIS STUDY?

Although there is no known risks associated with the study, if you find that taking the survey causes you emotional distress regarding current or past romantic relationships and you would like assistance, please contact the Lindenwood Student Counseling and Resource Center at 636-949-4889, if you are a Lindenwood student, or the Health and Wellness Hotline at 1-800-273-8255.

I will not collect any personal information, such as birth dates or social security numbers. This survey is completely anonymous and will not reveal the identity of the participants in any way.

WHO CAN I CONTACT WITH QUESTIONS?

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

Hannah Shockley (Principal Investigator) at hss606@lindenwood.edu or

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

If you have any concerns about the project that should be addressed with someone outside of the research team, you may contact: Mr. Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

Q19 I verify that I have read and understood the information above and I am at least 18 years of age and give consent to participate in this research.
- o   Yes, I voluntarily give consent to taking part in this study (1)
- o   No, I do not consent to taking part in this study (2)

Skip To: End of Survey If I verify that I have read and understood the information above and I am at least 18 years of age... = No, I do not consent to taking part in this study
End of Block: Informed Consent

Start of Block: Age and Relationship Limitations

Q3 How old are you?

_____

Skip To: End of Survey If How old are you? < 18

Q8 How long have you been in a relationship with your significant other? (in months or years)
- o   Less than 6 months (1)
- o   Other (2) _____

Skip To: End of Survey If How long have you been in a relationship with your significant other? (in months or years) = Less than 6 months
End of Block: Age and Relationship Limitations

Start of Block: Demographic Questions

Q4 Gender?

_____

Q7 Ethnicity?
- o   Caucasian (1)
- o   African American (2)
- o   Hispanic/Latino (3)
- o   Asian (4)
- o   Multiracial (2+ races) (5)
- o   Other (6)

Q6 Sexual orientation?

_____

Q5 Relationship status?
- o   Married (1)
- o   Engaged (2)
- o   Dating (3)
- o   Other (4) _____

End of Block: Demographic Questions

Start of Block: Questions Regarding Research Question

Q13 What type of social media do you and your significant other use to communicate with each other? (choose all that apply)
- Facebook (1)
- Instagram (2)
- Twitter (3)
- Snapchat (4)
- Tinder (5)
- LinkedIn (6)
- Tumbler (7)
- Other (8) _____

Q24 How many hours a day does your significant other use social media? (0-24 hours)

_____

Q22 How many hours a day do you use social media? (0-24 hours)

_____

Q19 Which emotion best describes what you think you would feel when these things happen on social media? (check all that apply)

	Enraged (1)	Betrayed (2)	Jealous (3)	Content (4)	Happy (5)	Loved (6)
When someone of the opposite sex likes your significant other's posts or pictures. (1)	o	o	o	o	o	o
When someone of the same sex likes you significant others posts or pictures. (2)	o	o	o	o	o	o

When your significant other is tagged in a post by someone of the opposite sex. (3)	○	○	○	○	○	○
When your significant other is tagged in a post by someone of the same sex. (4)	○	○	○	○	○	○
When your significant other messages or talks to others of the opposite sex on social media. (5)	○	○	○	○	○	○
When your significant other talks to others of the same sex on social media. (6)	○	○	○	○	○	○
When your significant other shares personal information on social media. (7)	○	○	○	○	○	○
When your significant other posts pictures of you and your relationship on social media. (8)	○	○	○	○	○	○

Q23 Has social media ever caused any arguments between you and your significant other?
- ○   Yes (1)
- ○   No (2)

Q20 How many days do you and your significant other have arguments because of social media in a week? (0-7 days)

_____

Q11 How much do you trust your significant other in general?
- o   0 (0)
- o   1 (1)
- o   2 (2)
- o   3 (3)
- o   4 (4)
- o   5 (5)
- o   6 (6)
- o   7 (7)
- o   8 (8)
- o   9 (9)
- o   10 (10)

Q9 What is your overall relationship satisfaction in general?
- o   0 (0)
- o   1 (1)
- o   2 (2)
- o   3 (3)
- o   4 (4)
- o   5 (5)
- o   6 (6)
- o   7 (7)
- o   8 (8)
- o   9 (9)
- o   10 (10)

Q26 How much do you trust your significant other regarding social media usage?
- o   0 (0)
- o   1 (1)
- o   2 (2)
- o   3 (3)
- o   4 (4)
- o   5 (5)
- o   6 (6)
- o   7 (7)
- o   8 (8)
- o   9 (9)
- o   10 (10)

Q24 How satisfied are you with your significant other regarding social media usage?
- ○ 0 (0)
- ○ 1 (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (10)

End of Block: Questions Regarding Research Question

Start of Block: Thank You Letter

Q19 Thank you for taking the time to complete this survey for my class project at Lindenwood University. I am interested in the perceived affects that social media has on romantic relationships in regards to jealousy and mistrust. My hypothesis is that in society today, social media is perceived to effect romantic relationships in negative ways, in the form of jealousy or mistrust, with increased usage. I am focusing on this topic for my research because my current career path of interest is marriage and family counseling and I have always been very interested in relationships in general. I believe that adding social media to the mix helps promote generalization to relationships in society today.

I believe that this research may benefit today's society by opening the eyes of all to how big of a role social media could play in our relationships in general. This may also promote less social media usage as a whole and promote spending more quality time with one's significant other, which could lead to higher romantic relationship satisfaction and less problems in relationships related to the use of social media.

If you found that taking the survey caused you emotional distress and you would like assistance, please contact the Lindenwood Student Counseling and Resource Center at 636-949-4889, if you are a Lindenwood student, or a Health and Wellness Hotline at 1-800-273-8255.

If you would like to see the results of my survey after May 15, 2018, please feel free to contact me using the contact information below.

Again, thank you very much for your time and effort!

Principal Investigator: Hannah Shockley, hss606@lindenwood.edu

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

End of Block: Thank You Letter

A Modern Analysis of the Frequency of Baumrind's Parenting Style

Aimee Saffo and Jaidelynn Rogers[9]

This research project explored Baumrind's parenting styles - authoritarian, authoritative, permissive, and neglectful - within our sample population. The primary investigators used a survey method to collect data and determine the frequency of each parenting style by scoring the participant's answers about perceived emotional warmth and control in childhood. The results were compared to the perceived age, gender, and socioeconomic status of the participant's primary caregiver as well as to the participant's age and gender to determine if there is a significant relationship. This study can help to understand what factors affect parenting styles used within society.

In 1966, Baumrind created the Pillar theory which discussed parenting styles. The parenting styles identified were authoritarian, authoritative, permissive, and neglectful. According to Baumrind's parenting styles (as cited in Health, 2018), an authoritarian parent is high in control and low in emotional responsiveness; authoritative parents are high in control and high in emotional responsiveness; permissive/indulgent parents are low in control and high in emotional responsiveness; uninvolved/neglectful parents are low in control and low in emotional responsiveness. While this theory is widely accepted in the field, it is not currently known which parenting styles are used or how frequently they are used within the general population today. This study seeks to determine which parenting styles are used and by what percentage of the population. We are using our data to determine if there is a correlation between the age, gender, sexual orientation, or socioeconomic status (SES) of a parent and the parenting styles they use.

Words that are used to label experiences can influence how people perceive those experiences and remember them (Brown, Holden, & Ashraf, 2018). Even changing the words

[9]Aimee Saffo, Department of Psychology, Lindenwood University; Jaidelynn Rogers, Department of Psychology, Lindenwood University. Correspondence regarding this paper should be addressed to Aimee Saffo or Jaidelynn Rogers, Department of Psychology, Lindenwood University, St. Charles, MO 63303. Email: AJS861@lindenwood.edu, JKR567@lindenwood.edu

only slightly can have an impact on how the experience is remembered. Brown et al. (2018) conducted a study that explored how labeling parental disciplinary actions to a child's misbehavior can impact how it is perceived. Corporal punishment (CP) is defined as using physical punishment with the intention of causing pain (Brown et al., 2018). The researchers had three hypotheses regarding parental status, behavior resulting from intentions, and the relationship among three rating dimensions.

In this study, there were two groups: parents and non-parents who were undergraduate students. There was a total of 481 parents and 191 nonparents. In order for the parents to be eligible for the study, they had to have at least one child who was between 2 and 6 years old (Brown et al., 2018). A pilot study was used that incorporated eight misbehavior scripts. The researchers also used five corporal terms: spank, slap, swat, hit, and beat, as well as, three non-corporal terms such as yell, ignore, and reason with (Brown et al., 2018). After each script was given, a sentence described the parental response. All of the scripts were about a 5-year-old boy and his mother's response. All participants took the survey online. Each participant was given one set of the scripts and made three ratings on a Likert-scale. They rated how common the mother's response was, how acceptable it was, and how effective it was (Brown et al., 2018). The nonparental participants' survey took about 10 min and these participants received extra credit. The parent participants' survey lasted about 20 min and these participants received one dollar of compensation (Brown et al., 2018).

The results of the study showed that the first hypothesis regarding parental status was partially supported. The researchers predicted that the disciplinary responses would be rated more commonly by parents than those who were not parents. There were no statistically significant differences between parents and nonparents for the acceptable or effective ratings, but parents viewed physical punishment as more common than non-parents (Brown et al., 2018). The

second hypothesis regarded the differences of a pattern between the corporal terms and their

consistency. This hypothesis was supported by the data. The term "slap" was rated the highest

among all of the corporal terms. The third hypothesis regarded the relations between common,

acceptable, and effective ratings. Brown et al. (2018) found that effective and acceptable ratings

related more closely to each other than they did to common ratings. Some limitations in this

study were that the nonparent participants were mainly female and from one university. In

addition, the parent participants were more highly educated than the general public (Brown et al.,

2018). The study did not give out definitions of the corporal terms, but this was

intentional. However, each participant could view each term differently. The scripts that were

used for the survey only used boys who were 5 years old and female parents for the response.

Tagliabue et al. (2016) conducted a study on cross-cultural and cross-parental roles using

the Parenting Styles and Dimensions Questionnaire (PSDQ). Their goal was to see the

differences in the authoritative, authoritarian, and permissive parenting styles across countries

and parental roles (Tagliabue et al., 2016). There were 805 participants in total: 225 Greek, 301

Italian, and 279 Swedish. These participants responded to a questionnaire asking about their

parents' parenting behaviors during their childhood. The participants were between the ages of

16 and 19 years old and were recruited through convenience sampling from high

schools (Tagliabue et al., 2016). Like the United States, Greece and Italy had to have the parents

provide written consent for their children to participate in the study. In Sweden on the other

hand, the parents are not required to give written consent when their child is at least 15 years

old (Tagliabue et al., 2016). There were multiple questionnaires that the participants had to

answer. There was the socio-demographic characteristics, the PSDQ, a self-esteem scale, and a

youth self-report scale. The demographic characteristics consisted of gender, age, nationality,

schools, and education of their fathers and mothers. The PSDQ was a retrospective version and it

assessed the participants' perceptions of their parents' practices during their childhood. It

consisted of questions regarding authoritative, authoritarian, and permissive parenting styles, and

the participants rated the items on a 5-point Likert-scale. The self-esteem scale consisted of 10

items and were rated using a 4-point Likert scale. The youth self-report scale measured

internalizing behavior such as being anxious or depressed, as well as externalizing behavior such

as rule-breaking behavior (Tagliabue et al., 2016).

Tagliabue et al. (2016) showed that the meaning of authoritative and authoritarian

parenting styles was the same across countries as well as parental roles. They also found that

both authoritative and authoritarian styles were related because they were invariant across

countries and parental roles. The results shared that mothers were perceived to be more

authoritative than fathers. Another limitation was a lack of representation of the

samples (Tagliabue et al., 2016).

In another study, Barajas-Gonzalez and Brooks-Gunn (2014) looked at how income

impacts families. They did this by looking at the neighborhoods that the families lived in. There

were two theories that were used in this study: the family stress model and the social

disorganization theory. The family stress model suggests that the psychological stress that comes

with financial stress can strain family relations. The social disorganization theory suggests that

neighborhoods with a high proportion of poor residents are disadvantaged compared to other

neighborhoods (Barajas-Gonzalez & Brooks-Gunn, 2014). They also looked at the parental

report of fear and if it relates to harsh parenting. This study used a diverse sample ($N = 2,132$)

that included families who identified as Mexican American, African American, and Europe

American and all had children between the ages of 5 and 16 (Barajas-Gonzalez & Brooks-Gunn,

2014). These participants participated in the Project of Human Development in Chicago

Neighborhoods (PHDCN).

This study was conducted through interviews and self-report questionnaires. Demographic questions were asked regarding race, income, birth country, and marital status. Other questionnaires asked about health and behavioral indicators. These questions were answered based on the mother's report (Barajas-Gonzalez & Brooks-Gunn, 2014). Some other measures that were asked of the participants were an income-to-needs ratio, maternal self-reported depressive symptoms, fear for safety, family conflict, harsh parenting, and neighborhood disorder (Barajas-Gonzalez & Brooks-Gunn, 2014).

The results showed that there were no statistically significant differences in any age of the children of all genders across the different ethnic subgroups. About half of the families consisted of both biological parents being married to each other and almost half of the participants did not graduate from high school (Barajas-Gonzalez & Brooks-Gunn, 2014). They found that families of adolescents had high mean income-to-needs ratio, greater fear for safety, and greater harsh parenting compared to families with young children (Barajas-Gonzalez & Brooks-Gunn, 2014). Lower income-to-needs ratio was significantly related with more family conflict which was then related to more harsh parenting. Barajas-Gonzalez and Brooks-Gunn (2014) hypothesized that the family stress model would be more prominent with families of adolescents due to the thought of adolescents spending more time in their neighborhoods, but the data did not support the hypothesis. Mothers who lived in neighborhoods rated higher in disorder reported that they were more fearful, experience greater family conflict, and display harsher parenting toward their children (Barajas-Gonzalez & Brooks-Gunn, 2014).

How a caregiver engages with children plays a major role for the development of self-regulation. Zeytinoglu, Calkins, Swingler, and Leerkes (2017) conducted a study that examined how maternal effortful control can lead to self-regulation, executive functioning, and behavioral regulation of a child. Self-regulation refers to the ability to regulate emotional and cognitive

behavior (Zeytinoglu et al., 2017). Executive functioning refers to the forms of attentional and cognitive processes, including three core functions: working memory, inhibitory control, and cognitive flexibility. Behavioral regulation refers to the use of thought processes to guide a person's behavior and focused on attention control, work habits, and discipline/persistence (Zeytinoglu et al., 2017).

There were a total of 278 children, primary caregivers, and teachers who participated in this study. Out of the primary caregivers, 96% were mothers, and of those mothers, 61% had a 4-year college degree or had completed higher levels of education (Zeytinoglu et al., 2017). The participants were recruited through daycare centers, libraries, and local establishments. The study was conducted in a lab, where the children completed tasks and the primary caregivers completed questionnaires. The teachers that participated were sent a link to complete surveys online. There were many measures that were taken account for: demographics, maternal effortful control, maternal emotional support, among others. The teacher-reports measured attention control, work habits, and discipline/persistence (Zeytinoglu et al., 2017). The researchers also found that caregivers who are emotionally supportive could be an external regulator of their children's emotions and behaviors.

Parents' behaviors contribute to many things in regard to their children, externalizing behavior being one of them. Pinquart (2017) conducted a study on how parental behaviors and parenting styles related to externalizing problems. His research question was focused on how parental warmth, behavioral control, and types of parenting styles (authoritative, authoritarian, neglectful, and permissive) relate to externalizing problems, harsh control, and psychological control (Pinquart, 2017).

He found that the effects of parenting can differ between each child because some children differ with how they receive their parents' influence. This can be due to the fact of their

genes, temperament, or environments (Pinquart, 2017). The results show that parents tend to

increase their harsh and psychological control when responding to externalizing problems,

or possibly raising their tolerance for deviant behavior. It was also found that parents decrease

desirable and increase undesirable forms of parenting when it comes to externalizing problems

(Pinquart, 2017). During adolescence, externalizing problems become more evident, which leads

to those adolescents to evaluate their parent's behaviors more critically. Pinquart (2017) found

from the reports of the parents and the children that both mothers and fathers tend to show

similar parenting behaviors.

Goldberg (2007) pioneered the world of lesbian, gay, bisexual, and transgender (LGBT)

research in regard to parenting by publishing a qualitative study about the experiences of

children raised in an LGBT household. For the purpose of this study, the adult had to have a

parent who identified as LGBT while they were under the age of 18. The reason this research

was so moving is because it was the first of its kind. While LGBT families have been around for

decades, it has only been in the last 10 years that research has included or focused on this sexual

minority group. Goldberg (2007) focused on the ways in which children raised by one or more

LGBT parent perceived their childhoods to be different than those raised in a household with a

parent or parents who identified as heterosexual. The research questions aimed to determine the

origin of participants' self-identity, the participants' views on constructs such as gender and

sexual orientation, and the role of gender in the participants' childhood.

In order to conduct such sensitive research, Goldberg (2007) utilized telephone

interviews as a means of data collection. To collect a sample from a broader scope of land,

Goldberg advertised using electronic newsletters, LGBT activism websites, and through

numerous nationally recognized LGBT organizations. Participants ranged from 19 to 50 years

old and included 36 participants who identified as female and 10 participants who identified as

male.

Not surprisingly, Goldberg (2007) found that being raised by a parent or parents who

identified as LGBT made much less of a difference to the participants than did the

socioeconomic status (SES) of their family, or traumatic events within their childhood such as

parental divorce/separation or death. The results of her study indicated that participants who had

been raised by LGBT parents considered themselves in majority to be more open minded,

liberal, non-judgmental, and unbiased (Goldberg, 2007). It was also identified that these

participants relocated to primarily liberal communities and often made statements referring to

gender and sexuality as a conceptual spectrum. On a not-so-positive note, participants often had

difficulties with trust (probably stemming from a parent coming-out during their childhood), felt

pressure to self-identify as heterosexual, and often felt they had to be defensive of their parents

or the LGBT community as a whole.

Joubert-Pienaar (2014) conducted a study that focused exclusively on lesbian parent

families (family that included one or more parent who identified as lesbian). The study focused

on exploring the experiences of children raised in a lesbian parent household and determining the

parenting styles most frequently used within the population. A case study design was used to

analyze four families with children ages 4-12; the data were collected using questionnaires,

worksheets, and case studies. The study combined snowball and non-probability sampling

methods to recruit participants (Joubert-Pienaar, 2014).

Additionally, Joubert-Pienaar (2014) found that a theme of his research was that lesbian

families were warm, involved, and tolerant in regard to parenting. He also found that lesbian

families discussed the idea of rules, values, and norms frequently, which most closely relates to

the authoritative parenting style. Most surprisingly, like Goldberg he found that

sexual orientation of a primary caregiver was much less important than the functionality of the family unit (Joubert-Pienaar, 2014).

Building on the idea of family structure, Hoffman (1997) created a research project based on the influence of grandparents on children, specifically in relation to grandparents who raised their grandchildren either on a full-time or part-time basis. The research indicated that with growing cultural change, the structure of families is often changing rapidly as well. Due to this, it is important to identify those common family structures within our culture and conduct research on them to determine if there are correlations with these family structures and other cultural changes (Hoffman, 1997).

Hoffman (1997) found that over 3.6% of Caucasian children, 6% of Latino children, and 12% of African American children live with a grandparent who is their primary caregiver. Because the data was over 20 years old, it is possible that these numbers have either significantly increased or decreased. However, it is important to still consider these findings as the number of children who had lived with a grandparent raised over 40% in the decade between 1980 and 1990 (Hoffman, 1997).

To continue, Hoffman's research (1997) primarily focused on the reasons for which grandparents were continuing to take on the primary responsibility of caring for their grandchildren. He also wanted to compare the grandparents' parenting styles between the way they had raised their children and then their grandchildren decades later. Hoffman determined a few possible societal implications that could have led to this societal change including but not limited to: increased life expectancy, more access to healthcare, prevalence of drug abuse, mandated reporting of child neglect/abuse, higher divorce rates, prevalence of teen pregnancy, and increased poverty within emerging adults, (Hoffman, 1997).

A study conducted by Pritchard-Boone (2007) focused on Baumrind's parenting styles and the frequencies to which the parenting styles were used across generations. The study claims that studying generational differences is one of the best ways to track societal changes and environmental influences (Pritchard-Boone, 2007). In all, it is important to understand that the parenting style with which a child is raised can determine the life experiences and attributions of that child throughout childhood and adulthood.

Pritchard-Boone (2007) also found that parenting styles correlate with personality development and self-concept. He suggested that supportive parenting, such as authoritative, is predictive of positive social behavior and low levels of aggression. In all, he found that authoritative parenting styles predicted positive psychosocial outcomes and less behavioral problems, particularly in adolescents, as well as better academic performance in certain subpopulations (Pritchard-Boone, 2007).

To continue, Godel (2006) conducted research on families, particularly looking at SES within a family dynamic and the effects of poverty. The study indicated that the socioeconomic status of a parent can greatly determine the way in which the parent creates a relationship with their child or children (Godel, 2006). Godel (2006) attributed these behavioral changes to both excess financial stress and overworking, which was defined as working more than 40 hours per week.

Through his research, Godel (2006) found that parents who self-identified as being of high socioeconomic status also stated that they had more time to spend with their children and were able to provide socio-emotional support, such as reading, playing games, and conversing with their children on a daily basis. Godel defined low socioeconomic groups as families that earned $25,000 or less per year; middle socioeconomic families earning between $26,000-$60,000 per year; and high socioeconomic families earning more than $61,000 per year (Godel,

2006). This classification causes a limitation within itself as Godel (2006) did not account for those families that made between $25,001-$25,999 or $60,001-$60,999 per year.

To conclude, Godel (2006) found that specific factors - SES, ethnicity, age of parents, and parental culture - all influenced the parenting style(s) that a parent or family chose to utilize. For this reason, it is important to understand influences on families within a societal viewpoint. Understanding family dynamics and societal factors that affect them can help to combat negative effects on children (Godel, 2006).

As the primary investigators of this study, we are interested in determining the frequency and correlates of Baumrind's parenting styles (1996) within the sample population in regard to emotional responsiveness and control. According to Baumrind (1966), the four parenting styles are authoritarian, authoritative, indulgent, and neglectful. Authoritarian parents are characterized as high in control and low in emotional responsiveness. Authoritative parents are characterized as high in control and high in emotional responsiveness. Indulgent parents are characterized as low in control and high in emotional responsiveness. Neglectful parents are characterized as low in control and low in emotional responsiveness.

While previous research has determined why parenting styles are important, how they influence children, and characteristics to determine a parents' parenting style, our study instead focuses on the frequency of each parenting style within our current society. It also focuses on how each parenting style is related to the participants' and participants' primary caregivers' demographic information.

Based on previous research findings, we asked questions regarding SES and relationship to the participant (biological, adoptive, foster, etc.), along with other basic demographic questions. We also asked basic demographic questions about the participants' primary caregiver, including but not limited to: perceived sexuality, gender, and age. Our

research focus was to determine if there is a relationship between self-reported parenting style and the primary caregivers' age, sexuality, gender, or SES. We were also interested in finding out which parenting styles are used most frequently in our sample. In order to accomplish these goals, we created an online survey.

Method

Participants

Participants were recruited through our (the primary investigators') social media outlets via Facebook, Instagram, Snapchat, and Twitter. The sample therefore was a sample of convenience and has limited generalizability. There were 116 participants that completed this study, but we decided to omit data from 4 participants who did not follow instructions and thus presented information for more than one primary caregiver. With our total of 112 participants, 21 stated their gender as male, and 91 stated their gender as female.

With that being said, of the 112 participants, 18 said that their primary caregiver was male, and 94 said that their primary caregiver was female. Of those primary caregivers, 94.6% were the biological parent of the participant. There was one participant who stated their primary caregiver as a step-parent, one participant stated their primary caregiver as an adoptive parent, and four participants who stated their primary caregiver as another relative that was not their biological parent. As for age of participant, there was a wide variety of age representation in the survey results. Participants ages 18-29 made up 34.8% of the sample. Additionally, no compensation was provided.

For our study, it was most important to determine the demographic characteristics of the participants' parents. We did so by asking participants demographic questions in the survey centered around their primary caregiver, or the person with whom they identify as their most influential parent. We asked the participants basic demographic questions about themselves and

their primary caregivers, including but not limited to: age, age of primary caregiver at participant's birth, gender, gender of primary caregiver (PC), sexuality of PC, and yearly income of PC.

Materials

The survey that was given to the participants was created using Qualtrics - an online survey generating system - and was available to participants online only. In order to access Qualtrics, we used two Macbook computers as well as wireless internet provided by Lindenwood University. In order for participants to access the survey they had to use some form of electronic device, such as a cell-phone, desktop computer, or laptop computer, as well as the internet in some form. An informed consent statement, an electronic consent statement, and a feedback/thank you letter were included as the first, second, and last question of the survey respectively. Demographic questions about the participant and the participant's primary caregiver are asked. Questions from the demandingness and responsiveness psychtest were also used, see Appendix A for details (Paulson, 1994).

Procedure

Participants were given an informed consent letter as the first item on the survey, as well as an electronic consent statement as the second item on the survey. Participants were then given the operational definition of a primary caregiver which was referred to in our survey as a primary caregiver is defined in this study as the person who was primarily responsible for you as a child, and who provided you with the basic necessities of life, such as food, water, and shelter. Participants were then asked to answer basic demographic questions about their self-determined primary caregiver. After, participants were asked to reflect back on their childhood and answer a series of questions about perceived parental warmth, control, and punishment styles. It is important that these demographic questions are thought of as perceptions, due to the fact that

participants answered these questions for their primary caregivers. At the conclusion of the

survey, the participant was given an online feedback letter that included our contact information

and faculty supervisor's contact information. To view the survey - which includes the informed

consent letter, electronic consent statement, and feedback letter/thank you statement - please

refer to Appendix A.

Results

Our central idea was to determine what the frequency of Baumrind's four parenting styles

were in our sample population. After coding the participant's answers, we found that 5 primary

caregivers were authoritarian, 45 primary caregivers were authoritative, 55 primary caregivers

were permissive, and 7 primary caregivers were neglectful. Furthermore, we sought to determine

if the sexuality of the participant's primary caregiver related to the primary caregiver's parenting

style. We wanted to look at the breakdown of parenting styles within our sample and compared

them to the sexuality of the primary caregiver as told by the participant but because 100% of the

primary caregivers were described as heterosexual, we were not able to conclude any results.

Additionally, we wanted to know if the gender of the participant's primary caregiver related to

the primary caregiver's parenting style. In order to do this, we compared the gender of the

primary caregivers to the parenting styles within our sample by conducting a chi square analysis.

We found that there was no significant relationship, $\chi^2(15, N = 112) = 8.583$, $p = .898$).

Next, we wanted to know if the age of the participant's primary caregiver (on the date of

the participant's birth) related to the primary caregiver's parenting style. In order to do this, we

conducted a chi square analysis comparing the nominal variables of age of primary caregiver (we

had six age brackets: 18-29, 30-39, 40-49, 50-59, 60-69, and 70+) and parenting style. We did

not find a significant relationship, $\chi^2(3, N = 112) = 4.778$, $p = .823$). In addition, we were

interested in determining if the primary caregiver's income range (during the participant's

childhood) related to the primary caregiver's parenting style. We conducted another chi square analysis and found no significant relationship, $\chi^2(6, N =112) = 8.456, p = .206$). We were also interested in determining if there was a correlation between the participant's gender and their primary caregiver's parenting style, so we conducted a chi square analysis but found no significant relationship, $\chi^2(3, N =112) = 4.778, p = .189$). To continue, we were interested in finding out if there is a correlation between the primary caregiver's parenting style and their generation (based upon the primary caregiver's age). In order to do so we conducted a chi square but found no significant relationship, $\chi^2(3, N =112) = 11.901, p = .453$).

Discussion

Our results revealed that the majority (45 and 55 respectively) of the primary caregivers in our sample used authoritative and permissive parenting styles, while only a few (5 and 7 respectively) used authoritarian and neglectful parenting styles. Unfortunately, there are minimal studies from the last 10 years that give an accurate representation of the frequency of parenting styles within the population in order to compare our findings.

An interesting finding was that about 95% of the primary caregivers were a biological parent in relation to the participant. Unfortunately, we did not find any significant relationships between the variables of age, gender, or socioeconomic status of the primary caregiver and parenting style. We did not find a significant relationship between age and gender of the participant and primary caregiver either. Based on results, we were not able to conduct a chi square to determine if there was a relationship between sexuality of the primary caregiver and parenting style.

Our results did not coincide with past research on the topic of parenting styles. While Godel (2006) found that those with higher socioeconomic statuses were frequently authoritative, we did not find a significant relationship. Also, while Hoffman (1996) found that the older the

parent the more likely they were to score high in emotional responsiveness and high in control (authoritative), we did not find any significant relationship between age and parenting style.

Based on these results, we may conclude that one limitation of our study may be that our sample was not representative of the overall population. We believe that using the participants' perceptions to determine their primary caregiver's parenting style may be a biased way to collect that information. A participant's primary caregiver may perceive his or her own parenting style as being different from how it is perceived by the participant. Due to the nature of our survey, participants may have also misunderstood what the question is asking in regard to who their primary caregiver is, which can cause misleading data.

Future research could interview families in person to determine the primary caregiver and the participants' perceptions. This could help combat bias. Additionally, interviewing in person could help cut down on any misunderstanding that the participant has about the questions asked and therefore result in the collection of more accurate data. In order to collect representative data, it is important that participants be recruited across the country and through different outlets.

While it may be easy to misunderstand the implications of our study, it is important to remember why this is important. The more that we can understand about what influences parents use of certain parenting styles, the more that we can target those parents who may use parenting styles that can be harmful to their children, such as extreme authoritarian styles or neglectful styles. Helping to push parents toward authoritative parenting styles can not only help to raise emotionally regulated, mentally healthy children, but can help create healthy families who communicate with, respect, and love one another. Generationally we have seen that authoritarian parenting styles are becoming less common- which is good- but permissive parenting styles are becoming more popular. This trend can cause major problems, like increase

in teen pregnancy, teen STI/STD rates, and teen drug use. Children who are raised by extreme authoritarian and neglectful parents are also at increased risk of developing a mental health disorder such as depression and anxiety. In order to protect our children and raise mentally healthy adults, we need to be aware of the current trends in our population.

That being said, it is majorly important to continue this research to determine factors that do in fact correlate with parenting styles. This may help us pinpoint the families that need additional services by pediatricians and OBGYNs. It may also help to give teachers an understanding of those parents who may be using detrimental parenting styles so that they can educate and intervene when necessary. The more that we know about this topic, the better equipped we can be to help.

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Appendix A

A Modern Analysis of the Frequency of Baumrind's Parenting Styles
Q1 You are being asked to participate in a survey conducted by Aimee Saffo
and Jaidelynn Rogers at Lindenwood University. This study seeks to determine the frequency of
Baumrind's parenting styles (authoritative, authoritarian, permissive, and neglectful) within the
sample population. It will take approximately 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. You may also skip any questions that
make you uncomfortable. That being said, answering as many questions as possible will help the
investigators to collect complete data.

No excess risk is anticipated. If you find that taking the survey causes you emotional distress
and you would like assistance, please contact the Lindenwood Student Counseling and Resource
Center at 636-949-4889. If you are not with Lindenwood you would like assistance, please text
741741 to converse with a trained crisis counselor.

We will not collect any secure information, such as birth dates or social security numbers. This
survey is completely anonymous. There are no direct benefits to participating in this study.
However, your participation is an opportunity to contribute to psychological science. There is a
chance the data from this survey could be presented at a psychological conference or published
in an academic journal.

WHO CAN I CONTACT WITH QUESTIONS
If you have concerns or complaints about this project, please use the following contact
information: Aimee Saffo (Primary Investigator) at AJS861@lindenwood.edu
or Jaidelynn Rogers (Primary Investigator) at jkr567@lindenwood.edu or Dr. Nohara-LeClair
(Faculty Supervisor) at mnohara-leclair@lindenwood.edu. If you have any concerns about the
project that should be addressed with someone outside of the research team, you may contact Mr.
Michael Leary (Director - Institutional Review Board) at 636-949-4730 or
mleary@lindenwood.edu.

○   I choose to participate

○   I choose not to participate

Q2 ELECTRONIC CONSENT: Please select your choice below
Choosing to participate indicates that
• You have read and understood the above
• You voluntarily agree to participate
• You are at least 18 years of age.

○   I meet the above criteria and I choose to participate

○   I meet the above criteria and I choose not to participate

○   I do not meet the above criteria

Q3 First, we will ask some simple demographic questions about your primary caregiver. A primary caregiver is defined in this study as the person who was primarily responsible for you as a child, and who provided you with the basic necessities of life, such as food, water, and shelter. Please keep in mind that families are unique and vary from person to person. We hope that you choose to provide information about the primary caregiver that you have the strongest relationship with and lived with the most frequently, biological or otherwise.

Q4 How do you describe your primary caregiver in relation to you?

○   Biological parent

○   Step-parent

○   Adoptive parent

○   Foster parent

○   Other relative that is not your biological parent

○   Other _____

Q5 How old was your primary caregiver when you were born?

○   10-19 years

○   20-29 years

○   30-39 years

○   40-49 years

○   50-59 years

○ 60 years or older

Q6 What is the gender of your primary caregiver?

○ Male

○ Female

○ Transgender

○ Other _____

Q7 What is the sexual orientation of your primary caregiver?

○ Heterosexual

○ Homosexual

○ Bisexual

○ Pansexual

○ Other _____

Q8 Please estimate your primary caregiver's yearly income range when you were 10 years old. Note: This should be reflective of only your primary caregiver's income - not household income.

○ $0-$29,999 a year

○ $30,000-$59,999 a year

○ $60,000-$99,999 a year

○ $100,000-$149,999 a year

○ $150,000-$349,999 a year

○ $350,000+ a year

Q9 Please read the following statements and choose the best answer from the choices below.

	Never	Rarely	Frequently	Always
My primary caregiver kissed or hugged me often.	○	○	○	○
My primary caregiver told me that they loved me frequently.	○	○	○	○
My primary caregiver attended important events in my life.	○	○	○	○
My primary caregiver was interested in my grades.	○	○	○	○
My primary caregiver encouraged me to try my best.	○	○	○	○
My primary caregiver asked about my day.	○	○	○	○

Q10 Please read the following statements and choose "Agree" or "Disagree" below.

Please choose one choice below.

	Agree	Disagree
I would consider my primary caregiver to have been strict.	○	○
My primary caregiver wanted to know where I was at all times.	○	○
My primary caregiver had unfair rules about what I wore.	○	○
My primary caregiver would say, "...because I said so."	○	○

My primary caregiver grounded me often.	○	○
My primary caregiver did not give me my privacy.	○	○

Q11 Please read the following statements and choose the best answer from the choices below.

	Never	Rarely	Frequently	Always
My primary caregiver interfered in my relationships or friendships.	○	○	○	○
My primary caregiver expected me to be #1 in anything that I did.	○	○	○	○
My primary caregiver made decisions about what I was allowed and not allowed to do.	○	○	○	○
My primary caregiver chose which activities I could be involved in.	○	○	○	○
My primary caregiver took away my possessions (phone, car) as leverage.	○	○	○	○
My primary caregiver set a strict curfew.	○	○	○	○

Q12 Please read the following statements and choose "Agree" or "Disagree" below.
Please choose one of the choices below.

	Agree	Disagree
My primary caregiver encouraged me to talk about my feelings.	○	○
My primary caregiver praised me for doing something well.	○	○
My primary caregiver enjoyed spending time with me.	○	○
My primary caregiver liked me for me and did not encourage me to change myself.	○	○
My primary caregiver did not call me names, like lazy or stupid.	○	○
My primary caregiver often asked me how I was doing.	○	○

Q13 For this question, please answer in regards to yourself. What gender do you identify with?

○   Male

○   Female

○   Transgender

○   Other _____

Q14 **For this question, please answer in regard to yourself. What age group describes you best?

○   18-29 years

○   30-39 years

○   40-49 years

○   50-59 years

○   60 years or older

Q15 Thank you for taking the time to complete this survey for our class project at Lindenwood University. We are interested in analyzing an adult's perspective on his or her childhood and primary caregiver, specifically looking at the variables of emotional responsiveness and control. If you found that taking the survey caused you emotional distress and you would like assistance, please contact the Lindenwood Student Counseling and Resource Center at 636-949-4889. If you are not affiliated with Lindenwood University and you would like assistance, please text 741741 to converse with a trained crisis counselor. If you would like to see the results of our survey after May 15th, 2018, please feel free to contact a member of the research team using the contact information below. Again, thank you very much for your time and effort!

Principal Investigators:
Aimee Saffo
(314) 799-4570
AJS861@lindenwood.edu

Jaidelynn Rogers
(618) 946-4629
JKR567@lindenwood.edu

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

Presence of Daily Routine on Frequency of Bizarre Dreams, and Online Study

Kevin McGowan[10]

In the hopes to further our body of knowledge on the effects of daily routines on dream content, my study aimed to measure both bizarre content in dreams and the routineness of participants' day prior to dreaming. The method I am using to distinguish bizarre dreams from usual dreams was developed by Revonsou and Samilvalli (1995). Following this method, I first identified dream elements by categorized them into 14 categories; and then scored those dream elements for their bizarreness according to four types of bizarreness (Non-bizarre, Incongruous, Vague, or Discontinuous). I hypothesized that bizarre dreams would occur more frequently after a non-routine day than after a routine day. The results of my study were inconclusive due to a lack of participation. I received six dream submissions that all occurred after routine days, and zero dreams that occurred after non-routine days. I was able to perform the content analysis on the six submitted dreams, I identified 204 dream elements, categorize these elements into 12 of the 14 categories, and found that after participants had a routine day (31.86% of all elements were Incongruous, Vague, or Discontinuous; 68.14% were Non-bizarre). I also identified the most common content categories for all three bizarre types (31.25% of Incongruous bizarre elements were actions, 25% of vague bizarre elements were actions and 25% were events, and 23.53% of discontinuous bizarre elements were actions and 23.53% were places).

The idea behind this study came from my observation that my most bizarre dreams occurred after extraordinary days rather than after routine and usual days. After subsequent research, I was unable to find any past studies that looked into the events of a day as a whole before a recalled dream, then reflected on dream content, let alone bizarre dream content. I have developed this observation into my present research idea, where the purpose of my study was to determine if bizarre dreams occur more frequently after a routine day or after an extraordinary/unusual day. My hypothesis was that bizarre dreams would occur more frequently

[10]Kevin McGowan, Department of Psychology, Lindenwood University. Correspondence concerning this article should be addressed to Kevin McGowan, Department of Psychology, Lindenwood Univeristy, 209 South Kingshighway, MO 63301.
Contact: kwm635@lindenwood.edu

after unusual days, rather than after routine days.

      What is a dream and when does it occur? According to Rock (2004) dreams can be described "as a mental experience during sleep that can be described during waking consciousness" (p. viii-ix). Dreams have proven to be very flexible in where and when they appear throughout sleep. Eugene Aserinsky was graduate student at the University of Chicago in 1953 when he discovered the rapid eye movement (REM) stage of sleep (Rock, 2004). This was the first time that researchers could prove that dreaming was actually occurring. Every time Aserinsky would wake his sleeping participants whilst in this REM stage they would be able to recall a dream. Not only were people remembering their dreams in this stage, but the brain waves emitted during this stage somewhat resembled waking consciousness. A large difference Rock (2004) points out between REM sleep and waking consciousness is the neurochemicals present during this stage were vastly different from waking consciousness. These neurochemical differences from waking to sleeping explain the amnesia most people experience when they say they don't recall their dreams at night.

      REM sleep is not the only time that dreams occur. Dan Margoliash a professor of Biology at University of Chicago found that rats rerun mazes and birds sing their species song during slow wave sleep, which is the type of sleep that shows up immediately after falling sleep (Rock, 2004). This finding has been found in humans as well. Slow wave sleep is now recognized as the stage where new learning tasks involving factual memory is repeated and practiced (Rock, 2004). On the other hand, REM sleep it critical for procedural learning, and was supported by the significant increase of REM sleep people experience after learning a new task. Furthermore, a decrease in performance and learning occurs if REM sleep is deprived from learners. Therefore, to date researcher have proven that dreams can occur at sleep onset and during REM sleep.

What is a routine? Previous research done by Grant and Schempp (2013) analyzed the routines of elite swimmer on competition day like the 2008 Beijing Olympics, and found an effective means to collecting daily routine data. To ensure they gathered all significant data Grant and Schempp stressed three important characteristics of a routine. These three characteristics included: the fact that all actions during a day would constitute as one routine day; all planned events for a day should be included; and the actual execution of most if not all events planned should take place (Grant & Schempp, 2013).

What is a dream log? According to Niederhoffer, Schler, Crutchley, Loveys, and Coppersmith (2017) dreams are often narrative and have characteristic details like setting, plot, characters, objects, feelings/emotions, sometimes tastes, smells, or old memories and these experiences can be similar or dissimilar to waking life. Therefore, it would make sense that when people describe their dream, it would be beneficial to do so in a narrative fashion.

Flannagin (2000) points out a major distinction between REM and NREM sleep. NREM sleep seems to produce bland and simple dreams, while REM sleep produces more complex and possibly bizarre dreams (Flannagin, 2000). Other researcher had found that this difference could possibly be due to the specific bizarre dream rating scales that different researchers use.

Past research on identifying typical dream content was done by Mathes, Schredl, and Görtizn (2014) who looked at 2853 of the most recent dreams provided by dreamers and identified 55 typical dream themes, some of which occurred very rarely. They found that the five most typical dreams of their participants include; flying, trying something again and again, being chased or pursued, sexual experiences, and school teachers and studying (Mathes et al., 2014). The authors call for future research that produce a quantitative analysis of big dream samples.

In 2008, 48 university students in Hong Kong were given the 34-theme list and asked to record which themes they had experienced before. They found that the five most common dream

themes in their eastern sample resembled the same five dream themes recorded in western

samples (Yu, 2008). Grifith, Mijagi, and Tago (1958) gathered both American and Japanese

college students to test if they had dreamt any of the 55 typical dream themes before in their life.

The results found that both groups had the same top four most prominent dreams: being attacked

or pursued; failing; trying to do something over and over again; school, teachers, studying (Yu,

2008). The results of these three studies support the idea that humans have universally typical

dreams.

Niederhoffer et al. (2017) provided the first quantified study of the structure of the

language of dreams, their linguistic style, and emotional content. In this study dreams were

collected using the online platform "DreamsCloud." DreamsCloud is an online social database

where anyone can register to submit dreams for professional dream reflectors to comment on or

for their dreams or to be used for research purposes. Rather than looking at dream themes

like Mathes and colleagues, Neiderhoffer et al. (2017) studied, among other

things, the frequencies of language style and dream topics that occurred in 9,678 dreams. The

authors counted the occurrences of function words like how many pronouns, prepositions,

articles, auxiliary verbs, and negations were used to explore a relationship between dream topics

and language style. Their results revealed that the most common categorical dream topic is

picturesque landscapes which includes the top words: walking, tree, small, area, forest, place,

beautiful, hill, and little (Niederhoffer et al., 2017). These researchers concluded that with further

dream analysis, the language of dreams could be used in the future to evaluate mental health. For

example, language used in internet behavior and wearable sensory information can predict

mental health today by identifying words most commonly used words by people with different

mental disorders (Niederhoffer et al., 2017).

Revonsou and Samilvalli (1995) called into question the considerable variance

in frequencies of bizarre elements in dreams, and the frequency of bizarre REM dreams

compared to non-REM dreams (NREM). The authors accounted for this variability to possibly

being the result of differences in rating scales used. To combat this

problem Revonsou and Samilvalli (1995) Sought out to create a standardized scoring method for

bizarreness in dreams. This scoring method identifies elements by categorizing them to 14

categories, and then scoring categorized elements to four different types (see Appendices A and

G). The authors described bizarre dreams as most commonly involving characteristic details that

are impossible, unlikely, and inconsistent to regular waking life experiences. With that in mind,

these researchers scored dream bizarreness as being either incongruous (content is inconsistent

with waking reality), vague (content is obscure or indeterminate), or discontinuous (content

appears, disappears, and/or transforms) within the reported dream (Revonsou & Samilvalli,

1995). This older study also created 14 categories that dream elements could fall into (for

bizarreness scoring and element identification and categorization done

by Revonsuo & Salmivalli (1995) see Appendix A).

In my study I too was looking at the bizarreness of dream content, but specifically the

presence of bizarre elements compared between two groups: people who experienced a routine

prior to dreaming; and a non-routine group who did not experience a routine day before

dreaming. In order to identify dream content elements, score them for bizarreness, and identify

daily routines in participants I used a combination of Revonsou and Samilvalli (1995) dream

content analysis, Niederhoffer et al. (2017) definition of a dream log, and the definition of daily

routine provided by Grant and Schempp (2013).

Method

Participants

There were 14 participants who consented to this study and were recruited from Facebook. Participants could be recruited between the ages of 18 through 64, but my samples' ages ranged from 21 to 26 years old. Only five participants provided their age (mean age = 22.2 years, SD = 2.17). Six completed the survey in its entirety and their data was used in the study. Of these six participants three were male, two were female, one participant failed to answer the demographic questions, and all six participants identified themselves as dreamers with a daily routine prior to dreaming and reported an average daily routineness of 3.66 which is slightly above the median routine score of 3.5 from the reported range of 3-5 for routine scores.

Materials and Procedure

The present study used an online survey created using the online data collection program Qualtrics to anonymously collect data from participants recruited via Facebook. The survey asked for participants' consent, then asked seven questions total, and provided three definitions. The first question asked if participants recalled a dream to report. The second question asked for a narrative description of their dream, or a "dream log". The third question asked participants, with their routine in mind, if their day prior to their recalled dream was routine, yes or no. The fourth question was only asked if they answered "yes" to the last question, and requested on a scale of 1-5 how routine the day prior was ("1" being mostly routine and "5" being entirely routine). The fifth question asked for the participants age in years. The sixth question asked if they identified as male, female, or other. The seventh question asked, on a scale of 1-5 how bizarre they perceive their typical dreams as being. The three provided definitions each appeared before the question that the definition applied to. The first of these definitions told participants what a dream log was and how to write one, and was given before

they were asked for it in question two (for more dream log description and details see Appendix B). The second definition described how to account for routineness within ones' day, and was provided before question three (for more about daily routines see Appendix C). The third and final definition described what a bizarre dream is, and was provide before question seven (see Appendix D).

The link to the survey was posted to my Facebook page on March 6th 2018 and collection continued through April 13th. All possible participants were informed of the aggregated format of the data collection process and promised anonymity in their participation (see consent form in Appendix E. The recruitment of participants through this website was done with a recruitment post (see Appendix F). After completion of the survey a feedback statement was provided (see Appendix H)

Dream logs. The participants produced 6 dream logs total that were all reported after non-routine days. These dream logs had a total of 1,077 words. The average length of these six dream logs were 179.5 words (*SD* =170.44, range 30-508). There were no dreams report for non-routine days.

Routine analysis. The online survey provided participants a definition of a daily routine created by Grant and Schempp (2013) (see Appendix C for definition of routine). With this definition, participants were asked if the day prior to their remembered dream included a daily routine. After participants answered if their day included a routine or not, those that answered "yes" were asked to rate that routineness 1-5, "1" being least routine possible and "5" being most routine possible. This method of routine analysis was used in relation to Grant and Schempp (2013) due to its strengths in acknowledging that 24 hr.(s) constitute a day for routineness, stating that all planned events for a day should be included; and the identification of execution of most events that were planned to take place.

Scoring procedure. Content analysis of bizarreness was completed in two parts. Part one is the identification by categorization of dream elements. Part two is the scoring of elements for bizarreness. These two parts were done by two independent scorers. I being one of these scorers and my assistant Ariel Page, practiced this content analysis of bizarreness method on online dream logs until we reached an 80% agreement on element identification categorizing, and bizarreness scoring. The example of this scoring method provided

by Revonsuo and samilvailli (1995) can be seen in Appendix A and my example of the scoring method using Appendix A can be seen in Appendix G.

As part one stated, elements were first identified within each dream log by two independent scorers. Elements were identified base on their belonging to one and only one of the following 14 categories created by Revonsuo and Samilvilli (1995). Once completed the scorers compared their scores and settled discrepancies by conversation.

1. Self: the subject who acts in or observes the dream world; the person or being from whose point of view the dream world is experienced and who appears in the first person in the dream report.
2. Place: the immediate surroundings and geographical location of the dream events or the dream self.
3. Time: the explicitly mentioned temporal context of the dream events.
4. Persons: the human or humanoid or other intelligent characters, and groups formed by such characters, perceived by the subject in the dream.
5. Animals: animate characters (other than Persons) perceived in the dream.
6. Body Parts: human and animal bodies and their parts perceived in the dream.
7. Plants: all kinds of vegetation perceived in the dream.
8. Objects: parts of the inanimate environment which are perceived in the dream.
9. Events: changes taking place in the inanimate environment or in animate objects which do not happen in consequence of the intentional actions of any (single) character.
10. Actions: intentional acts carried out by the animate characters in the dream and the behavior of devices directly controlled or assumed to be controlled by animate characters (e.g., vehicles).
11. Language: all linguistic messages or symbols in any form; e.g., utterances, writing.
12. Cognition: the internal intellectual and mental functions of the self.
13. Emotions: emotional states and feelings either experienced and expressed by the dreamer or observed to be expressed by other dream characters.
14. Sensory Experiences: sense experiences which occur independently of voluntary cognitive processes and which do not refer to objects outside of themselves (e.g., nausea, tickle).

As part two stated above, once each element had been identified and categorized (as seen in appendices A and G), elements were assigned a score for both their category (1-14 for self, place, time, persons, animals, body parts, plants, objects, events, actions, language, cognition, emotion, and sensory experience) and their bizarreness (1-4) independently by each member of the third party as done by Revonsuo and Salmivalli (1995). Therefore, scoring judges assign a compound score to describe both the element content category and its bizarreness score [content/bizarreness]. Just as before an discrepancies in scores were settled by conversation.

1. The number "1" representing a "non-bizarre element".

2. The number "2" representing an incongruous element. Incongruous elements have at least one of the following properties:

a.   Elements that are contextually incongruous. Elements with features that don't belong in waking reality. Example: There is a white tiger in my back yard [Contextually Incongruous Animal, scored as (5/2)], or "There were holes in the white walls" [Contextually incongruous object, scored as (8/2)]

b.   Exotic elements. These are elements that are highly unlikely, but are still possible. Example: I met the president of the United States in the Philips 66 gas station bathroom [Exotic Person, scored as (4/2)].

c.   Impossible elements. This is an element impossible to occur in waking reality. Example: I began to fly like super man over the school [Impossible Action, scored as (10/2)].

3.   The number "3" will be assigned to vague elements. "An element or a feature of an element whose identity or precise nature is indeterminate, unknown, or obscure in a way which does not occur in waking life" (Revonsuo & Salmivalli, 1995, p. 174). Example: I'm riding in a car with a character, but I can't quite recognize or remember who [vague person, scored as (4/3)].

4.   The number "4" will be used to describe a discontinuous element. This is an element which suddenly becomes visible, invisible, disappears, or transforms. Discontinuity is the only measure of bizarreness that is computable in addition with one of the other three bizarreness scores: non-bizarre (1), incongruity (2), vagueness (3). This is due to the fact that an element may be discontinuous in addition to being bizarre in a different way. "Thus, each element scored as Discontinuous also received another score indicating whether the element is Non-bizarre, Incongruous, or Vague (Revonsuo & Salmivalli, 1995, p. 175). Discontinuity is scored to an element only after the change occurs. Example: I'm at home, then I'm

suddenly at the grocery store ["Grocery store" is a Non-Bizarre Place and a Discontinuous Place, scored as (2/1) and separately as (2/4)].

This method of categorizing elements and scoring bizarreness was chosen due to its past success in categorizing all dream elements and explaining all bizarre elements previous researchers have come across. This success continued into my study for all of the 204 elements collected were categorized within just 12 of these 14 categories, and all bizarre elements were easily scored to one of the four types of bizarreness.

In this study participants identified themselves as either having a routine day or non-routine day prior to the dream they submitted. The independent variable was routineness of the day prior to a participants most recently recalled dream. This variable had two levels or conditions which were the routine condition and the non-routine condition. Participants fell into one of the two groups depending on their routine experience (yes or no) the day prior to their dream recall. The dependent variable was the scored proportion of bizarre elements to non-bizarre elements obtained from the participants dream log.

Due to only gathering enough data to support one of the groups (routine day), the data reported is all descriptive in nature. Following Revonsuo and Samilvallis' protocol for dream content analysis, I used proportions of bizarre elements to non-bizarre elements within dreams to obtain a percentage of bizarreness for each dream log. I then took the average of the six dreams in the routine conditon bizarreness proportion to get an average proportion of bizarre elements to non-bizarre elements for the entire group. I also used percentages to identify which dream content category was most bizarre, and compared the distribution of my samples dream contents to that of Revonsuo and Samilvalli (1995) sample.

Results

The hypothesis was that bizarre dreams would occur more frequently after a non-routine day than a routine day. The collected data was inconclusive for I only had six participants who reported dreams after routine days and zero participants who reported dreams after a non-routine day. The proportions of six dream logs bizarre content to non-bizarre content were as follows (3/13, 21/22, 7/17, 6/26, 12/58, and ½). In total the dream logs in the routine group (31.86% of all elements were Incongruous, Vague, or Discontinuous; 68.14% were Non-bizarre). The routine group rated themselves an average of 4 out of 5 in question seven. This means that this routine group perceives their typical dreams as most commonly being bizarre. If I had data on the non-routine group, then I would provide their respective proportions of bizarre to non-bizarre and then compare their total bizarreness to that of the routine group by use of a Chi-Square analysis.

There were 204 dream elements, which were categorize into 12 of the 14 categories. Two categories were not used because none of the submitted dream logs contained elements that fell into the categories of plants or animals.

Figure 1 shows the distribution of my 204 dream elements through the 12 remaining categories that were used. Its clear that the dreams in my sample most often involves actions, places, and persons which sum to 56.37% of all dream content. Cognition and emotions make up almost 16.7% of the dreams contents. Interestingly body parts and self showed up the least and in sum were <5% of the total dream content, but appeared in nearly all dream logs. This leads me to infer that, although dreams are often experiences by the self, the actual purpose and function to dreams could be in the action, places and persons that fill it.
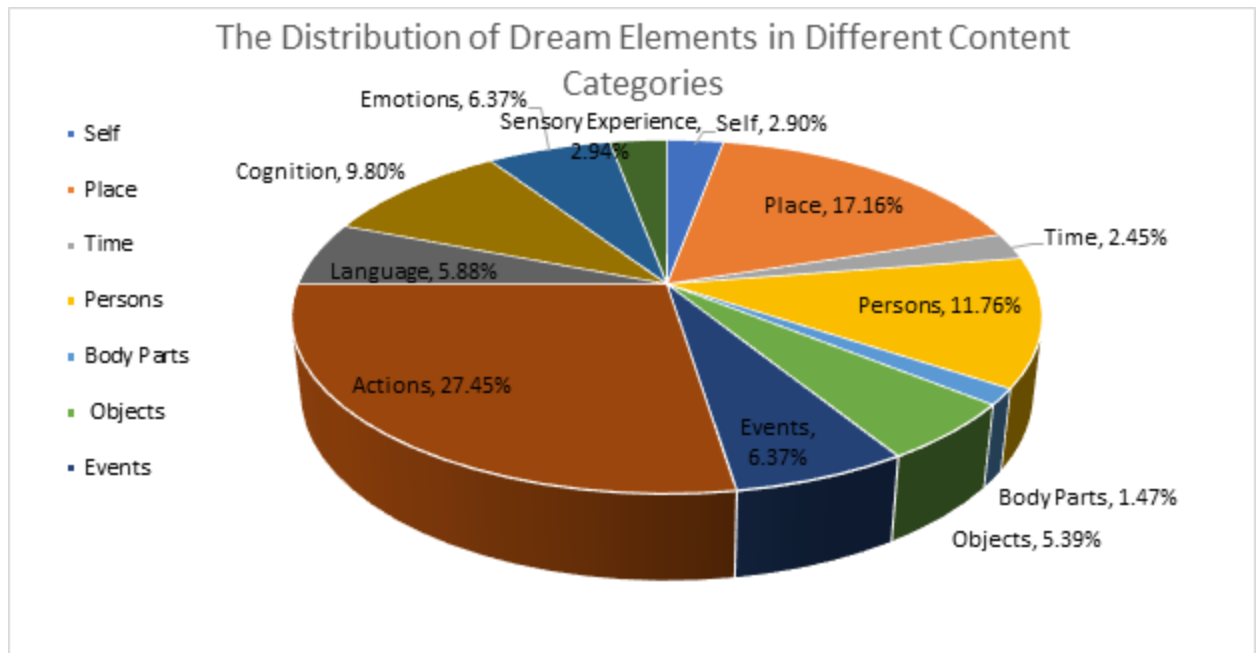
Fig. 1. Distribution of dream elements through dream categories.

Figure 2 compares the distribution of dream elements through content categories of my

sample to that of Revonsuo and Samilvalli (1995). On the x-axis is the content categories that

dream elements from both studies distributed (My study in blue, Revonsuo and Salmivalli(1995)

in orange). The Y-axis is the percentage of total dream elements. In both my sample

and Revonsuo and Salmivallis (1995) the top three most frequently occurring elements appear in

the action, persons, and places categories.
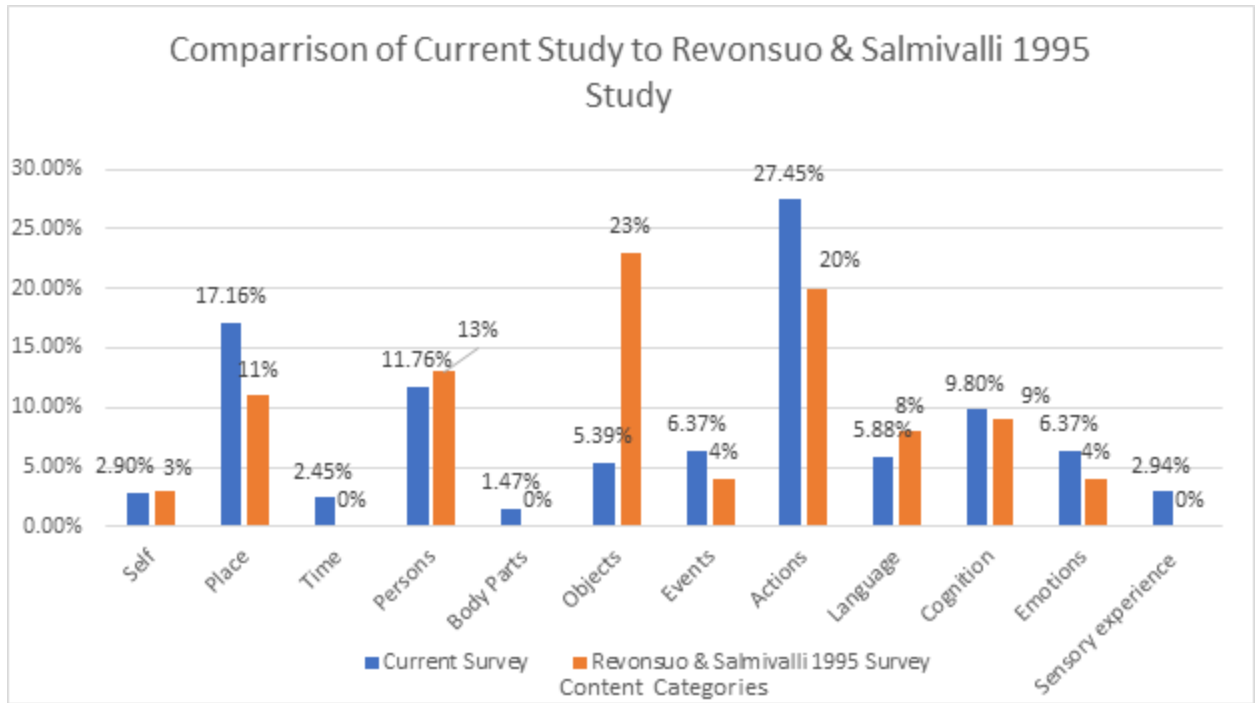
Fig. 2. The distribution of dream elements through content categories.

Figure 3 shows the percentage of incongruent bizarre elements across content categories.

Its clear that by far the most reported incongruent bizarre elements were seen in the action

category.
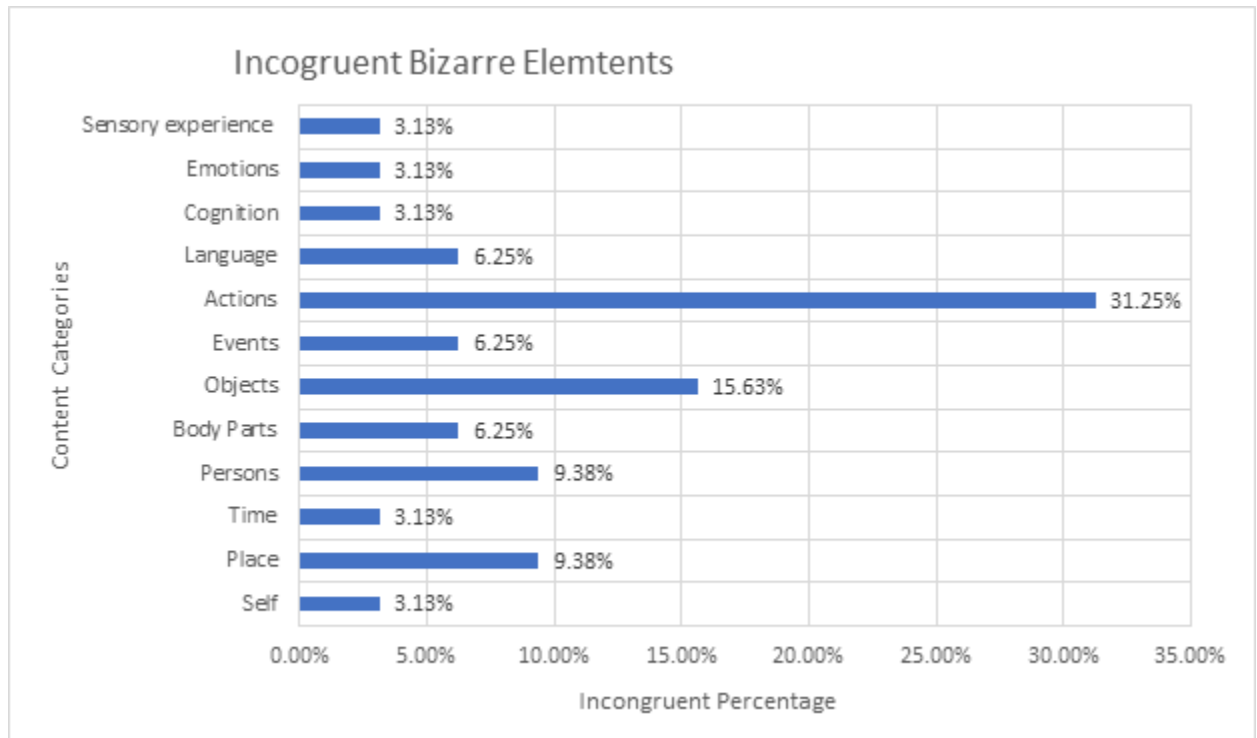
Fig. 3. Incongruent bizarre elements across content categories.

Figure 4 shows the distribution of vague bizarre elements across content categories. Both the actions and events category tied for highest distribution of vague bizarre elements. This is interesting for events only made up 6.37% of all dream contents, but makes up a quarter of all bizarre vague elements.
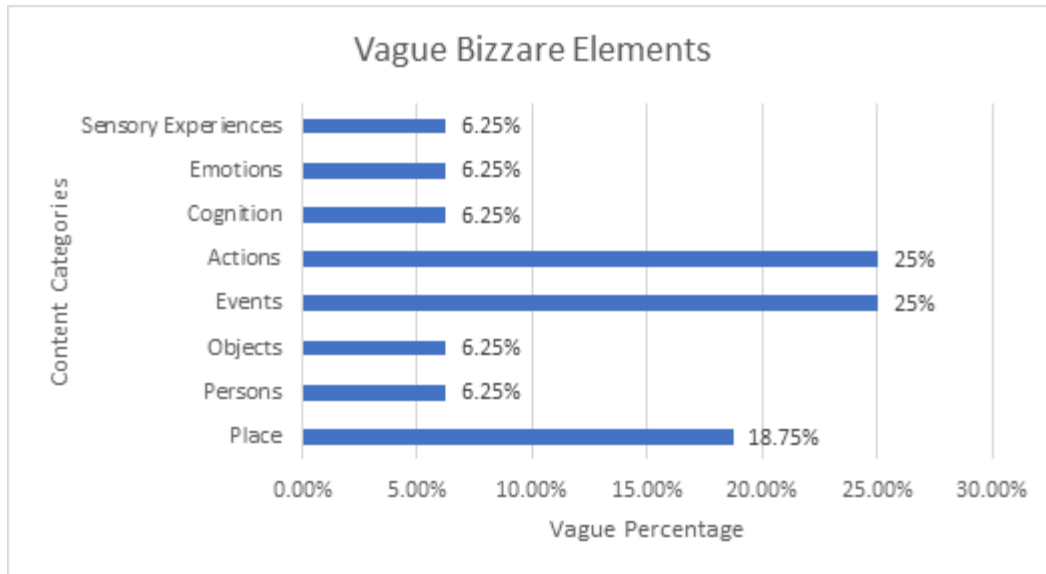
Fig. 4. Vague bizarre elements across content categories

Figure 5 shows the distribution of discontinuous bizarre elements across content

categories. The categories place and action were the most common category for discontinuous

elements and were expected with respects to the distribution of all dream content.
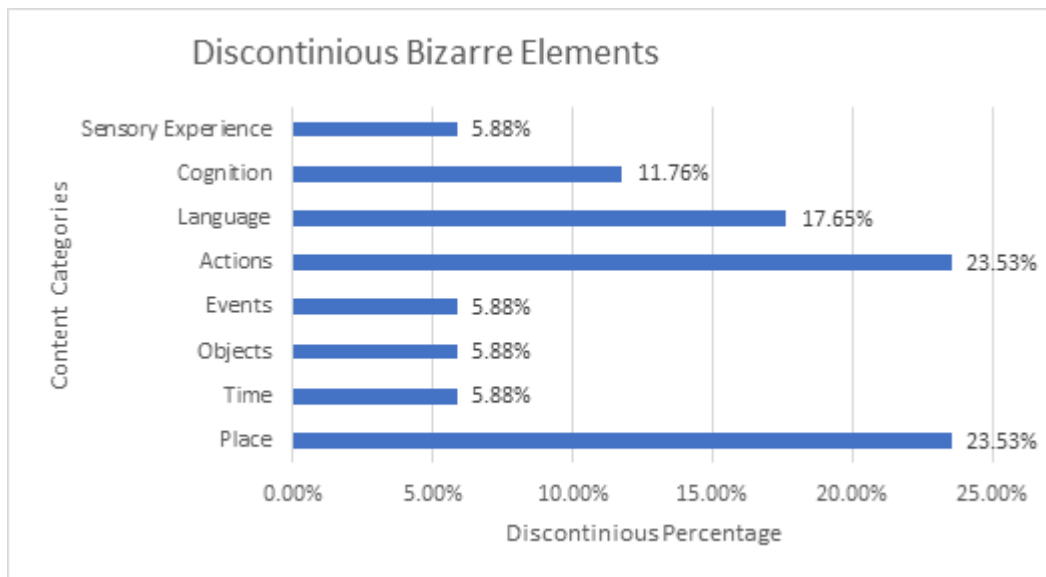
Fig. 5. Distribution of discontinuous bizarre elements across content categories.

Discussion

My hypothesis that bizarre dreams would occur more frequently after non-routine days than routine days was inconclusive. Without the acquiring of data for both levels of the independent variable I was unable to determine if bizarre dreams occur more frequently than non-bizarre dreams.

I was able to report a percentage of bizarre dreams to non-bizarre dreams for the routine group (31.86% bizarre elements and 68.14% non-bizarre elements). This is similar to the findings of Revonsuo and Salmivalli (1995), who identified (22.3% of all dream content as bizarre and 77.7% as non-bizarre). The statistical significance between my findings and that of Revonsuou and Salmivalli (1995) was not part of my original study, and analyzing this data further may provide insightful information.

The distribution of bizarre dream elements through content categories was another additional analysis performed due to my lack of results to report on my research hypothesis. I identified actions, actions and events, and actions and places as the most common category for incongruous, vague, and discontinuous elements. As mentioned before the event category only accounts for 6.37% of all dream contents, but makes up a 25% of all bizarre vague elements. This findings makes we wonder if vagueness can reveal something about our ability to process events while we sleep into long term memory. Vagueness by nature is missing pieces of information. The categories language, body parts, time, and self all account or 0% of bizarre vague elements. A look into these four categories and how they differ from events could reveal how the brain chooses what to remember in dreams.

The limitations of this study have occurred to me through out this study. Although my subjective experience of recalling bizarre dreams more frequently after non-routine days, as cited in Owen (2000), bizarre dreams seem to most commonly occur within the

REM stage of sleep. Being that my study was not conducted in a dream lab where strictly REM

dreams could be collected, my results that 31.86% of elements recorded after a routine day were

bizarre could possibly be attributed to the stage at which participants recalled their dream, rather

than the type of day they experience prior. Picture this scenario, perhaps all of the dreams

recalled by the routine group were from the REM stage of sleep and Owen (2000) was right that

bizarre dreams occur most frequently during REM sleep rather than non-REM sleep, this

scenario would attribute my results primarily to the stage of sleep participants were in when

they recalled their dream rather than the nature of the day they had prior.

Another limitation was my sample size. I had a sample of six participants, a larger sample

size would increase the likelihood of having a sample representative of the population for

a couple of reasons. Most importantly, it would allow me the greater likelihood of having two

even groups, non-routine and routine. A larger sample would also decrease the likelihood of one

group primarily reporting non-REM dreams, for it has been found that most recalled dreams

occur during REM cycles due to the close approach to waking consciousness at the end of this

cycle. Thirdly a larger sample size would allow me to at least statistically compare

my distribution of dream elements across dream categories to Revonsuo and Salmivalli (1995),

which was not an original objective of my study, but could produce valuable data with more

participants. Revonsuo and Salmivalli's (1995) sample size was ($n = 32$) and was entirely

female.

For future research, a number of things could be changed. To increase the sample size,

the survey could be posted to more websites, like Psi Chi and other social media platforms. A

within-subject design could be used to test participants in both conditions for their dream

bizarreness allow correlating statistical analysis. Furthermore, to avoid the REM to NREM

dream content issue, having participants sleep in a lab so they could be awakened during their

REM cycle after both a routine and non-routine day would yield more accurate results for a number of reasons. By hosting this survey online, I must be aware of the participant's ability to lie and joke in submitting of their most recently recalled dream. This stands out as an issue to me for one of the submitted dream logs I received rhymed lyrically the whole way through. I predict that waking someone up during their REM cycle would be a situation that if someone consented to, would make them less likely to lie than someone who is just filling out my survey online at their home. There is also no way for me to know for sure which sleep cycle a recalled dream came from without the use of in lab observations at the least. This is an issue due to the support found by previous researchers that bizarre dreams most commonly occur during REM sleep rather than non-REM sleep. If I was able to acquire only REM sleep dreams from participants after either a routine day or a non routine day I could more accurately identify which routine style produced a higher frequency of bizarre dreams.

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Appendix A

Dream scenario from Revonsuo and Salmivallis' Appendix (1995). This Appendix shows both; the identified element as underlined, and the labeling of which of the 14 categories each element was assigned to was highlighted, along with the identification of bizarre elements which is also highlighted.

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APPENDIX

An Example of a Dream Scored Using the Content Analysis of Bizarreness Scale

"THE APARTMENT"

My father, [person] my little sister [person] and I [self] were driving [action] to take a look at an apartment (for me). Only I went in [incongruous action]. In the apartment [place] there was a girl, [person] who was doing her homework [action] at a table [object] (there were some papers [object] on the table. There was one room [place] and doors. [object] "There is a draft in here". [language] said the girl. I noticed that there were holes [incongruous object] in the white [object] walls. [object] It was indeed slightly cool there. [place] "It doesn't matter, I thought [incongruous cognition] , "the room is anyway wonderfully old-fashioned by its shape"(?) [incongruous cognition]. I opened [action] a door. [object] There was a wonderful [cognition] sauna. [object] Beside the sauna there was a fireplace, [object], and when I was leaving, [action] I still noticed a bedroom. [object] My sister and father had left by car [incongruous cognition] . I was alone here, far away. [cognition] (I do not know the place where I was) [vague place] .) I called home. [action] Mother [person] said that father and sister had lost me and came home [language] . I became irritated [emotion] and I wondered why they did not wait for me [cognition] . After all, they had come with me to see the apartment [cognition].

Appendix B

Dream log in narrative fashion.

The purpose of my study is to determine if bizarre dreams occur more frequently after a routine day or after an extraordinary/unusual day. Dreams can be defined as a sleeping state of conscious experience that is recalled once awake (Rock, 2004). Dreams are often narrative and have characteristic details like setting, plot, characters, objects, feelings/emotions, sometimes tastes, smells, or old memories.

Responding in a narrative like fashion can be beneficial. Try to refrain from using personally identifiable information, like if the title of the setting is your place of work. Also try to not use the full names of characters, rather use initials or titles like "my best friend". With this information in mind, please type out and describe as many details of your remembered dream as possible.

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Appendix C

Routine definition and then examples:

When reflecting on the routineness of your day prior to your recalled dream keep the following in mind. The entirety of your day directly before having the dream you just recorded on the Dream Recall Questionnaire should be accounted for routine. If this dream occurred after a nap, only the amount of time after your last sleeping cycle will be accounted for routine. A routine day is defined best with three main characteristics; the fact that all actions during a day would constitute as one routine day, should include the events planned for a day, and the actual execution of the almost all planned events (Grant & Schempp, 2013).

These are examples of both a routine and non-routine day:

An example of a routine day: Every Monday is the same; I wake up at 8 A.M., I get to work at 9 A.M., I arrive home at 5 P.M., then take my dog for a walk 5 P.M. to 6 P.M., I order take out for dinner, then I watch a movie, read a book, or watch the news till I fall asleep. I rarely see or do anything notable on these days, and today was no exception.

Below is just an example of what a routine Monday would **not** look like. This is an unusual day, because many planned events did not occur, and notable extraordinary events occurred too.

Routine Activities Planned	If Activity took place or not (yes or no). If activity did not take place, what happened?
wake up at 7am	yes
Work at desk 8am-11:30	yes
Lunch 11:30- 1pm	No, stuck in traffic in commute to favorite restaurant. Witnessed four car collision.
Work 1-4pm	No, skipped work and hanged out with old friends till four instead
Dinner prep: 5-6	No, went on walk to instead of prepping dinner, and ordered delivery.
Dinner then movies at home 6-9pm	yes
Prep for bed, sleep by 9:30	yes

Appendix D

Definition of bizarre dreams provided to participants.

Keep the following definition of Bizarreness in mind when answering the final question. Revonsou and Samilvalli (1995) described bizarre dreams as most commonly involving characteristic details that are impossible, unlikely, and inconsistent to regular waking life experiences. These researchers defined bizarreness as being either incongruous (content is inconsistent with waking reality), vague (content is obscure or indeterminate), or discontinuous (content appears, disappears, and/or transforms) within the reported dream.

Appendix E

Informed consent statement (participants will be required to agree to before any other actions

on Qualtrics).

Online Informed Consent Statement

The researcher conducting this project is an undergraduate student
at Lindenwood University who is enrolled in the PSY40400: Advanced Research Methods
Psychology course. The primary purpose of my study is to determine if bizarre dreams occur
more frequently after a routine day or after an extraordinary/unusual day. The findings of this
project will be presented to the entire class in the form of a written report, as well as an oral
report. Additionally, results could be presented at a conference, and non-personally identifiable
results will be posted to Facebook (via Kevin McGowan's Facebook page).

Procedures

Upon the recall of a dream you will click the link on the Facebook posting or in my
Facebook bio. This link will take you to Qualtrics, which is the hosting server of this study, and
you will be asked to give consent to participate. Once consent is provided, you will have access
to my online survey. Please provide all requested information about your dream and routine that
you're comfortable sharing. I only ask for you to fill out three short questionnaires upon
awakening from a remembered dream. These three forms will be presented and filled out in this
order; Dream recall questionnaire, General Questionnaire, and a demographic questionnaire.
These questionnaires should not take any more than 30 minutes of your time. A feedback letter
will be presented following the completion of the questionnaires above, which will include
contact information for results and questions. Remember, individual results will not be
identifiable. I am only accepting one dream submission per participant.

Risks/Discomfort

The only foreseen risks of this study is the mental distress that might accompany the
recalling of a nightmare, and the possibility of participants reporting personally identifiable data
in their dream reports. In regards to the recall of a nightmare, if you do not feel comfortable
reporting any part of your dreams, you are free to skip any questions or withdraw without
penalty. All participants should remember not to report personally identifiable data by avoiding
the use of full names of characters and settings. For example: "I dreamt I was working my usual
shift at Bank of America with my best friend Maria Thomas." This is an example of providing
too much personally identifiable information, rather "I dreamt I was working my usual shift at
the bank with my best friend" is a much less personal and simpler explanation of the nature of
what was occurring.

Compensation and Benefits

By taking part in this study you will gain experience in taking part in a psychological study
and potentially learn more about the field. By seeing the results of my study, you can gain the
knowledge of what produced the most bizarre dreams, a routine day or unusual day. There
will be no financial or material compensation. 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 Kevin McGowan at kwm635@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 researcher listed below will have access to individual questionnaires and surveys. 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 Kevin McGowan at kwm635@lindenwood.edu or direct your inquiries to the course professor, Dr. Nohara-LeClair at mnohara-leclair@lindenwood.edu or (636)949-4371.

ELECTRONIC CONSENT: Please select your choice below.
Clicking on the "I consent, begin study" button below indicates that:

- You have read the above information.
- You voluntarily agree to participate.
- You are at least 18 years of age
- You are not over 65 years of age

I consent, begin study
I do not consent; I do not wish to participate

Appendix F

Recruitment post on Kevin McGowan and Lindenwood Psychology Facebook Pages

I am conducting an online survey to find out if bizarre dreams occur more frequently after a routine day or after an unusual day. If you're interested in participating, and you remember your dreams fairly often, please click the link below to access the survey upon the recall of your newest and most recent dream. Additionally, one should be prepared to provide information on the presence of a routine the day prior to remembering your dream.

Any people under the age of 18 or over 65 are asked to not participate in the study. These two groups of people are being excluded, because they are considered to be a vulnerable population.

https://lindenwood.az1.qualtrics.com/jfe/form/SV_b2eggpZK OCBkLHf

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Appendix G

Below is an explanation and example of the element scoring for Category and Bizarreness

using the same identified elements and categorization from the dream scenario in Appendix A.

Once each element has been identified and categorized (as seen in appendix B), elements will be assigned a score for both their category (1-14) and bizarreness (1-4) by each member of the third party independently. The scoring judges assign a compound score to describe both the element content category and its bizarreness score [content/bizarreness].

5.   The number "1" representing a "non-bizarre element".

6.   The number "2" representing an incongruous element. Incongruous elements have at least one of the following properties:

    a.   Elements that are contextually incongruous. Elements with features that don't belong in waking reality. Example: There is a white tiger in my back yard [Contextually Incongruous Animal, scored as (5/2)], or "There were holes in the white walls" [Contextually incongruous object, scored as (8/2)]

    b.   Exotic elements. These are elements that are highly unlikely, but are still possible. Example: I met the president of the United States in the Philips 66 gas station bathroom [Exotic Person, scored as (4/2)].

    c.   Impossible elements. This is an element impossible to occur in waking reality. Example: I began to fly like super man over the school [Impossible Action, scored as (10/2)].

7.   The number "3" will be assigned to vague elements. "An element or a feature of an element whose identity or precise nature is indeterminate, unknown, or obscure in a way which does not occur in waking life" (Revonsuo & Salmivalli, 1995, p. 174). Example: I'm riding in a car with a character, but I can't quite recognize or remember who [vague person, scored as (4/3)].

8.   The number "4" will be used to describe a discontinuous element. This is an element which suddenly becomes visible, invisible, disappears, or transforms. Discontinuity is the only measure of bizarreness that is computable in addition with one of the other three bizarreness scores: non-bizarre (1), incongruity (2), vagueness (3). This is due to the fact that an element may be discontinuous in addition to being bizarre in a different way. "Thus, each element scored as Discontinuous also received another score indicating whether the element is Non-bizarre, Incongruous, or Vague (Revonsuo & Salmivalli, 1995, p. 175). Discontinuity is scored to an element only after the change occurs. Example: I'm at home, then I'm suddenly at the grocery store ["Grocery store" is a Non-Bizarre Place and a Discontinuous Place, scored as (2/1+4)].

Category   Content/element (1-14)Non-bizarre or bizarre (1-4)

self	I	Non-bizarre
Place	1. In the apartment (2/_) 2. one room (2/_), 3. Slightly cool there (2/_) 4. I did not know where I was (2/_)	1. Non-bizarre (2/1) 2. Non-bizarre (2/1) 3. Non-bizarre (2/1) 4. vague place (2/3)
Time		
Persons	1. My father 2. My sister 3. A girl 4. Mother	1. Non-bizarre, 2. Non-bizarre 3. Non-bizarre 4. Non-bizarre
animals		
Body parts		
plants		
objects	1. At a table (8/_) 2. there were papers (8/_) 3. doors (8/_) 4. holes (8/_) 5. white (8/_) 6. walls (8/_) 7. door (8/_) 8. sauna (8/_) 9. fireplace (8/_) 10. bedroom (8/_)	1. Non-bizarre (8/1) 2. non-bizarre (8/1) 3. non-bizarre (8/1) 4. contextually incongruent object (8/2) 5. non-bizarre (8/1) 6. non-bizarre (8/1) 7. non-bizarre (8/1) 8. non-bizarre (8/1) 9. non-bizarre (8/1) 10. non-bizarre (8/1)
events		

actions	1. Driving (10/_)	1. Non-bizarre (10/1)
	2. Only I went in (10/_)	2. Incongruent action (10/2)
	3. Doing homework (10/_)	3. Non-bizarre (10/1)
	4. I opened (10/_)	4. Non-bizarre (10/1)
	5. I was leaving (10/_)	5. Non-bizarre (10/1)
	6. I called home (10/_)	6. Non-bizarre (10/1)
language	1. There is a draft in here	1. Non-bizarre
	2. Said that father and sister had lost me and came home	2. Non-bizarre
cognition	1. It doesn't matter I thought	1. Non-bizarre (10/1)
	2. The room is anyway wonderfully old-fashioned by its shape	2. Incongruent cognition by original study (10/2), but I'd score this as non-bizarre cognition (10/1)
	3. There was a wonderful	3. Non-bizarre (10/1)
	4. My sister and father had left by car	4. Non-bizarre (10/1)
	5. I was alone here far away	5. Contextually incongruent cognition (10/2)
	6. I wondered why they did not wait for me, after all they had come to see the apartment with me	6. Non-bizarre (10/1)
emotions	I became irritated (13/_)	Non-bizarre (13/1)
Sensory experience		

Appendix H

Feedback letter

Thank you for taking the time to complete my Survey upon remembering your dream. The questions on this particular survey will allow me to find out how often bizarre dreams occur or do not occur with the presence of a daily routine.

I hypothesized that more bizarre dreams will occur after unusual days, rather than after routine days. In other words, someone who had a more unusual or extraordinary day would be more likely to experience a bizarre dream the following night or sleep cycle.

Although I cannot provide you with individual findings because this survey was conducted anonymously, I would be happy to answer any questions you may have about this study. Please feel free to contact us using the information below.

Thank you again for contributing data to my project!

Student Researcher
Kwm635@lindenwood.edu

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

Mental Health and College Students

Katie Olson[11]

The present study aims to explore the mental health of college students regarding anxiety, stress, and depression. Pursuing higher education can be difficult and can have a negative impact on your mental health if there is a lack of social support from school, friends, and family. The hypotheses stated that there would be a relationship between the number of hours worked and the symptoms of anxiety, stress, and depression. Another hypothesis stated that there would be a significant positive relationship between the method of payment for school and anxiety, stress, and depression. The present study used a demographic survey and the Depression, Anxiety, and Stress Survey (DASS; Lovibond & Lovibond, 1995) to measure the levels of anxiety, stress, and depression in a sample of college students (n = 87). The descriptive statistics show lower than expect means of the three mental health symptoms measured. A Pearson's correlational analysis revealed no significant relationships between hours worked with anxiety, stress, and depression. An independent samples t test revealed there were no significant relationships between anxiety, stress, depression, and the method of payment. The present study is a strong basis for future research. Larger samples and a more in-depth survey are needed to gain a better understanding of mental health in college students. The purpose of this study was to encourage universities to assess the general mental health of students and to provide more resources to those students struggling with their mental health.

Pursuing higher education can be a very rewarding goal in a person's life, at any age. As it is rewarding, it can be just as difficult to reach this goal. According to the Missouri Department of Mental Health, St. Charles County alone had 27.45-30.15% of students having disruptions in their work, 17.01-20.43% of students feeling very sad, and 9.06-10.99% of students seriously considering suicide in 2016 (Missouri Department of Mental Health, 2016). The stressful and intensive hard work that goes into maintaining grades in school seems to have an impact on a person's mental health. If a person does not have the right tools to form healthy

[11]Katie Olson, Department of Psychology, Lindenwood University Correspondence regarding this paper should be addressed to Katie Olson. Email: kmo956@lindenwood.edu

coping mechanisms, and substantial outside support, such as family support and resources for mental health, maintaining grades and keeping up with the demands of higher education can have negative effect on mental health.

A study by Hirsch, Rabon, Reynolds, Barton, and Chang (2017) assessed the relationships between mental health stigma, perceived stress, depressive symptoms, and suicidal behavior in college students. Their study used four different self-report measures to assess depressive symptoms, mental health stigma, perceived stress, and suicidal behavior. The Beck Depression Inventory-II was used to assess depressive symptoms, The Mental Health Stigma Scale for mental health stigma, The Perceived Stress Scale for perceived stress, and The Suicidal Behavior Questionnaire – Revised for suicidal behavior (Hirsch et al., 2017). The results revealed that higher levels of stress were related to more depressive symptoms, and suicidal behavior (Hirsch et al., 2017). The results supported previous research, but they took extra steps to assess the influence of mental health stigma, and how it interacts with stress, depression, and suicide. Their findings supported the idea that stress and mental health stigmas affect the presence of depression and suicidal behaviors (Hirsch et al., 2017). Hirsch et al. (2017) results supports the pressing issues of negative mental health in college students and their likelihood to experience depression symptoms and suicidal behaviors when under stress.

Deteriorating mental health can be detrimental to a student's ability to perform and can negatively affect productivity. A study by Grawitch, Waldrop, Erb, Werth, and Guarino (2017) assesses productivity loss in the workplace due to mental illness in two studies. The first study assessed productivity loss related to physical and mental health, work-life balance satisfaction, emotional exhaustion, and work engagement. To look at productivity loss related to mental and physical they used two 4-item scales modified from the Stanford Presenteeism Scale (SPS-6). To measure work-life balance satisfaction they used Valcour's 5-item scale that measures

satisfaction with work-life balance on a Likert-type scale (Grawitch et al., 2017). The Maslach Burnout Inventory (MBI) was used to assess the frequency of emotional exhaustion (Grawitch et al., 2017). Lastly, to assess work engagement, the 9-item Utrecht Work Engagement Scale (UWES-9) was used to assess three underlying factors of work engagement: vigor, dedication, and absorption (Grawitch et al., 2017). The second study assessed some of the same aspects of productivity, life satisfaction, and work engagement, but also added in depression, and turnover intention. To assess depression, The Center for Epidemiologic Studies Depression Scale (CES-D scale) was used. To assess turnover intention, a 4-item measure of turnover intentions was used. The measures used to assess productivity loss and work engagement were the same as the first study, but a different measure was used to assess life satisfaction. The Satisfaction with Life Scale (SWLS), a 5-item measure was used to assess life satisfaction (Grawitch et al., 2017).

Results to the study found that mental health was positively associated with emotional exhaustion, negatively associated with work engagement, negatively associated with satisfaction and work-life balance (Grawitch et al., 2017). Overall, their results suggested that productivity loss due to mental health had more indicative relationship compared to physical health. The results of the study suggested that mental health has an impact on productivity in the workplace. This may not be directly related to college students, but the study relates as it speaks to the aspect of mental health being detrimental to productivity.

A study by Beiter et al. (2014) was conducted to assess the correlates of depression, anxiety, and stress in college students. The study was conducted by self-report measures given to undergraduate students attending Franciscan University, Steubenville, Ohio. The study used the Depression, Stress, and Anxiety Scale (DASS) to assess the participating student's levels of these symptoms (Beiter et al., 2014). The results revealed that 15% reported anxiety, 11% reported stress, and 11% reported feelings of depression (Beiter et al., 2014). The results of the

study indicated that the top causes for concern for students were academics, succeeding, plans after graduation, financial problems, sleep, relationships with friends, and relationships with family, overall health, body image, and self-esteem. The results also showed that upperclassmen scored the highest in depression, anxiety, and stress in comparison to underclassmen (Beiter et al., 2014). Off campus students ranked the highest in levels of stress, anxiety, and depression in comparison to students who live on-campus. The results of their study were indicators that universities should address the mental health needs of students in the same level as they foster professional success (Beiter et al., 2014). This study is a prime example of the implications of pursuing a higher education on mental health in students.

As stated in the previous study, the need for universities to emphasize personal well-being as well as professional well-being is a concern. A study done by Cornish et al., (2017) assessed a new model developed in North America for the modern university campus environment. This new stepped care involves a range of online mental health programs as well as dimensions of treatment intensities and student autonomy (Cornish et al., 2017). This study can be used as a great example of how universities can cater to the well-beings of their students in a non-invasive way that allows the student to take things at their own pace and feel a sense of autonomy. This can also help with the mental health stigma, mentioned earlier. The study went into intense detail about how this stepped care model works, the historical background, client perspectives, trainee perspectives, counselor perspectives, and many others. What sets this stepped care apart from the traditional 50 min face-to-face therapy sessions is the variations in intensity of care and the student's autonomy. There are nine steps to this stepped model: walk-in consultation, informational online self-help, interactional online self-help, drop-in psychoeducational sessions, therapist assisted e-mental health, intensive group therapy, intensive individual therapy, psychiatric consultation, and case management- referral to tertiary or acute

care (Cornish et al., 2017). These steps allow the student to feel in control of their mental health and allow them to seek help online as well, before committing to face-to-face interventions.

A study by Gilmour (2014) assesses a health survey given to Canadians above the age of 15 classified as having flourishing, moderate, or languishing mental health. This study showed that the majority of Canadians who participated in the survey were flourishing in their mental health. They survey also showed that those classified as languishing in mental health had just over 50% having a mood disorder, a little over 10% having a substance abuse disorder, over 30% having a generalized anxiety disorder, and over 60% having any mental disorder (Gilmour, 2014). Whereas those with a flourishing mental health were all below 10% in the same topics (Gilmour, 2014). The estimates of a Canadians over 15 years old having 'complete mental health' were much higher than the estimates reported in American Studies. An estimate of 72.5% of Canadians fir the criteria to be considered having positive mental health, where only 32.7% of adults, 37.9% of adolescents, and 49.3% and 60.7% of college students had complete mental health (Gilmour, 2014). This study brings up potential questions for future studies concerning the differences in mental health in Canada and the United States. This could also be applied to the studies of mental health in college students.

I am interested to know what the frequency of depression, anxiety, and stress symptoms are in college students. The purpose of the present study is to explore these symptoms in college students and use this information to evaluate the kind of mental health services should be provided and encouraged by universities. I designed a survey featuring the Depression, Anxiety, and Stress Survey (DASS; Lovibond & Lovibond, 1995) to record the prevalence of these symptoms in college students. I predict there would be a relationship between working while in school with higher rates of these symptoms, as well as a relationships with these symptoms with the general method of paying for school.

Method

Participants

The participants in the study were recruited through the Lindenwood Participant Pool (LPP) and through Facebook. Participants recruited through the LPP were compensated with one extra credit point. Participants recruited through Facebook received no compensation. There was a total of 87 participants. For the gender of the participants, 20% were male, 78.8% female, and 1.2% indicated transgender or other. The participants included 76.47% White/ Caucasians, 9.41% Hispanic/Latinos, 8.24% Black/African Americans, 3.53% Asian/Pacific Islanders, and 2.35% indicating another ethnicity not listed in the study. The class standing of the participants were as follows: freshman 23.5%, sophomore 22.4%, junior 21.2%, senior 24.7%, graduate 3.5%, and other 4.7%. Students participating were also asked if they had a job outside of school,

61.18% of them indicated he or she was employed outside of school.

Materials and Procedure

The materials used for this study included Qualtrics, a survey platform for online creation and administration. Qualtrics was used to administer and create the survey. The Depression, Anxiety, and Stress Survey (DASS; Lovibond & Lovibond, 1995) was administered in this study to assess the level of mental health (see Appendix A). Facebook was used to recruit college students outside of Lindenwood University. The setting of the study was online. The participants were able to access the survey on campus, or elsewhere where a computer with access to internet was available. The survey was available for x days/months. The participants first read over the informed consent statement. Next, the participants answer all the demographic questions. Once all submissions were completed the DASS scoring key was used to assess the participants' levels of mental health considering depression, anxiety, and stress. Once the full survey was

completed, the participants were presented with a feedback statement debriefing them in regards to the survey and providing mental health support resources.

Results Descriptive Statistics

Descriptive statistics were run for the present study. Using the DASS (Lovibond & Lovibond, 1995), anxiety, depression, and stress were all measured (Anxiety M = 9.23, SD = 8.61; Stress M = 13.18, SD = 9.89; Depression M = 8.77, SD = 9.80). Participants were asked to choose from a list of options to indicate how they pay for school. The most common form of payment was student loans with 44.6%. Having parents or a family member pay for school was the second most prevalent with 34.9%. Lastly, scholarships to pay for school was third, with 16.9%, and only 3.6% indicated they pay out of pocket.

Pearson's r Correlation

A Pearson's correlation analysis was run to compare how many hours worked a week with the symptoms of anxiety, stress, and depression. There was a weak negative relationships between hours worked and anxiety ($r = -.088$, $p = 0.269$). The relationship between hours worked and stress was also negative and weak ($r = -.114$, $p = 0.214$). There was a positive relationship found between hours worked and depression, but this was considered weak ($r = 0.095$, $p = 0.254$). The relationships between the symptoms of anxiety, stress and depression were also analyzed. There was a positive and strong relationships between anxiety and stress ($r = .827$, $p = .000$). There was also a positive and strong relationship between anxiety and depression ($r = .707$, $p = .000$). There was a positive and strong relationships found between stress and depression as well ($r = .736$, $p = .000$).

Independent Samples t-test

To assess the methods of payment with anxiety, stress, and depression an independent samples t test was run. The participants who indicated that they paid out of pocket for their school and those who indicated the use of scholarships were omitted from the data. The sample size for scholarships (n = 14) was too small to make a meaningful comparison, as well as for out of pocket (n = 3). The descriptive statistics for method of payment and anxiety, stress, and depression are shown in Table 1.

Table 1

	Student Loans	Parent / Family (n = 29)	Scholarships (n = 14)	Self-pay (n = 3)
	(n = 37)			
Anxiety	M = 10.72	M = 8.79	M = 8.79	M = 1.00
		SD = 9.16	SD = 9.16	SD = 1.73
	SD = 7.72			
Stress	M = 14.83	M = 13.55	M = 13.55	M = 1.66
		SD = 10.94	SD = 10.94	SD = 2.88
	SD = 8.59			
Depression	M = 9.05	M = 8.55	M = 8.55	M = 1.00
		SD = 8.90	SD = 8.90	SD = 1.73
	SD = 9.68			

*M = mean, SD = standard deviation

There were no statistically significant differences in the methods of payment (student loans and parent / family) and the three measures of mental health (Anxiety t (64) = .931, p = .355; Stress t (64) = .535, p = .595; Depression t (64) = .217, p = .829).

Discussion

The results of the study did not support the hypothesis concerning the mental health of college students. Some limitations were the time frame allowed for data collection, as well as limited sample representation. Data collection began on March 9, 2018 and ended April 20, 2018. This only allowed for 87 participants, all from the surrounding area of St. Charles, Missouri. The data may have been much more statistically significant if there were more time allowed to collect data, as well as more broad area of data collection. A study by Hirsch et al. (2017) found that greater stress was related to more depressive symptoms and suicidal behaviors. This was not reflected in the present study. Grawitch et al. (2017) found mental health was positively associated with emotional exhaustion, negatively associated with work engagement, negatively associated with satisfaction and work-life balance. This was also not reflected in the data of the present study. The literature reviewed were studies done on a much greater and broad level, with much more time to research, collect data, and as well as having more resources available to them. I predicted that the results of the present study would be like the statistics gathered from Missouri Department of Mental Health for St. Charles County. The Missouri Department of Mental Health (2016) stated that St. Charles County alone had 27.45-30.15% of students having disruptions in their work, 17.01-20.43% of students feeling very sad, and 9.06-10.99% of students seriously considering suicide in 2016. These numbers were much higher than the results of the present study. This could be due to the discussed limitations.

The results from the Pearson's correlation analysis were surprising. There were no significant relationships between hours worked and any of the symptoms. The relationships between hours worked, anxiety and stress were negative and weak (Anxiety $r = -.088$, $p = 0.269$;

Stress $r = -.114$, $p = 0.214$). There was a positive relationship between hours worked and depression, but this was a weak correlation ($r = 0.095$, $p = 0.254$). I infer that these results can be attributed to the idea that someone who cannot handle working a job as well as going to school would most likely not choose to do so. I did not ask whether the participants were full-time students in the demographic survey, this could also contribute to the lack of statistical significance. Many of the participants could have been going to school part-time, meaning there might be less stress being perceived. In a future study I would like to ask about how many credit hours a student is taking that semester, as well as what forms of social support they actively participate in, such as therapy, talking with friends, or seeking help from family. These questions would give a better idea of how students deal with anxiety, stress, and depression while in school.

The results of the independent t test were also not in support of my hypotheses. There were no significant differences in the scores of anxiety, stress, and depression in relation to how someone paid for school. Some limitations to these results are that there were very few participants who indicated that they paid for school out of pocket (n =3) and through scholarships (n = 14), so this data was omitted before running the test. These small numbers would not allow for any significant comparisons due to unequal sample size. The descriptive statistics for paying for school out of pocket were low as well (Anxiety M = 1.00, SD = 1.73; Stress M = 1.66, SD = 2.88; Depression M = 1.00, SD = 1.73). Even with a small sample size, these are surprisingly low numbers. An explanation for this is that someone who is paying out of pocket for classes is not likely to be going full-time. This is another reason I would like to ask about full-time or part-time status in future research. Another limitation to the results of the independent samples t test relates to the two modes of payment I focused on, student loans and parent / family member. I hypothesized that someone with student loans would have higher

anxiety, stress, and depression. Student loans typically do not have to be paid back until six months after graduation. This contributes to the results of the data being insignificant because it may not be an immediate stressor. I also hypothesized that having a parent or family member pay for school would result in the student having much lower rates of anxiety, stress and depression. This was not statistically supported from the test.

More research is needed to provide more evidence that the current mental health status of college students is less than acceptable. Using a different survey other than the DASS would provide a better understanding of a student's mental health status. In future research I would like to use a survey that allows for more descript and specific indications of mental health. Using a survey that measures levels of anxiety, stress, and depression as well as allowing for the participant to describe their coping mechanisms would provide a better understanding. The present study is a strong base for more research to be conducted with more significant testing, as well encouraging universities across the United States to provide better support to their students who are struggling to maintain their mental health.

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Appendix A

Mental Health and College Students Survey

Mental Health and College Students

Q1 Survey Research Information Sheet You are being asked to participate in a survey conducted by Katie Olson, under supervision of Michiko Nohara-Leclair, at Lindenwood University. We are doing this study to assess the symptoms of mental health in college students. You will be presented with demographic questions then an assessment measuring symptoms of depression, anxiety, and stress. It will take about

20-30 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. We will not collect any information that may identify you. There are no direct benefits for you participating in this study. If you are 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.

WHO CAN I CONTACT WITH QUESTIONS?

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

Katie Olson   kmo956@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. 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.

- o   Agree (1)
- o   Disagree (2)

Q2 What is your age?

_____

Q3 What is your class standing?

o   Freshman (1)
o   Sophomore (2)
o   Junior (3)
o   Senior (4)
o   Graduate (5)
o   Other (6)

Q4 Please choose appropriate gender.

o   Male (1)
o   Female (2)
o   Other (e.g. Transgender, etc) (3)
o   Prefer not to answer (4)

Q5 What is your

ethnicity/race? ○   White/Cauc

asian (1)

o   Hispanic/Latino (2)
o   Black/African American (3)
o   Asian/Pacific Islander (4)
o   Native American (5)
o   Other (6) _____

Q6 Do you work a job outside of school?

o   Yes (1)

o   No (2)

Skip To: Q8 If Q6 = No

Q7 How many hours do you work a week?

o   Hours: (1) _____

Q8 What is the primary way of paying for school?

o   Student Loans (1)

o   Self-Pay out of pocket (2)

o   Parents/Family member (3)

o   Scholarships (4)

Q11

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement. The rating scale applies as follows

1.   Did not apply to me at all
1.   Appied to me to some degree, or some of the time
2.   Applied to me to a considerable degree, or a good part of the time
3.   Appled to me very much, or most of the time

	0 (1)	1 (2)	2 (3)	3 (4)
1) I found myself getting upset by quite trivial things (1)	○	○	○	○

2) I was aware of dryness of my mouth (2)	○	○	○	○
3) I couldnt seem to experience any positive feeling at all (3)	○	○	○	○
4) I experienced breathing difficulty (eg. excessive rapid breathing, breathlessness in the absence of physical exertion) (4)	○	○	○	○
5) I just couldn't seem to get going (5)	○	○	○	○
6) I tend to over-react to situations (6)	○	○	○	○
7) I had a feeling of shakiness (eg. legs were going to give way) (7)	○	○	○	○
8) I found it difficult to relax (8)	○	○	○	○
9) I found myself in situations that made me so anxious I was most relieved when they ended (9)	○	○	○	○
10) I felt that I had nothing to look forward to (10)	○	○	○	○

Q14
Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement. The rating scale applies as follows

1. Did not apply to me at all
1. Appied to me to some degree, or some of the time
2. Applied to me to a considerable degree, or a good part of the time
3. Appled to me very much, or most of the time

	0 (1)	1 (2)	2 (3)	3 (4)
11) I found myself getting upset rather easily (1)	◯	◯	◯	◯
12) I felt that I was using a lot of nervous enegry (2)	◯	◯	◯	◯
13) I felt sad and depressed (3)	◯	◯	◯	◯
14) I found myself getting impatient when I was delayed in any way (eg. elevators, traffic lights, being kept waiting) (4)	◯	◯	◯	◯
15) I had a feeling of faintness (5)	◯	◯	◯	◯
16) I felt that I had lost interest in just about everything (6)	◯	◯	◯	◯
17) I felt I wasnt worth much as a person (7)	◯	◯	◯	◯
18) I felt that I was rather touchy (8)	◯	◯	◯	◯

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19) I perspired noticeably (eg. hands sweaty) in the absence of high temperatures or physical exertion (9)	○	○	○	○
20) I felt scared without any good reason (10)	○	○	○	○

Q15
Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement. The rating scale applies as follows

1.   Did not apply to me at all
1.   Appied to me to some degree, or some of the time
2.   Applied to me to a considerable degree, or a good part of the time
3.   Appled to me very much, or most of the time

	0 (1)	1 (2)	2 (3)	3 (4)
21) I felt that life wasn't worth while (1)	○	○	○	○
22) I found it hard to wind down (2)	○	○	○	○
23) I had difficulty in swalowing (3)	○	○	○	○
24) I couldn't seem to get enjoyment out of anything I did (4)	○	○	○	○

25) I was aware of the action of my heart in the absence of physical exertion (eg. sense of heart rate increase, heart missing a beat) (5)	○	○	○	○
26) I felt down-hearted and blue (6)	○	○	○	○
27) I found that I was very irritible (7)	○	○	○	○
28) I felt I was close to panic (8)	○	○	○	○
29) I found it hard to calm down after something upset me (9)	○	○	○	○
30) I feared that I would be "thrown" by some trivial but unfamiliar task (10)	○	○	○	○

Q16
Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.The rating scale applies as follows
1.   Did not apply to me at all
1.   Appied to me to some degree, or some of the time
2.   Applied to me to a considerable degree, or a good part of the time
3.   Appled to me very much, or most of the time

	0 (1)	1 (2)	2 (3)	3 (4)
31) I was unable to become enthusiastic about anything (1)	○	○	○	○
32) I found it difficult to tolerate interruptions to what I was diong (2)	○	○	○	○
33) I was in a state of nervous tension (3)	○	○	○	○
34) I felt pretty worthless (4)	○	○	○	○
35) I was intolerant of anything that kept me from getting on with that I was doing (5)	○	○	○	○
36) I felt terrified (6)	○	○	○	○
37) I could see nothing in the future to be hopeful about (7)	○	○	○	○
38) I felt that life was meaningless (8)	○	○	○	○
39) I found myself getting agitated (9)	○	○	○	○

40) I was worried about situations in				
which I might panic	◯	◯	◯	◯
and make a fool of myself (10)				
41) I experienced trembling (eg. in the hands) (11)	◯	◯	◯	◯

Q17 Feedback Letter:

Thank you for taking the time to complete this survey. The primary purpose of this study was to assess the mental health of college students. Mental health may be a sensitive subject, but I find the growing problem to be important for colleges and universities to assess. I hope this study will help colleges and universities recognize the need for more accessible mental health services for students. Although I cannot provide you with individual findings due to the fact that this survey was conducted anonymously, I would be happy to answer any questions you may have about this study. I have also provided a few mental health resources for your contact. Please feel free to contact me using the information below. Thank you again for contributing data to my project!

Mental Health Resources: Student Counseling at the Wellness Center at Lindenwood (Evans 3rd Floor) (636) 949-4522National Suicide Prevention Hotline 1-800-273-8255Missouri Department of Mental Health (https://dmh.mo.gov/)Behavioral Health Response Hotline 1-800-811-4760

Student Researcher: Katie Olson (kmo956@lindenwood.edu)

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

Appendix B

DASS Scoring Guide

Stress:
1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, 39

Depression:
3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, 42

Anxiety:
2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40, 41

Add up scores for each question.

Suggestibility and Test Anxiety

Lauren Martin[12]

This paper aimed to test the power of suggestibility and how it affected college students' anxiety on tests. My hypothesis was that after students watch a motivational video, their anxiety about the test would decrease and their scores on the test would be better than participants who watched a video that did not have to do with motivation. Data from previous research shows that the higher stress levels one has, the lower their performance will be. I conducted an online survey with college students recruited from Lindenwood's Participant Pool and through Facebook and Twitter. Participants agreed to an informed consent form, answered questions about their anxiety, watched a video, completed a test with questions found on the Graduate Record Examination (GRE), and asked more questions about their anxiety. I found that there were significant differences in the motivation group and the neutral group when it came to feeling motivated, feeling good about their performance on the test, and feeling less nervous about the GRE.

Many students suffer from test anxiety when they are in school. Wanting to succeed on a test for a class can put a lot of stress on one's academic performance. When someone is stressed he or she does not always put all of their focus on the task at hand. Motivation can also affect one's performance. When someone is motivated or feels more confident, he or she will perform better than someone who has higher stress levels. Suggestibility is where one is influenced by something. Watching a motivational video before a high stress event, such as taking a test, can influence a student and may alleviate one's performance on the test.

Hartman, Waseeleski, and Whatley (2017) found that emotional dysregulation does influence performance on college students' academic GPAs. Emotional dysregulation can include not being aware, understanding, accepting, or controlling one's emotions. The researchers used data from 191 participants attending Valdosta State University. Participants

[12]Lauren Martin, Department of Psychology, Lindenwood University. Correspondence concerning this article should be addressed to Lauren Martin. Email: lm552@lindenwood.edu

completed the Difficulties in Emotion Regulation Scale (DERS) which measured their emotional

regulation. They found that when a student is stressed they may not perform as well because they

will not put all of their concentration on the test. They also found that students who have less

emotional regulation strategies have lower GPAs. These results may show students that

it is important to be confident in order to succeed (Hartman, et al., 2017).

Putwain and Aveyard (2018) found that when a student has a higher confidence level, he

or she will do better on a test and will have lower anxiety levels. Their study had 270 participants

from two different high schools in England. Without any incentives, students filled out

two questionnaires about test anxiety and self-belief. They measured students' academic

buoyancy, perceived control, and test competence. The researchers found that higher levels of

self-beliefs led to higher test scores and higher levels of stress led to worse test scores (Putwain

& Aveyard, 2018).

Hahn, Kropp, Kirschstein, Rücker, and Müller-Hilke, (2017) measured 48 medical

students' psychological distress, heart rate, anxiety, blood pressure, and saliva. They took these

measurements before the students took three tests required for medical school at the end of their

second pre-clinical year. Their results found that the medical students had higher levels of

anxiety before the oral part of the exam than their written exam. This confirmed their first

hypothesis that the oral exam would induce more stress (Hahn, et. al, (2017). They also found

that a lot of these students experienced depressive symptoms that decreased their confidence

levels.

Hadjistavropoulos and Hadjistavropoulos (2012) used data from 107 older adults. The

participants had an average age of 76.80 and were given $25 for their participation. They wanted

to measure anxiety and how it affected gait in elderly people. The participants were assessed by

Medical Risk Factor Questionnaire and the Survey of Activities and Fear of Falling in the

Elderly. Their study found that if there was an increased fear of falling it affected how the participants walked on the different surfaces. If they were afraid, they walked slower and more carefully while multitasking (Hadjistavropoulos & Hadjistavropoulos, 2012).

Azimi (2016) also touches on anxiety during oral or speaking exams and how they are much higher than written exams. Students reported to their teachers and counselors that during oral exams, students forgot the answers to the test because of high levels of anxiety (Azimi, 2016). Azimi used two tests, the Cloze-test and the C-test, and an anxiety questionnaire to measure which test caused more anxiety in 60 female college students. These women attended a college in Iran, were junior level students, and were majoring in English translation. The Cloze-test is where students read over the passage where multiple words are left blank. The C-test is where every other word has half of the word deleted. They found that students experience more anxiety when they are taking tests with more guessing, the C-test, than ones that were over general English, the Cloze-test.

My hypothesis for this research is that the participants who watched the motivational video will have less anxiety than the group who watches the neutral video. The motivational video will make participants feel more motivated, so they will feel better about their test performance. I also hypothesized that the neutral video group will not feel less anxiety after the test. Finally, I hypothesized that the motivational group will have better test scores than the neutral video on the GRE test.

Method

Participants

The participants included in this study were recruited through Lindenwood's Participant Pool (LPP), Twitter, and Facebook. Only college students who were 18 and older were allowed to participate in this study, unless they had a parental consent form filed with the LPP office. The

LPP is available to students who are in participating general education classes at Lindenwood University. Students are encouraged to participate in online and in person studies. For my study there were 21 participants who agreed to participate and completed the survey. There were other students who agreed to participate but did not complete the survey, so their data was not included. Students who participated in my online survey study received one extra credit point for their class. Other Lindenwood students and other college students not recruited from the LPP did not receive any compensation for the study. Students who were not recruited through the LPP were invited to participate through a link on Twitter and Facebook. All of the participants agreed to participate in the study and chose that they were over 18. Out of the 21 participants who completed the survey, 17 were female, 3 males, and 1 who preferred not to answer. There were 6 freshmen, 4 sophomores, 4 juniors, and 7 seniors in the study. There were no Asian, Native American, or Pacific Islander participants in my study. The majority of participants were Caucasian. There were 17 who reported that they were White or Caucasian. There was 1 Black or African American, 2 Hispanic or Latino, and 1 Multiethnic participant. The survey asked if the students felt anxiety before taking a test. There were 9 who selected "Probably Yes" and 8 who selected "Definitely Yes." When asked about taking the GRE, 7 selected "Might or Might Not," while another 9 chose "Probably Not" or "Definitely Not". Out of all 21 participants, only 5 had selected that they "Definitely Yes" or "Probably Yes" take the GRE.

Materials and Procedure

My survey was created on Qualtrics and was administered online. Students were asked to have headphones, speakers, or earbuds for the survey, so they could listen to the online videos. Before students were allowed to participate in the study, they had to read the informed consent statement and electronically agree to participate. The informed consent form stated that

the participant would be taking a test over mathematics, vocabulary, comprehension, and then asked questions about their anxiety when taking a test. The form also let the participant know that he or she could choose to discontinue the study at any point and would not be penalized (see Appendix A). After agreeing to participate, students were led to the questions on the questionnaire. In the questionnaire, participants were asked demographic questions and questions about their levels of anxiety levels when taking tests or thinking about taking tests (see Appendix B). For this study, there were two groups who watched two different videos. One video was a motivational video (Believe in Yourself, 2014) with the purpose of making the participants feel more confident before they took the test. The second video was a neutral video (Best of Cute Golden Retriever Puppies Compilation, 2016) that did not give or take away any confidence. Qualtrics randomly administered the videos to each participant. The videos were similar in length, the motivational video was four minutes and nine seconds while the neutral video was three minutes and fifty-nine seconds long. Both groups were given the same 10-question multiple choice test (Free GRE Practice Tests, 2018) over mathematics, vocabulary, and comprehension (see Appendix C). The groups had a total of 30 min to complete the entire survey. Participants could finish the survey before the 30 min were up. There was also an option for participants to exit the test at any point without penalty. After the test, participants were given a survey over their anxiety (see Appendix D). I created the test anxiety survey questions and asked about participants anxiety levels and if the video that they watched had alleviated any of it. After the survey, participants were debriefed in the feedback letter (see Appendix E). This letter informed participants that this study was used to determine how anxiety and motivation affect performance. It thanked participants for participating in my study and gave them my personal contact information so if they had any questions they could email me or call my personal cell phone.

Results

To determine if there were differences between the group who watched the motivational video and the group that watched the neutral video, I conducted independent samples t-tests. I hypothesized that the motivational video group would have less anxiety than the group who watched the neutral video. There were only three independent t tests that showed a significant difference. The students were asked different questions and scored the answers from 1 – strongly agree, 2 - agree, 3 – somewhat agree, 4 – neither agree nor disagree, 5 – somewhat disagree, 6 – disagree, and 7 – strongly disagree. The first independent t test was done to see if there was a difference between the motivational video and neutral video on feeling motivated after watching the video. The participants who watched the motivational video were significantly more motivated ($M = 2.25$, $SD = 1.05$) than the students who watched the neutral video ($M = 4.78$, $SD = 1.92$; $t(19) = -3.86$, $p < .001$, one tailed). The next independent samples t-test was conducted to see if there was a difference between the motivational video and neutral video on feeling like they did well on the test. The participants who watched the motivational video felt significantly better about their performance ($M = 3.12$, $SD = 1.24$) than the students who watched the neutral video ($M = 5.56$, $SD = 1.74$; $t(19) = -2.53$, $p = .01$, one tailed). The last significant independent samples t test was done to see if there was a difference between the motivational video and neutral video on feeling less nervous to take the GRE after the practice. The participants who watched the motivational video felt significantly less nervous to take the GRE ($M = 4.08$, $SD = 1.31$) than the students who watched the neutral video ($M = 5.44$, $SD = 1.74$; $t(19) = -2.05$, $p = .03$, one tailed). There were no other significant relationships between the motivational video group and neutral video group.

Discussion

My study revealed that there was a difference in the video groups and how they affected the students' anxiety levels. This supported my hypothesis that the motivational video would be affective in motivating students. The students who watched the motivational video felt motivated at a higher rate then the neutral video. The neutral video, the one about puppies, did not make the participants feel very motivated. The motivational video also made students feel better about their performance on the test than the neutral video did. Students who watched the motivational video reported that they felt less anxious to take the GRE after this practice than students who watched the neutral video. This supported my hypothesis that the motivational video would make students have less anxiety. There was not a significant difference between the scores of the test and the video that was watched. This did not support my hypothesis that students who watched the motivational video would perform better on the test.

Just like Putwain and Aveyard (2018), I also found that higher confidence levels led to lower anxiety levels. Unlike their study, I did not find a significant difference in test scores with the motivational and neutral videos.

There was a drop off in participants when the survey asked if the participants had headphones, earbuds, or a speaker to complete the study. Participants may not have read clearly enough and understood they could use the speaker on their computer or phone to hear the video. There was a higher amount of freshman 6 participants, than sophomores and juniors. This may have been because they were in participating LPP classes and wanted extra credit points. The majority of participants were seniors, 7 participants. This may have been because most of the people on my social media are my friends and are closer to my age and year in school. There are also mostly upper classmen in the Advanced Research Methods class who may have participated in my study through the LPP as participants rather than as researchers. The

majority of my participants chose that they "might or might not" or "probably not" take the GRE in the future. This may be because there are younger participants who may not have considered taking the GRE yet. Another reason would be that they are not planning to go to graduate school so they do not need to take the test. This may have caused students to not answer the questions or take them as seriously. The math questions were harder than normal math questions they may see since they were sample GRE questions. They were meant to be challenging and tricky. The comprehension and vocabulary questions used words that one may not always use in everyday conversation. I did not ask participants if English was their first language or if they were foreign students, so the questions may have been even harder to understand.

Some limitations that may have affected my study include time restraints and sample size. I might have had more time to collect data and recruit participants if my study had been up for a longer time period. I wish I could have gotten my paper work to the PPSRC and IRB quicker for approval. I also would have made sure that all of the required items were on IRB.net. If I were to expand on this research, I would add more questions to the demographic survey. More questions would include asking about learning disabilities, age, involved in sports or activities, had a job, were an international student, if English was their second language, and if they had ever been diagnosed with any kind of anxiety, depression, or mental illness.

Future research should focus on watching different videos or different ways of making students feel motivated. Watching a sad video may make students feel sad and not perform as well. Students could also take different tests that are easier or over certain subjects. The research should mainly focus on ways that effectively make students feel more prepared and confident before taking important tests.

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Appendix A

Informed Consent Form

Introduction

The researcher who is conducting this project is an undergraduate student at Lindenwood University who is enrolled in the PSY40400: Advanced Research Methods course. The primary purpose of this class project is for the student researcher to learn how to design, implement, and analyze survey research through first-hand experience. The findings of this project will only be presented to the professor for the course, Dr. Michiko Nohara-LeClair, in the form of a written report.

Procedures

This survey asks you to respond to a few demographic items as well as questions asking about your level of test anxiety. Test anxiety refers to how stressed you feel when completing or thinking about a test. You will then be asked to take a 10-question test over math, comprehension, and vocabulary. This test has a time limit of 20 minutes; however, you can end early or chose to stop at any point. This questionnaire will be conducted with an online Qualtrics-created survey and should not take any more than 30-40 minutes of your time.

Risks/Discomforts

There are no known risks associated with this study. 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

By taking part in this study, you will earn 1 bonus point toward your LPP participating course. You will also gain experience taking part in a psychological survey project and potentially learn more about the field. 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 Lauren Martin at lm552@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 researcher 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 Lauren Martin at lm552@lindenwood.edu or direct your inquiries to the course professor, Dr. 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 read the above information.
• You voluntarily agree to participate.
• You are at least 18 years of age or you are a minor but have a signed parental consent form filed with the LPP Office.

Appendix B

Test Anxiety

Q7 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.
- o **Agree** (1)
- o **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... = Do Not Agree

Display This Question:
If I have read, understood, and printed a copy of, the above consent form and desire of my own free... = Agree

Q8 How old are you?
- o I am at least 18 years old (1)
- o I am younger than 18 years old (2)

Display This Question:
If How old are you? = I am younger than 18 years old

Q9 Do you have a signed parental consent form filed with the LPP Office?
- o Yes (1)
- o No (2)
- o I do not know (3)

Skip To: End of Survey If Do you have a signed parental consent form filed with the LPP Office? = No
Skip To: End of Survey If Do you have a signed parental consent form filed with the LPP Office? = I do not know

Q10 Are you a current student enrolled in a college or university?
- o Yes (1)
- o No (2)

Skip To: End of Survey If Are you a current student enrolled in a college or university? = No

Q33 Do you have your headset, earbuds, or speakers available so you can hear the audio that goes with the video you will be watching in this study?
- o Yes (1)
- o No (2)

Skip To: End of Survey If Do you have your headset, earbuds, or speakers available so you can hear the audio that goes with... = No

Q11 What is your sex?
- o Female (1)
- o Male (2)
- o Prefer not to answer (3)

Q12 What year of school are you in?
- o Freshman (1)
- o Sophomore (2)
- o Junior (3)
- o Senior (4)
- o Graduate Student (5)

Q13 What is your race/ethnicity?
- o   Hispanic, Latino, or Spanish Origin (1)
- o   Black or African American (2)
- o   Asian (3)
- o   Native American or American Indian (4)
- o   Caucasian or White (5)
- o   Native Hawaiian or Other Pacific Islander (6)
- o   Multiethnic or Other (7)
- o   Prefer not to answer (8)

Q14 Do you feel anxiety before taking a test?
- o   Definitely yes (1)
- o   Probably yes (2)
- o   Might or might not (3)
- o   Probably not (4)
- o   Definitely not (5)

Q15 Do you feel anxiety when thinking about taking a test?
- o   Definitely yes (1)
- o   Probably yes (2)
- o   Might or might not (3)
- o   Probably not (4)
- o   Definitely not (5)

Q16 Do you plan to take the Graduate Record Examination (GRE)?
- o   Definitely yes (1)
- o   Probably yes (2)
- o   Might or might not (3)
- o   Probably not (4)
- o   Definitely not (5)

Q17 Have you already taken the GRE?
- o   Yes (1)
- o   No (2)

Appendix C

Q18 You now will be asked to complete a test with Graduate Record Examination (GRE) like questions. You can skip any questions or choose to stop the test at any time without penalty.

Q22 Find the shaded area when two squares with side 'a' intersect as shown in the figure below.

- ○ A. 1/8 a2 (1)
- ○ B. 1/4 a2 (2)
- ○ C. a2 (3)
- ○ D. 1/3 a2 (4)
- ○ E. 2/5 a2 (5)

Q23
Which of the following two quantities is bigger?

Quantity A	Quantity B
Circumference of a circle with radius of 3	Perimeter of a square with each side equal to 4

- ○ Quantity A is bigger (1)
- ○ Quantity B is bigger (2)
- ○ Both choices are equal (3)
- ○ The relationship cannot be determined (4)

Q27 In a class of 30 students, 17 students like to play Cricket whereas 19 of them like to play Hockey. 2 students do not play any game. How many students like to play both Cricket and Hockey?

_____

Q25 Select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

As a teacher of young children, I always find the last few days before summer vacation trying, because the students are especially _____.

- • Restive (1)
- • Coordinated (2)
- • Unruly (3)
- • Ingenious (4)
- • Abnormal (5)
- • Charitable (6)

Q26 In recent years, the city has been plagued by _____, and the mayor's chances of reelection appear _____.
- o   Violence...Slim (1)
- o   Improvements...Likely (2)
- o   Visitors...Certain (3)
- o   Gardeners...Unlikely (4)
- o   Tourists...Grim (5)

Q27 Once we came to know Andreas better, it became clear to us that all of his stories of wealth and fame were just a _____.
- o   Biography (1)
- o   Lullaby (2)
- o   Ruse (3)
- o   Secret (4)
- o   Lunacy (5)

Q29 Thousands of _____ manuscripts were an unfortunate _____of the region's latest conflict.
- o   Irreplaceable….Casualty (1)
- o   Modern…..Growth (2)
- o   Medical….Consequence (3)
- o   Paper….Admiration (4)
- o   Worthless….Addition (5)

Q25 He could hardly have imagined that he would be _____ into a scheme to outwit the government.
- o   Welcomed (1)
- o   Held (2)
- o   Journeyed (3)
- o   Pirated (4)
- o   Trust (5)

Q26
Select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

The intrusion of big business into education has only _____ the problems facing educators in the United States.
- Compounded (1)
- Ameliorated (2)
- Benighted (3)
- Leavened (4)
- Exacerbated (5)
- Alleviated (6)

Appendix D

Q30 Please answer the following questions over anxiety that you may feel over taking tests.

	Strongly agree (1)	Agree (2)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Disagree (6)	Strongly disagree (7)
I felt anxiety while taking this test. (1)	○	○	○	○	○	○	○
The video I watched affected my performance on the test. (2)	○	○	○	○	○	○	○
Watching the video before the test alleviated my anxiety. (3)	○	○	○	○	○	○	○
The video made me feel motivated. (4)	○	○	○	○	○	○	○
I feel like I did well on this test. (5)	○	○	○	○	○	○	○
I am less nervous to take the GRE after this practice. (6)	○	○	○	○	○	○	○
I plan to study more for the GRE. (7)	○	○	○	○	○	○	○

Appendix E

Feedback Letter

Thank you for participating in this study. This test was used in order to determine how test anxiety and motivation affects performance.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of students, of which you are now a part of. No identifying information about you will be associated with any of the findings.

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. If you are interested in obtaining a summary of the findings of this study at a later date, please contact me and I will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:
Lauren Martin (816)-726-0426 (lm552@lindenwood.edu)

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

Video Responsiveness: Reactive Awareness in Motor Function

G. Adam Martz[13]

This is a research proposal for a study on the empathetic imitation of models on television. Imitation as an extension of social conformity and learning through mimicry is one of the deepest assumptions of modern social-psychological theory. There has been much evidence in recent years to support that mirror neurons, the biological factor that allows human and ape brains neurologically interpret and incorporate the actions of others, are situational in what actions they empathetically attempt to encode (Hodges, 2014; Subiaul, 2016). Previously, empathetic imitation was thought to occur only through interactions but in recent years several studies have established that more important than one's part played in a learned experience is ones perception of it (Feshbach & Feshbach, 1997; Stel & Vonk, 2009). We are imitating skills modeled by distant or fictional characters when we watch television without noticing it and therefore are learning everything from simple facial expressions to complex motor skills in an artificial environment. In this study, I will evaluate the limitations of this process by attempting to produce imitative motor movement in participants that are complex and specific. I will be showing participants videos with varying levels of writing or drawing modeled in them to establish videos with higher frequencies of this trait producing higher levels of motion from participants watching.

It is often said that experience is the best teacher. What some may fail to realize is that experiences can occur not only by actively participating but rather also by merely witnessing an event repeatedly (Subiaul, 2016). Empathetic imitation, or imitating another to empathetically bond with them, has long been a cornerstone of social psychological theory (Hodges, 2014). Though engaging in a behavior does yield more learning than simple observation, the nature of the mechanisms behind empathetic imitation, automatic mimicry, and muscle memory leads to a moderate yield in retention (Sonnby-Borgstrom, 2002). Human beings as a species learn incredibly well from observation due to our capacity to empathetically apply

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[13]G. Adam Martz, Psychology Department, Lindenwood University. Correspondence regarding this paper should be addressed to Adam Martz, Psychology Department, Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301. Gam754@Lindenwood.edu

the experiences of others with ourselves in mind.

It was not until relatively recently that the biological method by which this learning occurs was discovered. The human brain, as well as the brains of more evolved species of ape, contains a circuitry of "mirror neurons" or neurons that assist in the mapping of visually obtained information into the motor cortex (Iacoboni, 2009; Subiaul, 2016). Mirror neurons do not retain just any visually obtained information but rather specifically those that incorporate the movements and behaviors of other living creatures. It is a biological advantage to be able to evaluate the actions taken by another within the scope of attempted replication. This allows us to receive similar results in the case of an observed desired response or to avoid repeating actions doomed to fail in the case of an observed unfavorable reaction (Rizzolatti, Fogassi, & Gallese, 2001).

Empathetic imitation is closely associated with, but not limited to, two distinct levels or modes of mimicry. The first of these is facial imitation and is maintained through a process called "facial feedback." In this process, the meaning behind a facial movement is discerned and the behavior is copied through an automatic response (Leslie, Johnson-Frey, & Grafton, 2004). This in turn causes us to experience the corresponding emotions and empathetically link not only our actions with those that we observe but also our emotional states in a loop with the potential to spread from person to person in a manner that is not unlike a contagion (Feshbach & Feshbach, 1997).

The second most common mode of automatic imitations are those associated with motor movements which are broken up further into simple motor movements and complex motor movements. Simple movements like squeezing or grabbing are those movements that can be enacted quickly and simply. Complex motor movements are those that require continuous

movement and must be chained with other movements to perform a process such as walking or

writing. These movements are imitated at a much subtler level through an execution-operation

matching system. While still empathetic in nature, these movements are often imitated to learn or

maintain skills rather than to empathetically bond with the

observed (Fadiga, Fogassi, Pavesi, & Rizzolatti, 1995).

To what extent does automatic mimicry pertain? Recent studies suggest that our capacity

to learn by observing is not limited only by our ability to naturalistically observe but also by our

perception. In two studies involving the attempt to direct emotions through facial feedback, the

ability to empathize with an imitated facial feature seems to be diminished when the target

feature is known to be false (Feshbach & Feshbach, 1997; Stel & Vonk, 2009). Furthermore, the

ability to imitate willingly and actively is also reduced due to a break in a facial feedback loop

causing viewers who perceive a face as false to misinterpret its true intended meaning and

therefore imitate incorrectly due to lowered empathy (Leslie et al., 2004).

Although it is not necessary for a witnessed action to be made by another human for the

average person to initiate automatic mimicry, imitation becomes more likely when the target

behavior is performed by the observer's conspecifics due to the naturalistic increase in potential

empathy due to shared ground (Subiaul, 2016). Also, a witnessed behavior's temporal or spatial

relativity to the viewer does not seem to affect the likelihood of imitation (Feshbach and

Feshbach, 1997). Because of these colliding factors, the potential to empathize with figures on a

screen without interacting with them is made available. A person can watch the actions of an

individual on a screen that they have never met or that may be completely fictional, and

potentially learn through imitation new skills exhibited by the figure. A boom in various forms of

popular and mass media recently has increased the opportunities one has to observe and therefore

learn from these non-traditional sources, making this process much more relevant to understand than in past years.

In recent years, the playing of video games has become a more likely pastime in a larger percentage of households (Entertainment Software Association, 2017). Steadily advancing technology combined with the industries ambitious desires to improve their products has led to a surge of interest into the psychological basis of these mediums potential to succeed. An increasingly relevant goal in the field is to deepen the consumers empathetic connection with both fictional characters and characters that are digitally created imitations of realism (Morrison and Ziemke, 2005). This in turn has led to another crucial aspect of how mirror neurons and empathetic imitation operates. Research evaluating the extent of automatic reactions, while playing video games in a simulated environment using eye-to-body-representation, finds a tendency for players to have increased spatial presence with regards to a character. This is the potential for one to hyper-focus on a digital display and begin both perceiving a digital environment as their own and reacting to such an environment on a physiological level (Wissmath, Weibel, & Groner, 2009). As behaviors are being mirrored not only of an artificial representation of a "person" but also of one that is under the control of the observer, this is a rare environment where a feedback loop similar to facial feedback but in the realm of motor imitation is presented (Morrison and Ziemke, 2005).

Similarly, studies in recent years have sought to evaluate the roll of empathetic imitation with regards to the medium of watching television. Positive associations have been found supporting that facial feedback in children imitating the movements of faces on a screen imparting information to them. For example, children may co-align their emotional responses appropriate to the facial expressions of a news reporter. (Feshbach and Feshbach, 1997). One of the reasons fictional films can be so emotional, despite one's intimate knowledge that the events

displayed never occurred, is due to the viewers tendency to imitate the faces of witnessed

actors. Good actors so accurately portray the emotions that a scene in a movie is meant to

exhibit, that when a viewer imitates the face they see, they feel the associated emotions strongly

despite the lack of authenticity in the expressed emotion (Wood, Rychlowska, Korb, &

Niedenthal, 2016).

I intend to continue this trend of research by evaluating the existence and

role of complex motor movement imitation within the medium of television. Very little research

exists suggesting the outcome with regards to imitation when a matured individual watches a

fictional movie or show. Will the viewer imitate complex motor movements to a level

recognizable to a watchful eye? Does the knowledge that what they are watching is fictional

impede their ability to imitate empathetically? Does the target behavior need to be in the

foreground or do we pick up on the behaviors of a wide variety of background models as

well? Do only intense movements produce a noticeable imitation or do subtle or specific

movements produce one as well? I intend to answer these questions through this study. I will be

showing college students multiple videos of modeling the specific motor movement of writing to

see if this complex motion is imitated. Each video provides an example of different durations and

intensities of writing. I hypothesize that participants that watch characters on a screen write or

draw will automatically imitate these observed movements while holding a pen to paper.

Furthermore, I am interested in evaluating if there is a difference between the scores of

those who engage commonly in activities that would trigger empathetic imitation and those who

do not. Using a demographic questionnaire, I would attempt to examine the descriptive statistics

of participants for a difference in scores. I expect those who report commonly engaging in leisure

activities that include interacting with or watching other people will have higher levels of

imitation.

Method

Participants

All participants would be volunteers, ages 18 through 29 as this is a demographic

consistently found to have the highest exposure to the types of media I am most interested in

studying, and therefore arguably most susceptible to their effects. Among subjects,

there would ideally be an equal number of participants who self-identified as male as participants

who self-identified as female to provide the most generalizable results. I expect a

significantly larger number of participants to self-report being right-handed than those who self-

report being left handed as this would also represent the population to which I would like to

generalize my findings.

Materials

An informed consent form will be used to explain the procedures that participants would

undertake if they continued, the purpose of the study, the risks and benefits of participating, and

the contact information of the researchers (See Appendix A). A survey on demographical

background and leisure time usage modified from an existing survey found online will be used to

gather data relating to the study from participants (See Appendix B). A standard #2 pencil and a

blank sheet of 8.5 in. by 11 in. paper will be utilized in the tests. The experiment will take place

in a small room with one table, and one chair. On the table is a homemade box which will

be utilized to block participants hands from their view (See Appendix C). On top of the box there

will be a computer screen to display videos.

Two recording cameras in the room will record movements made while the box

covered the hands of participants and the screens the participants would watch to assure

movement was in reaction to specific prompts on screen. One of the cameras will be aimed

directly at the viewer from behind the screen of the computer and the box, angled to have a clear

view of the participants hands with their face obscured by the screen. The other camera will be

positioned behind and to the right the participant with a clear view of the computer screen

unobscured by the participants head.

Four videos (See Appendix D) would be used. The first video is a control video with no

target behavior. The second video features primarily background writing with predictable periods

of heavy foreground writing. The third video displays aggressive drawing with erratic

movements. The fourth video features only foreground writing with slow elegant strokes.

Procedure

Upon entry to the trial location, all participants will be given an informed consent sheet

informing them that they will be participating in a study on reactiveness to visual stimuli

that involves holding objects in a box that blocks vision of their hands and watching a short

video. All participants that signed and accepted the terms of use were then given a demographic

survey meant primarily to discern the amount of time they spend engaging in certain leisure

activities that foster a healthy level of imitativeness. All participants will be asked to remove any

jewelry on their hands to help reduce fatigue as well as to prevent recordings of their hands from

being identifiable. Participants will then begin participating in several trials that make up the

remainder of the experiment.

In the trials, participants will be asked their dominant hand and then told to "start holding

the pencil to the paper with a relaxed grip using that hand." Participants will not be told to make

motions with their hands nor will they be discouraged from making movements. Neutral

language shall be used so as not to imply the researcher's intention towards results.

Participants should then have the box be placed over their hands to prevent any movement they

might make from distracting them from the video they would be about to watch. Their hands

would then both covered by the box. The video recorder will be turned on in sequence with the

video beginning to provide an alignment in the time stamps of the video and the hand

recording. The order of videos watched would be randomized to prevent confounds.

Regardless of the order of the target videos, all participants will watch a short film that

does not include any recognizable characters writing or drawing

in it first (See Appendix D). This video includes a scene of a character with hands placed into a

box like the ones participants have their hands in at this point. It is meant to mislead the viewer

by firstly suggesting some greater importance to the box and drawing attention away from the

target motion of writing or drawing. Participants would then watch one of three random target

videos each with different variations of the target hand movement of drawing or writing. Video

recordings of the participants hands verify the start time, finish time, and any intermittent time

of any and all motion made by the hand holding the pencil. After the trial, the times of

movement will be documented as well as the width of any markings made on the paper measured

between the two points most distant from each other. Participants will then be given a debriefing

letter informing them about the true nature of the study (See Appendix E). Afterwards, any

questions they may have will be answered and they would be free to go.

Expected Results

After data is collected, I would then run several tests to evaluate the results. I am

hypothesizing that the independent variable of "shown video" would affect the dependent

variable; the amount of writing motion the participant exhibited. The null hypothesis that I would

then be testing would be that the variable of shown video would not affect the amount of writing

the participant exhibited. I would test this by performing a one-way ANOVA and comparing the

means of the amount of writing exhibited under the four levels of the independent

variable. These means measure the length between the longest points from the center starting

point during each specific trial and as a result are a measure of the physical intensity of imitation.

I would also like to run a one-way ANOVA on the four means of "duration of movement" measured by evaluating recordings of participants hands to determine how much time they spent moving them over the course of the observed video. This would give me a measure of the temporal intensity of the imitation. I would also like to run a *t*-test for independent samples to determine if there is a difference between gender and both physical and temporal imitation. Then I would use descriptive statistics to determine if handedness affected the likelihood of imitation in my sample. Lastly, I would tally the points in the leisure-time activity survey and determine each individual score for engaging in activities that foster imitativeness and run a correlational analysis with their scores in both physical and temporal analysis.

Discussion

Of the three levels of empathetic imitation, I believe complex motor movements to be the most difficult to reproduce results for. As they are the most specific in their criteria and occur at much more subtle levels than other types of imitation, results of any level of significance using my current methods may be difficult to achieve (Rizzolatti et al., 2001). My initial versions of this study included notions of doing fewer trials per a participant but rather more varied trials that encompassed a wider range of empathetic imitation types. In the end, I determined it was better to evaluate the extent of imitation from the most unexplored mode.

Empathetic imitation happens unconsciously and so often presents itself as a twitch or subtle movement. The more complex the movement, the less intense the imitation would be. Furthermore, it is held back by personal knowledge of the imitation (Rizzolatti et al., 2001). It was for this reason that I developed the concept of the box. The hope was that, with the participants hands being blocked from vision, participants would move more before consciously realizing they were moving therefor by stopping themselves.

If this study provides results, the logical next step would then be to move backwards towards the more simple and familiar modes of imitation. In the future, I would like to modify my protocols outlined here to both the imitation of simple motor movements and facial imitation. The imitation of simple motor movements could be evaluated under the circumstances of participants holding a clay ball while watching a model squeeze a stress ball. In such a study, I could measure the intensity of the imitation by the depth of any dents left in the clay ball. For facial imitation I would have liked to replicate the study made by Wood et al. (2016) where a screen was displayed with a model displaying several rapidly changing expressions to establish which expressions were copied easier.

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Appendix A

Informed Consent Form
Research Study Consent Form
Reactive Awareness in Motor Function

Before reading this consent form, please know:
- Your decision to participate is your choice
- You will have time to think about your study
- You will be able to withdraw from this study at any time
- You are free to ask questions about this study at any time

After reading this consent form, we hope you know:
- Why I am conducting this study
- What you will be required to do
- What are the possible risks and benefits associated with this study
- What to do if you have questions or concerns associated with this study

Basic information about this study:

- I am interested in learning about general responsiveness to visual stimuli made while watching television.
- Risks of participation include hand fatigue due to extended holding periods and possible dissatisfaction with the scenes you see.

Page Break

Research Study Consent Form
Emulative Responsiveness in Motor Function

You are being asked to participate in a research study being conducted by Adam Martz under the guidance of 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 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?
I am performing this study to examine the connection between observing others and automatic motor responses. I will be asking about 45-60 other people to participate as well.

What am I being asked to do?
You will be asked to hold a pencil to a paper and then will have a box placed over your hand to block your vision of it. You will then be asked to watch a short (2-3) minute video. You will then be given a short break before being asked to do the same thing twice more with other videos.

How long will I be in this study?
I anticipate that this study will take roughly 20-25 minutes.

Who is supporting this study?
This study is being independently funded by the researcher.

What are the risks of this study?

- Privacy and Confidentiality

  We will be collecting information that could be used to identify you until it is de-personalized. Your hands inside the box will be recorded for the purposes of viewing any reactions you make. Once those actions are viewed, they will be recorded by writing and this written description of your movements will take the place of the video recording in our data.

- Fatigue

  Holding a pencil for an extended period may cause muscle fatigue in the hand.

- Content

  As each person's interests and desires regarding entertainment varies, you may potentially find the scenes you see unfavorable. You may perhaps not like the show or movie the scene is from. You may perhaps not want plot points of a show or movie you have not yet seen "ruined."

What are the benefits to this study?

You will receive no direct benefit for assisting in this study. We hope that what we learn may benefit other people in the future.

<div align="center">

Research Study Consent Form

Emulative Responsiveness in Motor Function

</div>

Will I receive any compensation?

To thank you for taking part in our study, you will receive 3 LPP credits after you take this study.

What if I choose not 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 any tasks that may make you feel uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of benefits. If you would like to withdraw from the study, please let me know as soon as possible.

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 any information that could identify you in any publication or presentation. Any information we collect from you will be stored by the researcher in a secure location. The only people who will be cleared to see your data are: members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

How can I withdraw from this study?

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

Who can you contact with questions or concerns?

If you have questions about your rights as a participant, or concerns about the study, or if you feel under any pressure to enroll or continue participating in the study, you may contact the Lindenwood University Institutional Review Board Director, Michael Leary, at (636) 949-4730 or mleary@lindenwood.edu. You can contact the researcher directly at (314) 566-5774 or gam754@lindenwood.edu. You may also contact Michiko Nohara-LeClair at 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 verify that I am at least 18 years of age or have a parental consent form filed with the LPP office. I consent to my participation in the research described above.

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_____   _____

Participant's Signature   **Date**

_____

Participant's Printed Name

_____   _____

Signature of Principal Investigator or Designee   **Date**

_____

Investigator or Designee Printed Name

Appendix B

Demographic and Leisure Usage Questionnaire

Please list your current age. _____

Please circle the gender you most self-associate with.   **Male   Female   Other**

Please circle your dominant hand.   **Right   Left   Neither**

Please check the frequency in which you engaged in the following **leisure activities** in the past two months. Check only one answer for each possible activity.

	Frequently	Occasionally	Seldom	Never	Not sure
Watching television					
Playing board games					
Playing video games					
Walking for pleasure					
Reading books for pleasure					
Competing in physical team sports					
Going out with others for drinks and entertainment					
Going to the movies					
Listening to music					
Surfing the Web					
Attending sports events					
Competing in individual sports					
Collecting or making something					

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Appendix C

Box Apparatus

"The Box"

   The box is a cardboard box cut, covered in duct tape for stability. Its dimensions are 22"
long by 13" wide by 9" tall which is tall enough to give ample room for movement of a hand
holding a standard 6" long pencil while being wide enough for the average 8 ½" by 11" piece of
paper to fit in. On one side there are two 4" by 4" holes, 4 ½" from either side of the boxes edge.
This gives plenty of room for hands to comfortably fit in and arms to rest without being scraped
by even an exceedingly tall participant. On the back are two small holes, one on each side of the
box, to fit through an apparatus meant to start, pause, and stop video recording. Inside is a holster
to hold an iPhone 6 and a light source to illuminate the inside of the box allowing for proper
capture of motion. Light escaping the box is minimized by streamers attached to the top of the
hand holes.

Appendix D

Description of "The Videos"

The first video serves several purposes at once. Firstly, its tonality is significantly less light hearted than the rest of the scenes by design. By starting with a video that elicits adrenaline and attention, I hope to both interest the viewer and put them in a state more conductive to the goal of fostering future imitation. It is from "House M.D." Season 6, episode 4, titled "The Tyrant." Though it is a video without writing, it justifies its use over other writing-less videos by assisting in misdirecting participants. It features a character with a missing hand being forcefully subjected to "Mirror Box Therapy," a form of therapy that uses a box that obscures one's hands reminiscent but not identical to the box used in my experiment. Due to its content, it is also meant to mislead the viewer by distracting them from the writing aspects of later videos. The video can be found hosted on the website "Youtube" at https://www.youtube.com/watch?v=qbE2ch-9ZFc

The second video is from "Mr. Bean" Season 1, Episode 1, Act 1, Titled "The Exam." It features predominantly background writing with only a few short and predictable points of foreground writing. Instances of foreground writing can be found at 1:01-1:07 and again at 1:45-2:01. It takes place in a room filled with people participating in an exam giving a visual overload of the targeted stimulus. The scene fades to black at 3:01 providing a perfect stopping point. That brings it into line with other, shorter videos. "The Exam can be found hosted on the website "Youtube" at https://www.youtube.com/watch?v=9LhLjpsstPY

The third video is from "Marvel's Agents of S.H.I.E.L.D" Season 5, Episode 5, Titled "Rewind." (Minute mark 20:50-24:04) It features predominantly foreground drawing. In it, a child is drawing on paper in a park as people ask her questions attempting to get her to talk. The video consists of several swirling, over-exaggerated wrist movements more closely associated with drawing than writing. The video is not currently available to the public but is accessed at Amazon https://www.amazon.com/gp/video/detail/B077SDXY8T/ref=atv_yvl_list_pr_1

The fourth Video is from "Harry Potter and the Chamber of Secrets" and features foreground writing. In it, a child writes with a quill in a journal making large exaggerated strokes. The scene is the shortest one featured, clocking in at only 1:42. The scene can be accessed on the website "Youtube" at https://www.youtube.com/watch?v=dZewnFXl_MY

Appendix E

Debrief Letter

Thank you for participating in our study. In this study, I did use deception; I was not interested in generic responsiveness but rather the degree to which an individual would unknowingly imitate witnessed behavior. The questionnaire was used specifically to determine if participants spent a significant amount of leisure time engaging in activities that foster imitative reactiveness. The pencil
test was conducted to determine people's level of emulative responsiveness to actions models took in the video. I hypothesize that participants that watch characters on a screen perform actions such as writing or drawing will automatically imitate these observed movements while holding a pen to paper.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of participants, of which you are now a part of. No identifying information about you will be associated with any of the findings.

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. Our contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study later, please contact me and I will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:
G. Adam Martz
314-566-5774 (gam754@lindenwood.edu)
Supervisor:
Dr. Michiko Nohara-LeClair
636-949-4371 (mnohara-leclair@lindenwood.edu)

Appendix F

Recruitment Statement

How do we react to watching television and movies? What are we learning from consumption of entertainment media in the age of binge-watching? I am inviting all LPP users to participate in a study measuring general reactivity to visual stimuli to help answer these questions! This study involves watching television while having reactions recorded. No defining features will be captured during this study.

SPECIAL FEATURE:

Project Papers
from
Psychology Research Labs
Section ARMNL
2017-2018

Racial Salience in Context: The Role of Visual Information on Conviction Decisions

Krystia Grembocki[14]

Jurors arguably play the most influential role in determining the outcome of most criminal trials. The U.S. legal system relies on them to make unbiased, substantiated decisions based on evidence presented in court. The problem with this expectation is that jurors are ordinary people who are subject to the influence of extralegal factors – variables that are not legally related to a case (e.g. how a defendant looks). Unfortunately, when jurors hold implicit biases regarding the appearance of defendants, extralegal factors, such as race, tend to have at least some impact on their verdict (Maeder & Hunt, 2011; Mitchell, Haw, Pfiefer, & Meissner, 2005; Sommers, 2007). The present study aimed to evaluate the effects of visual information and race salience on conviction decisions. Participants were randomly assigned to view one of five videos containing a crime scenario about an armed robbery and pictures of two defendants (White/White, White/Black, Black/White, Black/Black) or no defendants at all (No Visual). For each defendant, participants were asked to provide a verdict, justification and confidence rating for that verdict, as well as to assess the character of each defendant, and to attribute responsibility to one defendant for initiating the idea to commit the crime. Overall, it was anticipated that racial biases would be more evident in participants' responses when defendant race was made salient, especially when defendants were presented as Black rather than White. Findings, limitations, suggestions for future research, and implications are discussed.

Most of the literature focusing on race effects in the judicial system emphasizes differences between Black and White defendants. Although subjective experiences and media tend to portray a substantial difference in the treatment of Black defendants compared to White defendants, research routinely indicates that White jurors are less likely to convict defendants when they are Black (Abwender & Hough, 2001; Bucholo & Cohn, 2010; Cohn, Bucolo, Pride, & Sommers, 2009; ForsterLee, ForsterLee, Horowitz, & King, 2006). While this statement is seemingly counterintuitive, the phenomenon is commonly attributed to the theory of aversive

[14]Krystia Grembocki, Department of Psychology, Lindenwood University. Correspondence concerning this research paper should be addressed to Krystia Grembocki, Department of Psychology, Lindenwood University, St. Charles, MO 63301 or Email: klg997@lindenwood.edu

racism, which is the idea that White jurors are aware that, when determining whether to convict a

Black defendant, their decisions may be deemed as racially biased, thus leading them to find the

defendant not guilty (Gaertner & Dovidio, 2005).

If White jurors are particularly prone to aversive racism, as the theory suggests, it is

critical to determine whether other extralegal variables impact a jury's verdict. Previous research

has aimed to identify these factors and their significance in relation to defendant race. For

instance, when race is varied with crime severity, it is more likely that a defendant will be found

guilty when the crime is stereotyped as racially typical as opposed to when it is viewed as neutral

or racially atypical. Specifically, when a white-collar crime, such as embezzlement, is

committed by a White defendant, he or she is more likely to be convicted than a defendant of

another race; likewise, when a Black defendant commits a blue-collar crime, such as burglary, he

or she is more likely to be found guilty than a defendant of another race (Gordon, Bindrim,

McNicholas, & Walden, 1987).

In other studies, defendant race has also been evaluated in relation to characteristics of

victims and jurors. When a defendant commits a crime against a victim of a different race, he

or she is more likely to be found guilty than when the crime is committed against someone of the

same race (Hymes, Leinhart, Rowe, & Rogers, 1993; Brewer, 2004; ForsterLee et al., 2006). It

has also been demonstrated that White jurors with more authoritarian personality traits tend to

convict Black defendants more often than White defendants (Foley & Chamblin,

1982). However, this does not apply when the racial roles are reversed. Rather, Black jurors

with authoritarian personality traits have a lower conviction rate for both White and Black

defendants, a difference which is thought to be the result of cultural distinctions between Black

and White attitudes on crime and punishment (Foley & Chamblin, 1982).

Most research indicates that race seems to be a powerful indicator of guilt when paired with the previously mentioned variables. However, it should be acknowledged perceived socioeconomic status does not necessarily impact criminal trial jurors (Thornberry, 1973; Gleason & Harris, 1975; Foley & Chamblin, 1982). Likewise, attractiveness level of a defendant tends to have little to no impact on conviction decisions when evaluated in this context (Abwender & Hough, 2001).

In light of these findings, researchers have recently begun exploring the relationship of defendant race and race salience in criminal trials. When a defendant's race is salient, the race of the defendant is known to the jurors. A variety of approaches have been used to understand the significance of race and race salience in jury trials. In one study examining race effects, Abwender and Hough (2001) presented 207 college-age participants with a scenario about a defendant charged with negligent homicide while driving drunk. Participants were provided with one of four variations of the story, two of which included manipulations of the defendant's race (Black/White). After reading the scenario, participants were asked to determine how guilty, likeable, intoxicated, and responsible the defendant was in the incident. It was concluded that White participants treated the Black defendants with more leniency when compared to Black participants assessing the guilt and character of White defendants. They also found that, although the defendant's perceived level of guilt varied systematically with the defendant's race and the participant's race, responsibility and likability were not correlated with race of either the defendant or the participant (Abwender & Hough, 2001).

Cohn et al. (2009) assessed the outcome of a trial when race and race salience were manipulated. They recruited and analyzed the responses of 157 White college students. Participants were partitioned into groups of 6 to 15 "jurors" and were instructed to watch a trial about a man charged with attempted homicide using his vehicle. Race salience was manipulated

by showing select groups a version of the trial in which the race of the defendant and victims was made salient – the defendant was Black, and the victims were White. Other participants were shown a version in which the defendant's race was not mentioned. What Cohn et al. (2009) found was that White participants convicted the defendant less often when it was known that he was Black and more often when his race was unknown. They justified their findings using the notion that modern society has conditioned people with racist attitudes to be more aware that their actions may be perceived as prejudiced (Cohn et al., 2009). This means that the low conviction rate for the Black defendant is likely explained by the idea that White jurors did not want to appear racist for their verdict, a finding which further supports Gaertner and Dovidio's (2005) theory of aversive racism.

More recently, Bucolo and Cohn (2010) analyzed the responses of 151 White participants who acted as jurors for a trial about an assault which occurred during a bar fight. The researchers created four trial transcripts, and randomly assigned them to participants. To manipulate race, it was mentioned in the defense attorney's opening and closing statements that the defendant was either Black or White. To manipulate race salience, Bucolo and Cohn (2010) either mentioned the defendant's race in the opening and closing statements or did not mention it at all. After reading the transcript, participants were asked to assess the guilt of the defendant and recommend an appropriate punishment. Consistent with Abwender and Hough's (2001) and Cohn et al.'s (2009) findings, it was determined that when participants knew the defendant was Black, they were less likely to convict than when the defendant was White (Bucolo & Cohn, 2010). These findings are also consistent with that of other aversive racism study outcomes (Gaertner & Dovidio, 2005).

The primary purpose of this research is to explore the effects of visual information (e.g. defendant race) – and lack thereof – on jurors' conviction decisions in a criminal

case. Additionally, it aimed to identify implicit racial biases presented by jurors when assessing a pair of defendants. While previous studies have fundamentally examined the effects of manipulating defendant race and race salience for a single defendant, they have yet to explore these concepts in the context of a crime committed by two or more defendants, which provides the present study with a unique and complex framework for investigation. These studies have also manipulated race salience and defendant race using trial transcripts and verbal cues. The present study utilizes a crime scenario that does not make explicit mention of any physical characteristics of the defendants, including race. This allowed race and race salience to be manipulated visually through pictures of the defendants, rather than verbally through words. Deviating from conventional procedures in this line of research may allow for the present study to make more comprehensive inferences and draw new, contemporary conclusions about the effects of race and race salience in a courtroom.

Although it has been found that making race salient often leads to a lower conviction rate, it was predicted in the present study that the presence of visual information (e.g. pictures of defendants) would impact conviction decisions. This assumed that participants who were shown no visual – therefore remaining "blind" to a defendant's appearance – would be more split in their conviction decisions, meaning that the ratio of guilty versus not guilty verdicts will be closely matched (50% guilty versus 50% not guilty).

Additionally, it was hypothesized that defendant race would affect their conviction decisions; more specifically, contrary to evidence presented in the previous literature, Black defendants would be more likely to be found guilty than White defendants. It was also postulated that race salience would have an impact on defendants' perceived character (e.g. trustworthiness, criminal history, and recidivism). That is, a defendant would be perceived more

negatively when he was presented as Black than when he was presented as White or when there was no visual information available to indicate race.

Furthermore, it was believed that defendant race would affect the attribution of responsibility for developing the idea to commit a crime when the defendants were of different races. In particular, when paired with a White defendant, Black defendants would be more likely to be found responsible for coming up with the idea to commit the crime than White defendants.

Lastly, despite previous findings regarding aversive racism, it was speculated that the participant's race would be a predictor of the case verdict when assessing the guilt of Black versus White defendants. Namely, Black participants would be less likely to convict Black defendants, and White participants would be less likely to convict White defendants. These research inquiries were investigated using an online survey containing the crime scenario, defendant photos, and questions regarding participants' perception of the criminal act and the defendants.

Method

Participants

For the present study, 114 participants were recruited, but complete or near complete data were only collected from 75 participants. The sample included 56 women, ages 18 to 43 years (M_{age} = 20.6). About 78.7% of participants identified as White/Caucasian American; 6.7% identified as Black/African American; and 14.6% identified as Latino/Hispanic American, Asian/Asian American, American Indian or Alaskan Native, or mixed race. Regarding marital status, 58.7% reported being single/never married. In terms of achieved education, 78.7% of participants reported having less than a college degree. A majority

of participants (80.0%) reported being a student or working part-time, and 77.3% reported an

income of less than $20,000 per year.

Participants were primarily recruited from Lindenwood University through the

Lindenwood Participant Pool (LPP) and secondarily online using Facebook. LPP participants

were compensated in the form of extra credit, and Facebook participants were provided with the

opportunity to enter a drawing to win a $25 gift card in exchange for their participation.

Materials

Recruitment materials. LPP participants were recruited online through Sona Systems

using a recruitment description which explained that the present study aimed to understand

factors related to juror conviction decisions. Facebook recruitment occurred using

a similar description attached to a study link that was posted several times on

the principal investigator's (PI) personal Facebook page during the data collection period. The

recruitment descriptions did not inform participants about the focus on race of the

defendants (see Appendix A).

Crime scenario. A fictitious crime scenario was created for this study, which detailed an

alleged robbery and assault case. The scenario was ambiguous, meaning that the case was based

on circumstantial evidence, and there was not definitive proof that the defendants were guilty of

committing a crime. The scenario was constructed in a plain-worded way to avoid confusion

caused by the use of legal jargon. It was also free of explicit language indicating information

about the appearance of the defendants, so participants were not provided with verbal

descriptions of the defendants or the victim and therefore had no verbal or written indication

of race (see Appendix B).

Defendant pictures. Defendant pictures were obtained using the Chicago Face

Database (Ma, Cornell, & Wittenbrink, 2015). The pictures from the database are not mugshots,

but for the purpose of the present study, they were meant to appear as mugshots. Headshots of

four men – two Black and two White – were included as pictures in the study. Each

man appeared to be in their 20s and displayed neutral facial expressions, and none of them had

any pronounced or unusual features, nor did they appear bi-racial or of mixed race (see Appendix

C).

Video stimuli and voiceover. The video presented to participants was created using

Microsoft Power Point. It contained the written transcript of the crime scenario, as well

as vertically placed pictures of two defendants or no pictures at all. A defendant name – either

Anthony Johnson or Jordan Williams – was also written below each defendant's picture, except

when no pictures were shown. Accompanying these visual materials was a voiceover of the

principal investigator reading crime scenario. In total, five different videos were created with the

scenario and voiceover as well as pictures of two White defendants (WW condition), one White

and one Black defendant (WB condition), one Black and one White defendant (BW

condition), two Black defendants (BB condition), or no visual at all (NV condition) (see

Appendix D).

Survey. The survey consisted of two parts: case questions and demographic

questions. Case questions pertained to deciding a verdict, as well as justifying and indicating

confidence in those verdicts on a percentage scale from *0 (not at all confident)* to *100 (extremely*

confident) for each defendant.   Participants were also asked to assess each defendant's character

in three different dimensions (trustworthiness, likelihood of committing past crimes, and

likelihood of committing future crimes/recidivism) using 7-point Likert scales. Additionally,

participants were asked to attribute criminal responsibility to one of the defendants for coming

up with the idea to commit the crime. Demographic questions inquired about gender identity,

age, racial identity, marital status, completed education, current employment status, annual

income, and previous jury experience. To comply with Institutional Review Board standards,

participants were shown an electronic informed consent statement at the beginning of the survey

and a debriefing statement at the end (see Appendix E).

Procedure

The presented study took place online in the form of a Qualtrics survey. Participants in

the LPP accessed the survey link using Sona Systems, whereas Facebook participants accessed

the link directly by clicking on the post in which it was featured. Prior to taking part in the

study, participants were asked to read and agree to an informed consent statement. They

were then randomly assigned to a video condition and asked to watch the corresponding

video. After that, participants were asked to complete the case questions and demographic

questions. All participants were debriefed at the end of the survey, but participants recruited

through Facebook were subsequently redirected to a link that allowed them to enter their

information for the $25 Amazon gift card drawing. Using a redirect link ensured that

participants' email addresses were not connected to their survey responses.

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Results

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Primary Analyses

Hypothesis 1: Verdict by condition. The primary hypothesis of the present study was

that participants who are shown no visual will be more split in their conviction

decisions. To determine whether these group differences were significant, a 2 (visual –

defendant pictures present, no defendant pictures present) x 3 (verdict – both defendants found

guilty, one defendant found guilty, neither defendant found guilty) chi-square analysis was

conducted. There was a significant difference in verdicts of participants who were assigned to

view pictures of defendants in the WW, WB, BW, and BB conditions and participants who were

assigned to the NV condition $\chi^2 = (2, N = 75), 4.70, p = 0.10, W = 0.25$. Thus, defendants were

more likely to be found guilty when their pictures were presented to participants in the visual

conditions (60.3%) than when their pictures were not presented at all (38.5%).

Hypothesis 2: Verdict by race. In comparing the verdicts of Black and White

defendants, it was assumed that Black defendants would be more likely to be found guilty than

White defendants, regardless of the group in which their pictures were presented. Descriptive

analyses showed that Black defendants had an average conviction rate of 58.8% when presented

in the same-race (BB) condition and a 56.7% conviction rate when presented in the mixed-race

(WB/BW) conditions. White defendants had an average conviction rate of 53.1% in the same-

race (WW) condition and a 56.7% conviction rate in the mixed-race (WB/BW)

conditions. However, a 2 (race – Black, White) x 2 (verdict – guilty, not guilty) chi-square

analysis indicated that there was not a significant difference between Black and White

defendants in terms of guilty and not guilty verdicts assigned to them, $\chi^2 = (1, N = 30)$,

0.53, $p = 0.47$. Therefore, the assumption that Black defendants would be treated more harshly

in terms of conviction decisions was not supported.

Hypothesis 3: Perceived character by race. The third hypothesis was that defendants'

character would be perceived more negatively when presented as Black than when presented as

White or when their race was unknown to participants. Three one-way analyses of variance

(ANOVAs) were used to assess differences in perceived trustworthiness, criminal past, and

recidivism for each defendant when presented as Black, White, and when race was

unknown. For the first defendant presented to participants, Mr. Johnson, no significant

differences were detected between Black, White, and No Visual conditions in perceived

trustworthiness, $[F (2, 73) = 0.49, p = 0.61]$; likelihood of the defendant having a criminal

past, $[F (2, 72) = 1.85, p = 0.16]$; or likelihood of future recidivism, $[F (2, 73) =$

$1.12, p = 0.33]$. For Mr. Williams, the second defendant presented to participants, there were no

significant differences between Black, White, and No Visual defendants in perceived

trustworthiness, [F (2, 73) = 1.04, p = 0.36]; likelihood of the defendant having a criminal past,

[F (2, 72) = 1.78, p = 0.28]; or likelihood of future recidivism, [F (2, 73) = 0.07, p = 0.94].

Differences in perceived character were also assessed by dividing defendants into same-

race (WW/BB) and mixed-race (WB/BW) conditions for statistical analysis. An independent

samples t-test was used to compare means of same-race and mixed-race defendants in terms of

trustworthiness, criminal past, and recidivism. A significant difference was detected in

perceived trustworthiness between defendants in the same-race conditions (M = 3.27) and mixed-

race conditions (M = 3.70), p = 0.02. This means a defendant was considered less trustworthy

when paired with a defendant of the same race than when paired with a defendant of a different

race.

Hypothesis 4: Attribution of criminal responsibility by race. Furthermore, it

was believed that, when paired with a White defendant, Black defendants would be more likely

to be found responsible for coming up with the idea to commit the crime. A frequency count

indicated that White defendants were found responsible more often than Black defendants

in mixed-race (WB/BW) conditions. Specifically, 17 of 27 defendants (63.0%) in the mixed-race

conditions who were deemed responsible for initiating the idea to commit the crime were

White as opposed to 10 of 27 defendants (37.0%) who were Black and considered responsible

for the crime. However, significance testing using a 2 (race – Black, White) x 2 (criminal

responsibility – Johnson responsible, Williams responsible) chi-square analysis suggested that

there was not a significant difference between Black and White defendants in attribution of

criminal responsibility, χ^2 = (1, N = 27), 1.81, p = 0.18. This finding does not support the

proposed hypothesis.

Hypothesis 5: Effects of juror race on verdict. The last hypothesis was that Black and White jurors (participants) would be less likely to convict defendants with whom they shared a race. Black participants in visual conditions convicted three out of five Black defendants (60.0%) and three out of three White participants (100.0%), giving Black participants an overall conviction rate of 75.0%. White participants in visual conditions convicted 27 of 52 White defendants (51.9%) and 29 of 50 Black defendants (58.0%), providing an overall conviction rate of 55.0% for White participants. A 2 (participant race – Black, White) x 2 (defendant race – Black, White) chi-square analysis elicited no significant differences between Black and White participants' verdicts for Black and White defendants, $\chi^2 = (1, N = 65)$, 0.04, $p = 0.84$. This suggests that participants did not necessarily favor defendants of their own race when making conviction decisions.

Additional Analyses

Confidence ratings. Participants' confidence ratings were also evaluated using a one-way ANOVA to compare all verdicts for Black defendants, White defendants, and No Visual defendants. Statistical analysis indicated that there was a significant difference between these groups, $[F(2, 141) = 2.40, p = 0.09]$; however, a post-hoc analysis suggested that the difference was only significant between Black ($M=52.14$) and White ($M=61.0$) defendants, $p = 0.02$. This means that participants reported an average confidence rating of 52.1% for Black defendants and an average confidence rating of 61.0% for White defendants. Although not significant, participants also reported an average confidence rating of 57.4% for defendants in the No Visual condition. This means that participants who viewed pictures of Black defendants were significantly less confident in their verdicts than participants who viewed pictures of White defendants.

Qualitative findings. In the survey, participants were asked to justify their verdicts. Participants who found the defendants guilty justified their verdict on the grounds that that the knife and money were found on the men, it would not make sense for the victim to make up this situation, and that the men had a "shady" explanation for their side of the story. Participants who found the defendants not guilty cited reasons including that the suspects were found in close proximity, the victim was unharmed, the victim borrowed money and did not pay it back, there were two men to corroborate their side of the story, the suspects offered a reasonable explanation for what happened, and there was not enough evidence to make a conviction.

Participants were also asked to justify their attribution of criminal responsibility. Participants who believed the first defendant, Mr. Johnson, was responsible for the initiating the crime primarily indicated that he seemed like the aggressor in the scenario, or that he seemed more aggressive or more violent than the other defendant. On the other hand, those who believed Mr. Williams was responsible for the crime primarily indicated that it was because he removed the money from the victim's wallet.

Discussion

In the present study, race salience was manipulated using the presence of defendant pictures. While it was believed that there would be a significant difference between participants who saw pictures of defendants and participants who did not, it was also speculated that participants who did not have access to visual information about defendants would be more split in their conviction decisions than participants in the visual conditions. Although there was a significant difference in the verdicts of Visual and No Visual defendants, the original hypothesis on race salience was not supported because descriptive analyses indicated that participants in the No Visual condition had an average conviction rate of 38.5%. For the hypothesis to be

supported, it was predetermined that the conviction rate must be between 45.0% and 55.0% in

order for the participants in this condition to be considered "split" in their conviction decisions,

with the ideal conviction rate falling at 50.0%. Had this been the case, it could be said that race

salience had a substantial impact on participants' findings, and further analysis would be

necessary to determine whether knowing the race of defendants has an overall positive or

negative effect on criminal trials. The finding that participants who saw pictures of defendants

had a higher conviction rate than those who did not is inconsistent with previous research

conducted by Cohn et al. (2009) and Bucolo and Cohn (2010), which indicated that, when race

was salient, participants had lower conviction rates than when it was not.

Many researchers have found that Black defendants are consistently treated with more

leniency than White defendants (Abwender & Hough, 2001; Bucolo & Cohn, 2010; Cohn et al.,

2009; ForsterLee et al., 2006; Gaertner & Dovidio, 2005). In the present study, though, there

were no significant differences detected in the treatment of Black and White defendants

regarding verdicts, perceived character, and criminal responsibility when analyzed on an

individual basis. However, when evaluated in the context of pairs, defendants in same-

race (BB/WW) conditions were treated less favorably than defendants in mixed-

race (WB/BW) conditions. Specifically, when paired with a defendant of the same race,

defendants were found guilty more frequently, especially in the BB condition, and they were

considered less trustworthy than defendants who were paired with a defendant of another

race. Perhaps this suggests that there is a contrast effect present in mixed-race conditions; when

paired with a defendant of the same race, defendants are viewed more negatively and more

culpable in a criminal context than when paired with someone of a different race. That is not to

say that one race is viewed more positively overall, but that when a Black defendant commits a

crime with a White defendant, he may be viewed as less responsible than when he commits a

crime with another Black defendant. Similarly, when a White defendant commits a crime with a Black defendant, he may be viewed as less responsible than when he commits a crime with another White defendant.

Additionally, White defendants in the mixed-race (WB/BW) conditions were considered responsible for coming up with the crime more frequently than Black defendants. This may indicate that participants wanted to avoid appearing biased by attributing criminal responsibility to White defendants more often, despite the fact that there was not a significant difference in guilty verdicts for Black and White defendants. If true, this explanation lends support to Gaertner and Dovidio's (2005) theory of aversive racism – that people compensate for their fear of being considered racist by offering less negative assessments of individuals who do not share their race. Considering that participants rated themselves as less confident in their verdicts for Black defendants than for White defendants, it can be speculated that that implicit racial biases were present to an extent when answering some – if not all – questions about the case.

Furthermore, although it was believed that Black and White participants' race would have an effect on their verdicts for Black and White defendants, there was not a significant finding associated with this hypothesis. Given that the racial makeup of the sample was skewed – 78.7% of participants identified as White/Caucasian, and only 6.7% identified as Black/African American – it was difficult to evaluate whether the race of participants impacted their conviction decisions for defendants who shared their race and defendants who did not. Needless to say, further analysis with a more diverse and representative sample is required to determine the impact of juror race on conviction rates for each race of defendant.

There were numerous factors that limited the success of this study. First, a common problem in this line of research is the inability to replicate actual conditions which would be found in a criminal trial. This study utilized a video along with an online survey to collect data

from "jurors," which is not indicative of a trial in real life. Additionally, with only a

limited period of time and a small pool from which to collect data, it was difficult to recruit

participants to take part in the study. Therefore, the sample size was small and homogenous, and

it was not representative of a real jury, which often includes people of varied ages, ethnicities,

and backgrounds. Also, since this study used a unique method for manipulating race, it is

possible that the effect of the manipulation was weak, allowing participants to realize that race

was being manipulated, especially in the mixed-race (WB/BW) conditions. It is also likely that

participants in the visual conditions realized the purpose of the study because Americans are

socialized to notice race, but they are also taught not to make mention of it or to discriminate

against those of a different race. It is likely that this limitation had a substantial impact on the

results, making it very difficult to determine whether the study's design was effective or

not. Lastly, it is possible that technical issues interfered with participants taking part in the

survey, as some reported problems accessing the video and questions from their mobile

devices. In the future, modifications may be made to mitigate the effects of these limitations, so

the study can be repeated. Future research directions could also include evaluating the impact of

race in relation to other variables, such as age, gender, or crime type/severity on the outcome of a

criminal trial.

In conclusion, the present study offered mixed results concerning the effects of race

salience and race manipulation on jurors' perception of guilt, character, and criminal

responsibility when assessing a pair of defendants. Although the aforementioned findings do not

necessarily support the preconceived notions that many people hold about the impact of race in a

courtroom, they do shed light on the fact that, to some degree, jurors may still implicitly or

explicitly acknowledge the race of defendants when making conviction decisions. That said, it is

vital that researchers continue study the effects of defendant race in order to gain a clearer

understanding of extralegal factors that impact jurors. Furthermore, it is imperative that

lawmakers acknowledge this field of research and utilize its findings to create the most fair and

equal trial by jury possible and to uphold the constitutional legitimacy of the criminal justice

process in the United States.

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Appendix A

Recruitment Materials

Sona Systems Recruitment Description: "An important and relevant topic is how jurors think and make conviction decisions in criminal trials. This study aims to understand factors that are relevant to these decisions. Participants will watch a video about a crime that has allegedly taken place and will be asked to respond to questions about the video. This study should not take more than 10-15 minutes to complete."

Facebook Recruitment Description: "Please consider taking part in my anonymous online psychology study about how jurors make conviction decisions in criminal trials. It is for my research project for my Senior Thesis class at Lindenwood University. It should not take more than 10-15 minutes of your time. Your participation is completely voluntary. Thank you!"

Appendix B

Crime Scenario Transcript

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street around 8:00pm. The victim of the alleged attack was identified as Nick Smith.

Mr. Smith gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Smith was not expecting the men, but he opened the door and let them in anyway. Mr. Smith told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 from each of them and had not yet paid the money back. The conversation quickly became heated, which led Mr. Johnson to take hold of Mr. Smith at knifepoint while Mr. Williams demanded to know where Mr. Smith's wallet was so he could retrieve the borrowed cash. Mr. Smith, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Smith's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Smith was dishonest about their interaction with him. They told officers that when they arrived at Mr. Smith's house, Mr. Smith greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Smith went to the kitchen to stir the chili he was making for dinner. Mr. Smith proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Smith's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Smith's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

Appendix C

Defendant Pictures

Black Defendant 1   Black Defendant 2

White Defendant 1   White Defendant 2

Appendix D

Video Stimuli and Voice Over

WW Condition Video

Defendant Anthony Johnson

Defendant Jordan Williams

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street. Around 8:00pm. The victim of the alleged attack was identified as Nick Brown.

Mr. Brown gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Brown was not expecting the men, but he opened the door and let them in anyway. Mr. Brown told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 each from them and had not yet paid the money back. The conversation quickly became heated, which lead Mr. Johnson to take hold of Mr. Brown at knife point while Mr. Williams demanded to know where Mr. Brown's wallet was so he could retrieve the borrowed cash. Mr. Brown, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Brown's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Brown was dishonest about their interaction with him. They told officers that when they arrived at Mr. Brown's house, Mr. Brown greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Brown went to the kitchen to stir the chili he was making for dinner. Mr. Brown proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Brown's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Brown's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

WB Condition Video

Defendant Anthony Johnson

Defendant Jordan Williams

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street. Around 8:00pm. The victim of the alleged attack was identified as Nick Brown.

Mr. Brown gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Brown was not expecting the men, but he opened the door and let them in anyway. Mr. Brown told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 each from them and had not yet paid the money back. The conversation quickly became heated, which lead Mr. Johnson to take hold of Mr. Brown at knife point while Mr. Williams demanded to know where Mr. Brown's wallet was so he could retrieve the borrowed cash. Mr. Brown, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Brown's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Brown was dishonest about their interaction with him. They told officers that when they arrived at Mr. Brown's house, Mr. Brown greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Brown went to the kitchen to stir the chili he was making for dinner. Mr. Brown proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Brown's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Brown's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

Appendix D cont.

Video Stimuli and Voice Over

BW Condition Video

Defendant Anthony Johnson

Defendant Jordan Williams

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street. Around 8:00pm. The victim of the alleged attack was identified as Nick Brown.

Mr. Brown gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Brown was not expecting the men, but he opened the door and let them in anyway. Mr. Brown told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 each from them and had not yet paid the money back. The conversation quickly became heated, which lead Mr. Johnson to take hold of Mr. Brown at knife point while Mr. Williams demanded to know where Mr. Brown's wallet was so he could retrieve the borrowed cash. Mr. Brown, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Brown's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Brown was dishonest about their interaction with him. They told officers that when they arrived at Mr. Brown's house, Mr. Brown greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Brown went to the kitchen to stir the chili he was making for dinner. Mr. Brown proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Brown's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Brown's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

BB Condition Video

Defendant Anthony Johnson

Defendant Jordan Williams

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street. Around 8:00pm. The victim of the alleged attack was identified as Nick Brown.

Mr. Brown gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Brown was not expecting the men, but he opened the door and let them in anyway. Mr. Brown told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 each from them and had not yet paid the money back. The conversation quickly became heated, which lead Mr. Johnson to take hold of Mr. Brown at knife point while Mr. Williams demanded to know where Mr. Brown's wallet was so he could retrieve the borrowed cash. Mr. Brown, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Brown's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Brown was dishonest about their interaction with him. They told officers that when they arrived at Mr. Brown's house, Mr. Brown greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Brown went to the kitchen to stir the chili he was making for dinner. Mr. Brown proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Brown's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Brown's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

Appendix D cont.

Video Stimuli and Voice Over

NV Condition Video

On Sunday, October 1st, Anthony Johnson and Jordan Williams were accused of robbery and assault after allegedly entering into the home of a friend and taking $200 from him at knifepoint. Police arrived on the scene at 608 S. Bay Street. Around 8:00pm. The victim of the alleged attack was identified as Nick Brown.

Mr. Brown gave a statement to the police regarding the incident. He claimed that Mr. Johnson and Mr. Williams arrived at his home at approximately 7:00pm. Mr. Brown was not expecting the men, but he opened the door and let them in anyway. Mr. Brown told police that Mr. Johnson and Mr. Williams had been angry with him because he borrowed $100 each from them and had not yet paid the money back. The conversation quickly became heated, which lead Mr. Johnson to take hold of Mr. Brown at knife point while Mr. Williams demanded to know where Mr. Brown's wallet was so he could retrieve the borrowed cash. Mr. Brown, terrified and restrained, pointed to the coffee table where his wallet was lying. Mr. Williams searched through the wallet, took the money, and the two men fled the scene. The victim did not sustain any injuries.

After taking Mr. Brown's statement, police searched for Mr. Johnson and Mr. Williams. They found the two at a local pub, less than a mile away. When police arrived at the pub, Mr. Johnson and Mr. Williams were eating wings and drinking a beer while watching the football game on TV. The police told them why they were there and requested to know their side of the story.

Both Mr. Johnson and Mr. Williams claimed that Mr. Brown was dishonest about their interaction with him. They told officers that when they arrived at Mr. Brown's house, Mr. Brown greeted them and welcomed them inside. The three of them talked for a few minutes, and then Mr. Johnson proceeded to show off the new pocket knife that his wife got him for his birthday the previous week. After that, Mr. Brown went to the kitchen to stir the chili he was making for dinner. Mr. Brown proceeded to address the money-borrowing situation by saying, "Hey, guys. I completely forgot to pay you back when I saw you the other day. $200, right? My wallet is on the coffee table if you want to grab it out of there." Mr. Williams removed two $100 bills from Mr. Brown's wallet and said, "Thanks, man! Money is tight right now, so I appreciate it," and Mr. Johnson concurred. The two of them subsequently stated that they exited Mr. Brown's home and went to the bar.

After finding the pocket knife and the money in Mr. Johnson's and Mr. Williams's pockets, police were not sure what to believe, so they put the two men in handcuffs and took them to the station for further questioning.

Appendix E

Survey

Statement of Informed Consent

Introduction

The researcher conducting this study is an undergraduate student at Lindenwood University who is enrolled in the PSY48500: Senior Thesis course. The primary purpose of this study is to understand how jurors make conviction decisions in criminal trials. The findings of this study may be published or presented at a future research conference.

Procedures

This online study asks you to watch and listen to video about an alleged crime. After the video, you will be asked to answer a series of questions regarding your thoughts on the case. You will then be asked to respond to a few demographic items. In total, the study should take no more than 10-15 minutes of your time.

Risks/Discomforts

There are no known risks associated with this study. 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

By taking part in this study, Lindenwood Participant (LPP) members will be compensated in the form of extra credit toward a participating course. Other participants will be given the opportunity to enter into a drawing for a $25 gift card for participating; the winner of the drawing will be random and will be announced at the conclusion of the study.

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 individual ones). All questionnaires will be concealed, and no one other than the researcher and her course professor, Dr. Michiko Nohara-LeClair, will have access to them. 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 Krystia Grembocki at klg997@lindenwood.edu or direct your inquiries to the course professor, Dr. Michiko Nohara-LeClair at mnhoara-leclair@lindenwood.edu or (636)949-4371.

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
- Disagree

I am at least 18 years of age.
- Agree
- Disagree

I have a signed parental consent form filed with the LPP Office.
- Agree
- Disagree
- I don't know.

Appendix E cont.

Survey

CASE QUESTIONS

1. Based on the evidence presented in the case, do you believe Mr. Johnson (pictured above) is guilty or not guilty of the alleged charges?
    - Guilty
    - Not guilty

2. Please rate how confident you are in your verdict for Mr. Johnson. *(0% = I am not confident at all in this verdict; 100% = I am extremely confident in this verdict)* _____

3. Please explain why you believe Mr. Johnson is guilty/not guilty. _____

4. Please rate how trustworthy you think Mr. Johnson is.
    - Extremely untrustworthy
    - Untrustworthy
    - Somewhat untrustworthy
    - Neither untrustworthy nor trustworthy
    - Somewhat trustworthy
    - Trustworthy
    - Extremely trustworthy

5. Please rate how likely you think it is that Mr. Johnson has committed a similar crime in the past.
    - Extremely unlikely
    - Unlikely
    - Somewhat unlikely
    - Neither unlikely nor likely
    - Somewhat likely
    - Likely
    - Extremely likely

6. Please rate how likely you think it is that Mr. Johnson will commit a similar crime in the future.
    - Extremely unlikely
    - Unlikely
    - Somewhat unlikely
    - Neither unlikely nor likely
    - Somewhat likely
    - Likely
    - Extremely likely

7. Based on the evidence presented in the case, do you believe Mr. Williams (pictured above) is guilty or not guilty of the alleged charges?
    - Guilty
    - Not guilty

Appendix E cont.

Survey

8. Please rate how confident you are in your verdict for Mr. Williams. *(0% = I am not confident at all in this verdict; 100% = I am extremely confident in this verdict)* _____

9. Please explain why you believe Mr. Williams is guilty/not guilty. _____

10. Please rate how trustworthy you think Mr. Williams is.
    - Extremely untrustworthy
    - Untrustworthy
    - Somewhat untrustworthy
    - Neither untrustworthy nor trustworthy
    - Somewhat trustworthy
    - Trustworthy
    - Extremely trustworthy

11. Please rate how likely you think it is that Mr. Williams has committed a similar crime in the past.
    - Extremely unlikely
    - Unlikely
    - Somewhat unlikely
    - Neither unlikely nor likely
    - Somewhat likely
    - Likely
    - Extremely likely

12. Please rate how likely you think it is that Mr. Williams will commit a similar crime in the future.
    - Extremely unlikely
    - Unlikely
    - Somewhat unlikely
    - Neither unlikely nor likely
    - Somewhat likely
    - Likely
    - Extremely likely

13. Whose idea do you think it was to commit this crime?
    - Mr. Johnson
    - Mr. Williams

14. Why do you think it was Mr. Johnson's/Mr. Williams's idea to commit this crime? _____

Appendix E cont.

Survey

DEMOGRAPHIC QUESTIONS

1. Your gender:
   - Male
   - Female
   - Other, please specify: _____

2. Your age: _____

3. Your racial identity:
   Please select all that apply.
   - Black/African American
   - White/Caucasian American
   - Hispanic American
   - American Indian or Alaskan Native
   - Asian American
   - Other, please specify: _____

4. Your marital status:
   - Single (never married)
   - Dating
   - Married
   - Separated
   - Divorced
   - Widowed

5. The highest level of education you have completed:
   - Less than a high school diploma
   - High school degree or equivalent (e.g. GED)
   - Some college, no degree
   - Associate degree (e.g. AA, AS)
   - Bachelor's degree (e.g. BA, BS)
   - Master's degree (e.g. MA, MS, MEd)
   - Professional degree (e.g. MD, DDS, DVM)
   - Doctorate (e.g. PhD, EdD)

6. Your current employment status:
   Please select all that apply.
   - Employed full time (40 or more hours per week)
   - Employed part time (up to 39 hours per week)
   - Unemployed and currently looking for work
   - Unemployed and not currently looking for work
   - Student
   - Retired
   - Homemaker
   - Self-employed

- Unable to work

7. Your annual income:
    - Less than $20,000
    - $20,000 to $34,999
    - $35,000 to $49,999
    - $50,000 to $74,999
    - $75,000 to $99,000
    - Over $100,000

8. Have you ever served on a jury trial?
    - Yes
    - No

9. Please specify the calendar year in which you last served on a jury during a trial (e.g. 2005, 2016, etc.): _____

10. Please specify the city in which you last served on a jury during a trial (e.g. St. Louis, Kansas City, etc.): _____

Appendix E cont.

Survey

Debriefing Statement

Thank you for your participation! The present study was conducted in order to determine whether jurors' (participants') access to visual information about defendants (e.g. race) impacts conviction decisions in criminal trials. Participants were randomly assigned to one of five groups. Group 1 was shown pictures of two white defendants, Group 2 was shown pictures of two black defendants, Group 3 was shown pictures of one white defendant and one black defendant, Group 4 was shown pictures of one white defendant and one black defendant, and Group 5 was shown no pictures of the defendants. All groups read and listened to the same fictitious crime scenario, and all participants answered the same response questions following the video.

It was hypothesized that participants who were shown pictures of the defendants (Groups 1-4) would find them guilty more often than participants who were not shown pictures of the defendants (Group 5). It was also predicted that a black defendant would be more likely to be found guilty when paired with another black defendant or with a white defendant.

Please note that the purpose of this study was not to obtain or evaluate your individual results; rather, we are only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for us to trace your responses on an individual basis.

If you are interested in obtaining the final results of this study, or if you have any questions or concerns regarding any portion of this study, please do not hesitate to let the researcher know now or in the future. Contact information can be found at the bottom of this letter.
Thank you again for your valuable contribution to this study.

Sincerely,

Krystia Grembocki &   Dr. Michiko Nohara-LeClair
Principle InvestigatorSupervising Faculty Member
(636) 675-5117(636) 949-4371
klg997@lindenwood.edumnohara-leclair@lindenwood.edu

Social and Religious Factors on Subjective Well-being

Eric J. Uhl[15]

Religion as it pertains to subjective well-being is a topic of debate as religion operationalized can undertake many forms. However, research has shown that religion is a form of social interaction and an inclusionary social institution. It is also noted in previous subjective well-being research that social support has a positive correlation with the condition of subjects. Thus, the facet of religion that could be the best measure in regard to subjective well-being is social support provided by religious institutions. In the interest of finding a better measure for religion, the use of a comprehensive survey asked respondents to report their degree of religious importance, social support as provided by a religious affiliation, social support in a general manner, and their subjective well-being. This present study was in search of the possible correlation of social support and religious social support as it pertains to subjective well-being.

Religion and well-being have been topics of psychological research that have been, on numerous occasions, tested for a correlation. Witter, Stock, Okun, and Haring (1985) operationalized religion in terms of religiosity and religious activity and found that religion accounted for two to six percent of subjective well-being in adult respondents. The authors noted the complex construct of religion as a variable and how the correlation could be better measured with more than two variables. Similarly, a study by Barkan and Greenwood (2003) indicated that religious attendance is positively correlated with subjective well-being among adults age 65 and older. Again, the correlation between religion and subjective well-being was measured in aspects that only relate to the practice of performing a religion.

In another study, researchers found a correlation between subjective well-being and religion; however, the religious variable accounted for aspects of religious altruism and practice (Tiliouine, Cummins, & Davern, 2009). The results revealed that only religious altruism

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[15]Eric Uhl, Department of Psychology, Lindenwood University Correspondence concerning this article should be addressed to Eric Uhl, Department of Psychology, Lindenwood University, St. Charles, MO 63301. Email: eju184@lindenwood.edu

remained significant in relation to subjective well-being, while the significance of religious practice diminished. Tiliounie et al. (2009) used different operational definitions of religion and yet the results were significant in relation to subjective well-being. It is understood that most religions include a social element. Following the mention of different aspect of religion in the previous studies it could be possible that subjective well-being is indirectly influenced by religion and social assimilation associated with religious affiliation is the direct cause of the correlation. There is a small body of research that shows promising results in relation to the above claim.

A study by Ellison (1991), confirmed that there was an influence of religious variables on subjective well-being. Most relevant to this body of research was the finding that the religious (i.e. devotion, importance, etc.) of religion contribute to well-being indirectly (Ellison, 1991). Following this finding, the researchers speculated that correlations found in previous research assumed that the religious attendance and private devotion were not directly linked to an individual's well-being. Ellison's suggestion of an outside cause addresses this critique of the correlation and presents a new direction of religion and well-being research. Doane, Elliot, and Dyrenforth (2014) attempted to test the motivation for becoming involved in religion (extrinsic, intrinsic), well-being, and perceived social support. Researchers found that individuals that join religion for extrinsic reasons (social benefits) perceive lower levels of social support, which negatively affects religious orientation and well-being, as opposed to individuals joining a religious organization for intrinsic reasons (gaining comfort and protection from personal troubles) (Doane et al., 2014).

Building on previous research and broadening the scope of the variables I hoped to examine the overall correlation between religion, subjective well-being, religious social support and social support. I hypothesized that: (a) social support and subjective well-being will have a

positive relationship, (b) religious importance and well-being will be positively correlated, and (c) religious social support and subjective well-being will also be positively correlated.

Method

Participants

I recruited 232 participants to take my survey. In order to preserve accuracy, incomplete surveys were removed from the final analysis, only 100 participants' responses were included for data analysis, 66 of which identified as Female. The median age of participants was 22.0 years, and the average age of participants was 31.0 years. Participants consisted of persons connected with me on social media as well as subjects recruited through Psi Chi website. The survey was posted on my social media pages: Facebook and Instagram. The survey link posted on these social media pages was accompanied by the following quote: "Please consider taking my anonymous survey. It's part of my research project for my independent research class at Lindenwood University. Your participation is completely voluntary. Thank you!".

Materials

Nine different measurements were adapted and included in the present study, making the survey a total of 71 questions in length. Variables of interest included the degree of religious importance in the participant's life, religious social support, social support, and subjective well-being. The survey also included demographic questions that asked participants to report their age and their gender. Three surveys are used to measure participant's degree of religious importance and the participants' level of social support provided by religion.

Survey

Religion and Religious Social Support. The religious block of the survey contains 35 questions that gathered appropriate data to measure religious importance and social support (see Appendix C). The inventories, Religiosity Measure by Aalsma et al. (2013) and Attachment to Religion Scale by Alvarez-Rivera, Lorna, and Fox (2010), are used to measure the participants' level of religious importance. A sample question measuring religious importance would ask a participant to rate the following question from one to ten, one being the least important and ten being the most important, as it applies to their life, "I rely on my religious beliefs as a guide for day-today living" (Aalsma et al., 2013). The survey Religious Support Scale – Adapted (Montgomery et al., 2016), has also been implemented in this survey to measure participants level of social support provide by religion. An example of a question measuring religious social support would ask a participant to rate the following question one to ten as it applies to their life, one being the least applicable and ten being the most applicable: "I can turn to members of a congregation for advice when I have problems" (Montgomery et al., 2016).

Social Support. There are 27 questions utilized to measure participants' level of social support in the present study (see Appendix C). Measuring social support of participants takes place with three different surveys that have been adapted to this study's instrument: (1) Social Support Measure by Emerson, Kariuki, Honey, and Llewellyn (2014), (2) Social Success Scale by Greve, Thomsen, and Dehio (2014), and (3) Social Success Measure by Pea et al. (2012). Questions regarding social support ask participants to rate statements one to ten as it applies to life, one being the least applicable and ten being the most applicable, for example, "I feel like I have a lot of friends" (Emerson et al., 2014).

Subjective well-being. Finally, seven questions used to measure a participant's subjective well-being were gathered and adapted from three scales to the degree of subjective

well-being (see Appendix C). Using the Subjective Psychological Well-Being Indexes by Bryant and Veroff (1982), Well-Being Composite Measure by Greenaway et al. (2015), and Subjective Well-Being--Short Scale by Røysamb, Harris, Magnus, Vittersø, & Tambs (2002) participants rate questions as they apply to their life in regard to the subjective well-being. For example, a question asks participants to rate from one to ten (one being tried and worn out - ten being strong and fit), "Do you mostly feel tired and worn out or strong and fit" (Bryant, & Veroff, 1982).

Procedure

After clicking the link to the study participants were prompted to start the survey. The survey started by confirming the participant was above the age of 18; or if the participant answered that they were under the age of 18 the survey would end. If the participant indicated, they were 18 years of age they were then prompted to read

the Informed Consent/Information/Cover Letter for the survey and asked if they wish to participate (see Appendix A). Participants who chose the "I choose not participate" option will be taken to the end the survey immediately; all others will proceed to complete the study. At the end of the survey participants were thanked for their participation and given contact information and provided with more information regarding the study (see Appendix B).

Results

To test the hypothesis that social support and subjective well-being are positively correlated, a correlational analysis was completed. The results revealed a moderate positive correlation between subjective well-being and social support $r(100) = .36, p < .05$. To test the hypothesis that religious importance and subjective well-being are positively correlated, a Pearson's r correlational analysis was conducted. The results revealed a statistically significant weak positive correlation between subjective well-being and religious importance $r(100) = .28, p < .05$. Finally, to test the hypothesis that religious social support and subjective well-

being are indicated are positively correlated, a Pearson's *r* correlational analysis was

conducted. The results of the Pearson's *r* revealed that a moderately strong correlation exists

between religious social support and subjective well-being $r(100) = .38$, $p < .05$.

Discussion

All three hypotheses were supported the findings in this study, as well as by previous

research. In support of the hypotheses, the results pertaining to social support and well-being

show that people who have a social support system that they can utilize have a higher subjective

well-being. Previous research supports the findings of a relationship between the variable

religious social support and its relation to subjective well-being (Ellison, 1991). The correlation

was comparable to that of social support and subjective well-being, which raises the question,

what role does the variable of religion play in the correlation to subjective well-being? As this

study insinuates, religious importance plays less of a role than social support or religious social

support. The topic of religious provided well-being has been a frequent talking due to the

multiplicity of sub-facets of religion. These finding could lead to the reduction of the facets or

study of religion as it associates with well-being altogether, due to its inadequacy of effect when

compared to social support. While religion does in fact provide a level of social support, the

community that is surrounding the institution seems to be the actual condition that affect well-

being. While this is unclear in this correlational research the possibility is there and could

be use in later research to discover if well-being is related to just religious importance or

the social aspect of religion.

While this study provides promising results, it should be noted that the study was

correlational and could provide better results regarding the role of each variable using further

testing methods. The participation in this study was quite high, however, due to the number of

respondents who only gave partial responses, I remove numerous responses from the final result.

In reference to the frequency of partial responses, the length of the survey was likely an issue, though there weren't any obvious stopping points, the amount of questions participants had to answer could have been narrowed down to the most critical questions.

In conclusion, this study suggests that religious importance in testing subjective well-being is not that crucial when compared to religious provided social support or social support in general. In future research when testing for subjective well-being, religious importance as a variable could be better measured through the social support it offers rather than the numerous ideological and categorical facets previous research provides.

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Appendix A

Informed Consent/Information/Cover Letter for Survey
(This will be included as the first item on the survey itself.)

1. You are invited to participate in a research study conducted by Eric Uhl for a class project in the Department of Psychology at Lindenwood University, under the guidance of Dr. Nohara-LeClair. The purpose of this research is to examine whether there is are interrelationships between religion, subjective well-being, and social support.

2. Your participation will involve completing this anonymous online survey. The amount of time involved in your participation will be approximately five minutes.

3. There are no direct benefits for you participating in this study. You will receive extra credit simply by virtue of completing this informed consent; you are free to withdraw your participation at any time without penalty. Participants will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science.

4. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

5. Your responses will be anonymous. No information that identifies you personally will be collected, not even your IP address. The primary investigator will not be able to identify your answers as belonging to you; data will be examined at the group level only. All data will be kept securely, in accord with the standards of the University, Federal regulations, and the American Psychological Association.

6. If you have any questions or concerns regarding this study, you may call the Investigator, Eric Uhl, at 814-389-6430 or the Supervising Faculty, Dr. Nohara-LeClair, at (636)-949-4371. You may also ask questions of or state concerns regarding your participation in the Lindenwood Institutional Review Board (IRB) through contacting Lindenwood's Provost, Dr. Marilyn Abbott at mabbott@lindenwood.edu or 636-949-4912.

ELECTRONIC CONSENT: Please select your choice below.
Choosing to participate indicates that:
• You have read the above information.
• You voluntarily agree to participate.
• You are at least 18 years of age.

Appendix B

Thank You Statement

(This will be the final item on the survey itself.)

Thank You Statement

Thank you for taking the time to complete this survey for my class project at Lindenwood University. I hypothesize that religious and social factors will be correlated with subjective well-being.

If you would like to see the results of my survey after December 4, 2017, please feel free to contact me using the contact information below. Again, thank you very much for your time and effort!

Principal Investigator,
Eric Uhl
(814)-389-6430
Euhl@lindenwood.edu

Faculty Supervisor
Michiko Nohara-LeClair
(636) 949 4371
MNohara-LeClair@lindenwood.edu

Appendix C

Social and Religious Factors on Subjective Well-Being

Start of Block: Intro

Q1 Are you are at least 18 years of age?
- o   Yes (1)
- o   No (2)

Skip To: End of Survey If Are you are at least 18 years of age? = No
Skip To: Q2 If Are you are at least 18 years of age? = Yes

Q2
1. You are invited to participate in a research study conducted by Eric Uhl for a class project in the Department of Psychology at Lindenwood University, under the guidance of Dr. Nohara-LeClair. The purpose of this research is to examine whether there is are interrelationships between religion, subjective well-being, and social support.

2. Your participation will involve completing this anonymous online survey. The amount of time involved in your participation will be approximately 12 minutes.

3. There are no direct benefits for you participating in this study. You will receive extra credit simply by virtue of completing this informed consent; you are free to withdraw your participation at any time without penalty. Participants will receive no compensation beyond the possible benefits listed above. However, your participation is an opportunity to contribute to psychological science.

4. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

5. Your responses will be anonymous. No information that identifies you personally will be collected, not even your IP address. The primary investigator will not be able to identify your answers as belonging to you; data will be examined at the group level only. All data will be kept securely, in accord with the standards of the University, Federal regulations, and the American Psychological Association.

6. If you have any questions or concerns regarding this study, you may call the Investigator, Eric Uhl, at 814-389-6430 or the Supervising Faculty, Dr. Nohara-LeClair, at (636)-949-4371. You

may also ask questions of or state concerns regarding your participation in the Lindenwood Institutional Review Board (IRB) through contacting Lindenwood's Provost, Dr. Marilyn Abbott at mabbott@lindenwood.edu or 636-949-4912.

Q3
ELECTRONIC CONSENT: Please select your choice below.
Choosing to participate indicates that:
• You have read the above information.
• You voluntarily agree to participate.
• You are at least 18 years of age.

    o   I choose to participate (1)
    o   I choose not to participate (2)

Skip To: End of Survey If ELECTRONIC CONSENT: Please select your choice below. Choosing to participate indicates that: •... = I choose not to participate
End of Block: Intro

Start of Block: Default Question Block

Q4 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.			
	1	2	3	4	5	7	8	9	10
I believe in a Higher Power. (1)									
I rely on my religious beliefs as a guide for day-today living. (2)									
I rely on my religious teaching when I have problem. (3)									
I am able to pray when I have personal problem. (4)									

Q5 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.				
	1	2	3	4	5	7	8	9	10	
My religion is important to me. (1)										
I attend regular religious meetings/masses/gatherings. (2)										
I attend special religious holidays. (3)										
I am involved in religious activities. (4)										
I follow the principles of my religion. (5)										
The pastor/minister/other is my friend. (6)										
If I have a problem I can turn to the my religious institution for support. (7)										
I go to church when I have problems. (8)										
I go to the church for guidance. (9)										
I don't feel judged at church. (10)										
I do not feel out of place at church. (11)										
After I go to church I feel better about myself. (12)										

Q6 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.				
	1	2	3	4	5	7	8	9	10
I can turn to members of a congregation for advice when I have problems. (1)									
Members of a congregation care about my life and situation. (2)									
I do not feel close to members of a congregation. (3)									
Members of a congregation give me the sense that I belong. (4)									
I feel appreciated by members of a congregation. (5)									
If something went wrong, members of a congregation would give me assistance. (6)									
I have worth in the eyes of members of a congregation. (7)									
If something went wrong, church leaders would give me assistance. (8)									
I have worth in the eyes of church leaders. (9)									
I can turn to church leadership for advice when I have problems. (10)									
Church leaders care about my life and situation. (11)									
I do not feel close to church leaders. (12)									
Church leaders give me the sense that I belong. (13)									
I feel appreciated by church leaders. (14)									

Q7 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.			
	1	2	3	4	5	7	8	9	10
God gives me the sense that I belong. (1)									
I feel appreciated by God. (2)									
If something went wrong, God would give me assistance. (3)									
I have worth in the eyes of God. (4)									
I can turn to God for advice when I have problems. (5)									
God cares about my life and situation. (6)									
I do not feel close to God. (7)									

Q8 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	1	2	3	4	5	7	8	9	10
I feel like I have a lot of friends. (1)									
People my age understand me. (2)									
I feel like I have a lot of close friends. (3)									
I find it easy to make friends. (4)									
I find it easy to keep friends. (5)									
I feel like I'm important to my friends. (6)									
I feel accepted by people my age. (7)									

Q9 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.			
	1	2	3	4	5	7	8	9	10
In conversations with others I usually find the right words. (1)									
Friends come to ask me for advice. (2)									
From time to time I get involved in conflicts because other people want something else than I want. (3)									
If something goes wrong, I have friends by my side that support me. (4)									
From time to time I feel that people do not respect me. (5)									
People in my surrounding appreciate me. (6)									
Sometimes I miss the contact with other people. (7)									
People in my surrounding feel sympathy for the things affecting me. (8)									
My work is appreciated by others. (9)									
I can present myself well in company of others. (10)									

Q10 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	Does NOT AT ALL apply to me.					COMPLETELY APPLIES to me.			
	1	2	3	4	5	7	8	9	10
People don't come to visit me as often as I would like. (1)									
I seem to have a lot of friends. (2)									
I often need help from other people but can't get it. (3)									
When I need someone to help me out, I can usually find someone. (4)									
I don't have anyone that I can confide in. (5)									
When something is on my mind, just talking with the people I know can make me feel better. (6)									
I have no one to lean on in times of trouble. (7)									
There is someone who can always cheer me up when I am down. (8)									
I often feel very lonely. (9)									
I enjoy the time I spend with the people who are important to me. (10)									

Q11 Rate these statements as they apply to your life.

	Dissatisfied					Satisfied			
	1	2	3	4	5	7	8	9	10
When you think about life at present, would you say that you are mostly satisfied with my life or mostly dissatisfied with life? (1 being mostly dissatisfied; 10 being mostly satisfied) (1)									

Q27 Rate these statements as they apply to your life.

	Never					Extremely Often			
	1	2	3	4	5	7	8	9	10
Over the last month, have you suffered from nervousness (felt irritable, anxious, tense, or restless)? (1)									

Q26 Rate these statements as they apply to your life.

	Tired and Worn Out					Strong and Fit			
	1	2	3	4	5	7	8	9	10
Do you mostly feel tired and worn out or strong and fit? (1)									

Q24 Rate these statements as they apply to your life.

	Dejected					Happy			
	1	2	3	4	5	7	8	9	10
Would you say that you are usually dejected or happy? (1)									

Q12 Rate how these statements apply to your life 1 - 10. (10 being the highest level of application and 1 being the lowest level of application).

	1	2	3	4	5	7	8	9	10
All things considered, how satisfied are you with your life these days? (1 being dissatisfied; 10 being satisfied) (1)									
Taking all things together would you say you are happy? (1 being unhappy; 10 being happy) (2)									
All in all, how would you describe your state of health these days? (1 being unhealthy; 10 being extremely healthy) (3)									

End of Block: Default Question Block

Start of Block: Demographic

Q13 How do you currently describe your gender identity?
- o Man, Male, or Masculine (1)
- o Transgender Man, Male, or Masculine (2)
- o Transgender Woman, Female or Feminine (3)
- o Woman, Female, or Feminine (4)
- o Gender Nonconforming, Gender Queer, or Gender Questioning (5)
- o Intersex, Disorder of Sex Development, Two-Spirited or related terms (6)
- o No Response (7)
- o Prefer Not to Answer (8)

Q16 What is your age in years?

_____

The Influence of Color on Mood

Mariah Palmer[16]

Sensory stimuli, including color, may play a role in corresponding mood (Wells, 1910). Kaya and Epps (2004) showed participants attribute and associate colors with positive and negative emotions. Compared to previous research, in the present study, participants' moods were measured while they were exposed to a color. The primary focus of the current research was to see if a color stimulus would influence mood. Secondarily I also studied mood change among two groups: right-hemispheric and left-hemispheric dominant participants. I wanted to find out whether right-brained participants would experience more change in their mood than the left-brained participants. According to Matikas, Petras, Skusevich, and Darius (2010), the right-hemisphere specializes in perception. There is not a great deal of research about the ways the different hemispheres process color; therefore, it is important to take a closer look into this process with the current research. An online survey was utilized, and participants were randomly assigned a text color. The questions on the survey helped to determine the hemisphere of the brain that the participant uses most readily. Additionally, participants were surveyed on mood in the beginning and at the end of the survey. The results of this study were that there was no significant impact of colors on mood. Knowing this, more research should be pursued so look for a connection.

According to Wells (1910), sensory stimuli may play a role in corresponding mood. One type of sensory stimuli that we encounter is color. Color is most often defined by three characteristics of saturation, hue, and light (Dresp-Langley & Langley, 2010). There are a multitude of explanations as to why color has the ability to influence mood. One of those reasons is that each person has his or her own color preferences (Kaya & Epps, 2004; Taylor, Clifford, & Franklin, 2013). An extension of that idea is that there are color preferences, but they are more focused on a universal level. Color also has the ability to influence corresponding mood by the associations we have with the specific color stimuli and one way that this is argued is through the theory of ecological variance. There are also theories

that show color can evoke physiologically arousing responses in a person, which may also be an explanation for corresponding emotion or mood (Pressly & Heesacker, 2001). Furthermore, there are cerebral hemispheric differences in humans that may also be a significant piece of information in understanding how sensory stimuli influences mood. Understanding the complex process that is color perception is necessary, as color is a large portion of the daily lives of humans. The present study looked at these cerebral differences and hypothesized that they do impact the mood associated with various color stimuli.

Theories on Perception of Color

It is essential to recognize that color has associations with emotion or mood. For example, light colors consistently receive more positive feedback whereas dark colors consistently receive more negative feedback. In a study conducted by Kaya and Epps (2004) a total of 98 participants were questioned about their emotional responses to specific colors. That is, the researchers specifically asked the participants to explain what kind of emotion a color evokes. Participants were presented a randomized color on a white background and asked three questions in relation to their feelings and perception of the specific color. The researchers were mainly focused on hues and light categories. Kaya and Epps (2004) tested green, purple, and black among other colors and found that green and purple both received positive responses; green received a positive rating of 95.9% and purple received a positive rating of 64.3%. Black received a low positive response of only 7.1%. While it is important to note these feelings toward these specific colors, it is also important to note that these are most likely explicit feelings toward colors and not implicit mood (Kaya & Epps, 2004). Similarly, Wells (1910) also researched attributions that participants gave to various colors. While this study is dated, it helps to show the temporal consistency of feelings that people ascribe to colors in comparison with other research. Participants were given a list of descriptor words and a list of colors and asked to

match the two. As the Kaya and Epps (2004) study suggested, green and purple were given more positive attributes among 63 participants. Statistical analyses for this research study were not completed with only raw scores provided. Consistent with Kaya and Epps' (2004) study the data show that there were overall more positive words associated with green than with purple (Wells, 1910).

As previously mentioned, there may be cross cultural differences or similarities among color preferences. This is one topic that is necessary to discuss as color preferences could be one way that mood can change. Taylor, Clifford, and Franklin (2013) examined differences in color preference between British and Himba participants. The comparison is essential as British participants lived in an industrialized culture whereas the Himba participants lived in a non-industrialized culture. The stimuli were implemented by having the participants view a color on a screen with a grey background. Participants were then asked to rate their preference of the color on a 10-point scale. The data achieved through this study did not support the idea that there are universal preferences in colors. The results of this study were that the British participants preferred the colors that were said to be part of the universal preference (blue hues) and the Himba participants preferred saturated and yellow hues, which are colors that previous research has shown participants to have an aversion to (Taylor et al., 2013). However, one concept that this study did find support for was that color preferences are often a result of associations that participants have with various objects. The researchers concluded that more research between cultures is needed in order to determine whether there is a universal color preference. According to these researchers, most previous research has been done solely in industrialized cultures which may account for similarities in color preferences in current research (Taylor et al., 2013).

Hemispheric Differences Pertaining to Color

The two hemispheres of our brain have their own specializations. While each side of the brain does not typically work independently, there is research that shows these differences in specialization and disorders within the hemispheres (Harris, 1999). The qualities of the right cerebral hemisphere are those that are more holistic in nature. For example, the right hemisphere would excel in "visuo-spatial abilities," "aesthetic discrimination," "affect in general," and "affect related to aesthetics," (Torrance, Reynolds, Ball, & Reigel, 1976, p. 2). Its counterpart, the left cerebral hemisphere, is described as being more analytic. One would find that this hemisphere specializes in "verbal memory," "scientific reading," and "mathematics" (Torranace et al., 1976, p. 2). While it is important to note that both of the hemispheres of the brain integrate to process color, one would imagine that it is the right hemisphere that would dominate in this type of process as it specializes in color processing (Barnett, 2008). In this study, participants were tested in two parts. The first part was exposure to a Mondrian stimulus (rectangles of color blocks all blocked together) and the second was exposure to object stimuli. In the Mondrian trial, there were a total of 200 exposed stimuli and with the object trial there was a total object count of 204. The most important result drawn from this study is that color stimuli exposed to the right hemisphere were more accurately processed than those exposed to the right visual field. Knowing this, one could conclude that the right hemisphere is involved more in the identification of color as a result of its specialization for more holistic tasks (Barnett, 2008). Similarly, Davidoff (1976) found significant evidence to show that when color was exposed to the right hemisphere of the brain, participants were able to better discriminate differences in color stimuli. In this study, participants were exposed to rectangular cards that were similar in color and asked to decipher if the colors were the same or

if they were different. These results support other literature that has clarified that the right

cerebral hemisphere is more attuned to color (Davidoff, 1976).

Emotional Processing

There is a great deal of evidence that support that right hemispheric superiority

over emotional control over the left hemisphere. Borod, Koff, Lorch, Nicholas,

and Welkowitz. (1988) researched the differences in emotional expression of participants with

right cerebral hemisphere damage and found results that are in accordance with previous

research. This study compared results of those with right hemisphere damage, those with left

hemispheric damage, and those with no damage in the ways that they expressed emotions. In

order to test participants, they either asked them to show an emotion or showed them a stimulus

to evoke emotion. One thing that they found was that participants with damage to the right

cerebral hemisphere scored lower in both responsivity and accuracy compared to the other two

groups of participants (Borod et al., 1988). Knowing these data, it is safe to assume that some

type of emotional processing happens through the right cerebral hemisphere.

The Present Study

Three pieces of critical information can be gathered from previous research: that color

can evoke emotion, that color is processed more efficiently in the right hemisphere, and that

there is an emotional functioning of the right hemisphere. Upon gathering this information, the

next research question at hand is, if participants are exposed to even a small portion of a color

stimulus (i.e., text on a screen), will they have a mood that is impacted? A second research

question is that if participants are identified as being right-brained, will they have a mood that is

impacted greater than those who are identified as being left-brained? These ideas were tested by

manipulating font in an online research survey and assessing the mood of participants.

Method

Participants

Participants were recruited through a total of four online sources as a sample of convenience. Participants were recruited through the Lindenwood Participant Pool (LPP) and online sites by using Facebook, LinkedIn, and the Psi Chi website. To recruit certain participants, the researcher followed all necessary and ethical standards set by the Participant Pool at Lindenwood University. Included in this sample were a total of 139 responses. Of the participants, 93 students were recruited from the participant pool while 46 participants were recruited through either Facebook, LinkedIn, or the Psi Chi website. Since this was a survey on color, 12 participants were removed from analyses as a result of any type of color-blindness or blindness. A total of 43 respondents were removed for incomplete responses and 1 participant was removed for listing that he or she was under the age of 18. Upon removing those respondents, the data analysis was left with a total of 83 participants. There were 69 participants that identified themselves as female, 14 participants that identified as male, and no participants identified as anything other. The ages of participants ranged from 18 to 56 with the average age being 21. Participants recruited through the LPP were compensated in the form of extra credit and participants recruited from online sources were offered the opportunity to enter their name into a drawing of a $15.00 Amazon e-gift card.

Materials and Procedure

The materials of this research study were online resources. The survey was created on Qualtrics, which is a platform that allows researchers to create surveys online and distribute them through a link (see Appendix A for questionnaire). The questions were either designed by the primary investigator or derived from a Learning and Thinking Inventory by Torrance, Reynolds, Ball, and Riegel (1976). Since not all the participants spoke English as a first language, I

adapted the questions in a way so that the questions were easier for participants to

understand. Additionally, I took out the third multiple choice option to make categorizing the

participants easier. Only a total of nine questions were asked assessing hemispheric dominance

in order to also more easily categorize participants as right-brained or left-brained.

Prior to beginning the survey, participants were asked to read and agree to an electronic

statement of consent. Following, they were asked to verify that they were at least 18 years of age

or that they were being recruited through the Lindenwood Participant Pool. Participants who

were recruited from the LPP were allowed to be under 18 years of age if they had a consent form

filed with the LPP. All other potential subjects under the age of 18 were unable to

participate. Participants were also asked if they suffered from any blindness or colorblindness so

that their data could be removed from the analysis; however, these participants were not

excluded from participation.

They survey consisted of three categories of questions regarding mood, personality, and

demographics. Upon consenting, participants were asked on a 10-point scale how they were

currently feeling. The scale asked them to rate cheerfulness, calmness, neutrality, and feelings of

melancholy. Participants were then asked to give information about their blindness or

colorblindness. Following this, participants were asked a total of nine questions about

personality and preferences. The information was used to determine whether the participant is

more right-brain or left-brain dominant. After participants answered these questions, they were

asked to again rate their mood. The end of the survey asked two demographic questions of age

and gender, concluding with an option to rate the survey. There were four versions of the same

survey differing only in font color: green, brown, purple, and black. Each participant only saw

one version of the survey, thereby exposed to only one font color. Participants were randomly

assigned to the different versions of the survey. There were four versions of the same survey

differing only in font color: green, brown, purple, and black. Each participant only saw one version of the survey, thereby exposed to only one font color. Participants were randomly assigned to the different versions of the survey. Participants who were not being recruited through the participant pool were given a link to a second survey where they were able to provide their email addresses if they wished to do so. The second survey was utilized in order to ensure anonymity of participants while still being able to enter a drawing for an e-gift card.

Results

Upon removing all necessary data sets, statistical analyses were completed. In order to test the first question, if color had an impact on mood, a one-way repeated measures ANOVA was conducted through SPSS. For this measurement, color was the independent variable and change in moods (cheerful, melancholy, neutral, and calm) was used as the measure of the dependent variables. The results of this statistical analysis were insignificant. The one-way repeated measures ANOVA did not provide significant evidence for an impact of color on mood. There were no within-subjects effects of color on mood. The difference in score for cheerfulness with color ($M = .13$, $SD = .903$) and without color ($M = .13$, $SD = .619$), calmness with color ($M = .06$, $SD = 1.043$) and without color ($M = .31$, $SD = .602$), neutral with color ($M = .09$, $SD = 1.203$) and without color ($M = .00$, $SD = .894$) and lastly, the mood with the most notable differences was melancholy with color which was ($M = .01$, $SD = 1.108$) and without color ($M = -.31$, $SD = .704$). However, none of these were significantly different (see Table 1 for SPSS analysis)

To conduct analyses for the second question, if right-brained participants were more impacted by color than left-brained participants, a series of independent samples t-tests were completed through Microsoft Excel. These tests compared the two groups of participants on the difference in scores of the four moods assessed. For left-brained participants, cheerfulness

before ($M = 6.75$, $SD = 2.01$) and cheerfulness after ($M = 7$, $SD = 2.09$) were not significant at $t(11) = -0.89715$, $p = 0.389$. Calmness before ($M = 6.25$, $SD = 1.86$) and calmness after ($M = 6.58$, $SD = 2.07$) were not significant at $t(11) = -0.0842423$, $p = 0.417$. Neutral feelings before ($M = 5.25$, $SD = 1.76$) and after ($M = 4.83$, $SD = 2.12$) were not significant at $t(11) = 0.890$, $p = 0.392$. Feelings of melancholy before ($M = 3.67$, $SD = 2.39$) and feelings after ($M = 3.33$, $SD = 2.39$) were also not significantly different at $t(11) = 1.7728$, $p = 0.104$. For right-brained participants, cheerfulness before ($M = 5.84$, $SD = 2.26$) and cheerfulness after ($M = 95$, $SD = 2.26$) were not significant at $t(54) = -0.903015$, $p = 0.37053$. Calmness before ($M = 5.71$, $SD = 2.16$) and calmness after ($M = 5.71$, $SD = 2.14$) were not significant at $t(54) = -0.573819$, $p = 1$. Neutral feelings before ($M = 5.29$, $SD = 2.09$) and after ($M = 5.49$, $SD = 1.99$) were not significant at $t(54) = -1.375398$, $p = 0.175$. Feelings of melancholy before ($M = 4.12$, $SD = 2.29$) and feelings after ($M = 4.51$, $SD = 2.32$) were also not significantly different at $t(54) = -0.573819$, $p = 0.568$.

Discussion

The hopeful outcome of this study was to show whether color influences mood. Results of this analysis did not show support for this hypothesis. A secondary goal of this study was to determine whether the impact of color on mood might depend on the participants' hemispheric dominance. Results of this analysis also did not support this idea.

Some limitations of this study included the mood ratings as they were self-rated and only assessed participants on a total of four moods among the countless number of moods that exist. This is a limitation as participants may have had a mood shift that was not included on the questionnaire. A suggested improvement of this for future research would be to ask about more moods and over a longer survey period. Another limitation could be that participants were identified as being left-brained and right-brained based on their self-reported answers on a

questionnaire rather than on the basis of physical brain activity in the hemispheres, which would result in more accurate identifications. A suggestion to resolve this issue would be to ask more questions in order to determine which hemisphere the participant uses more often. For convenience, only nine questions were asked in this survey. It may also be a possibility to physically measure hemispheric activity while completing tasks in order to determine the hemispheric dominance of a participant; however, questionnaires are also an acceptable format.

More suggestions for future research may be to use an in-person format as the setting could be more easily manipulated. Additionally, using an in-person format may also allow you to assess mood in different ways other than those used in this study. As other researchers have suggested, further research is needed in order to study the influence of color on mood. This is an essential topic to study as color plays a large role in how we live our daily lives.

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Table 1

Descriptive Statistics

	Colors	Mean	Std. Deviation	N
CheerfulDiff	Color	.13	.903	67
	NoColor	.13	.619	16
	Total	.13	.852	83
CalmDiff	Color	.06	1.043	67
	NoColor	.31	.602	16
	Total	.11	.975	83
NeutralDiff	Color	.09	1.203	67
	NoColor	.00	.894	16
	Total	.07	1.145	83
MelancholyDiff	Color	.01	1.108	67
	NoColor	-.31	.704	16
	Total	-.05	1.047	83

Tests of Within-Subjects Effects

Measure: ColorYN

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
DiffMood	Sphericity Assumed	3.326	3	1.109	1.012	.388
	Greenhouse-Geisser	3.326	2.979	1.116	1.012	.388
	Huynh-Feldt	3.326	3.000	1.109	1.012	.388
	Lower-bound	3.326	1.000	3.326	1.012	.317
DiffMood * Colors	Sphericity Assumed	2.218	3	.739	.675	.568
	Greenhouse-Geisser	2.218	2.979	.744	.675	.567
	Huynh-Feldt	2.218	3.000	.739	.675	.568
	Lower-bound	2.218	1.000	2.218	.675	.414
Error(DiffMood)	Sphericity Assumed	266.180	243	1.095		
	Greenhouse-Geisser	266.180	241.307	1.103		
	Huynh-Feldt	266.180	243.000	1.095		
	Lower-bound	266.180	81.000	3.286		

Appendix A

Survey/ Questionnaire

How much are you feeling each of these moods?
1 = Little to not at all
10 = A great deal
- o   Cheerful (noticeably happy and optimistic)

- o   Calm (relaxed, tranquil, not showing or feeling nervousness, anger)

- o   Neutral (not one thing or the other; indifferent)

- o   Melancholy (a feeling of sadness, typically with no obvious cause.)

Which of these best describes your handedness?
- o   Right - Handed
- o   Left - Handed
- o   <I use each hand equally.
- o   Other. Please explain.
- o   Don't know.

Which of these best describes your footedness?
- o   Left- Footed
- o   Right- Footed
- o   I use each foot equally
- o   Other. Please explain.
- o   Don't know.

Do you have any sort of blindness or color-blindness? If yes, please specify.
- o   Yes.
- o   No.

Which choice best describes your abilities?
- o   Better at remembering names
- o   Better at remembering faces

Which choice best describes you?
- o   Responds best to verbal instructions
- o   Responds best to instruction by example

Which choice do you prefer?
- o   Preference for essay tests
- o   Preference for multiple-choice tests

Which choice best describes you?
- o Poor at thinking up funny things to say and/or do
- o Good at thinking up funny things to say and/or do

Which choice do you prefer?
- o Prefer language and analysis of a problem in order to find solutions
- o Prefer use of visualization and imagery in problem solving

Which choice do you prefer?
- o Prefer classes in which I listen to others
- o Prefer classes in which I am moving and doing things

Which choice do you prefer?
- o Classes or work to be planned and know exactly what I am supposed to do
- o Classes or work to be open with opportunities or flexibility and change as I go along

Which choice best describes you?
- o Responsive to logical, verbal appeals
- o Responsive to emotional appeals

Which choice do you prefer?
- o Preference for critical and analytical reading as for a book review, criticism of a movie, etc.
- o Preference for creative, synthesizing reading as for making applications and using information to solve problems

How much are you feeling each of these moods?
1 = Little to not at all
10 = A great deal
- o Cheerful (noticeably happy and optimistic)

- o Calm (relaxed, tranquil, not showing or feeling nervousness, anger)

- o Neutral (not one thing or the other; indifferent)

- o Melancholy (a feeling of sadness, typically with no obvious cause.)

What is your age? _____

What is your gender?
- o Male
- o Female
- o Other
- o Prefer not to say

What would you rate this survey?
0 = Not at all enjoyable
10 = Very enjoyable

Autonomous Sensory Meridian Response (ASMR) and Culture

Alfa Ramirez[17]

Autonomous Sensory Meridian Response (ASMR) is a community that listens and watches videos on the internet that give them a feeling of relaxation and tingles. The feeling of tingles has been associated with specific triggers, or types of videos that people listen to such as whispering or personal attention. Within the last five years studies in ASMR have become a study of interest, but the community has been around since the early 2000s. The purpose of this demographic research is to investigate who the people are within this community, - the culture that surrounds the phenomenon of ASMR. This will help to understand the effects ASMR is having on people and continue to apply ASMR to education, therapy, and advertisements. I hypothesized that Caucasian boys from Europe and North America would be drawn to ASMR and would most likely listen to whisper videos alone, and while having little to no primary caregivers from the ages of 13 and above. The results are presented and future research is discussed.

The following literature describes what is currently known about autonomous sensory meridian response (ASMR) and illustrates the way in which different cultures have had similar experiences with ASMR. Autonomous sensory meridian response (ASMR) was coined by Jennifer Allen in the early 2000s; she created a community where people who felt the same sensations towards videos could find a place to bond and share more videos that made them feel relaxed and tingle sensations (Craig, 2016). These videos that range from crisp sounding whispering, role-playing, zen- gardens, lego building, etc all use repetitive, slow actions and accompany soft spoken words (Anderson, 2015). One of the first ASMR studies explored its

links to relaxation, tingles, flow state, depression, chronic pain, at what location, and at what

time people listened and watched ASMR at (Barratt & Davis, 2015). They found with 475

people that 98% of people listened to ASMR to feel relaxed, 82% to sleep, and 70% to de-stress.

The top three videos or triggers were whispering, personal attention, and crisp sounds. They

were most likely to listen to ASMR at night and 52% of people said they listen to

ASMR alone. Eighty percent of people said they felt happier after listening to ASMR, and 63%

felt tingles. Furthermore, 241 people said they first encountered ASMR between 5 and 10 years

old.

An almost identical study done by Ramirez (2016) of 419 people revealed similar results.

When asked why people listened to ASMR, the top three responses were to feel relaxed, to feel

tingles, and to fall asleep. The top three videos or triggers were whispering, role-play, and

massage. They were most likely to listen to ASMR at night, with 100% of people responding that

they watched ASMR alone (Ramirez, 2016). Barratt and Davis (2015) and Ramirez

(2016) explored flow state and tingles, and negative feelings, such as depression and chronic

pain, and they associated them with ASMR exposure. Most participants in both studies who felt

tingles on their body felt immersed, and people who were depression and experienced chronic

pain usually felt better after listening and watching ASMR. Immersion was defined as deep

mental involvement and was tested by asking questions based off of an immersion

scale. Furthermore, Ramirez (2016) found that 44% of the participants were men around the ages

of 14-90, and the respondents were 23 years of age, on average.

The previous studies mentioned relaxation, tingles, and pain relief. These are highly

regarded as phenomena associated with ASMR. Many people have discovered ASMR by

accident while surfing the internet around a young age and seem to find it among websites such

as Reddit, YouTube, and Twitter. In the present study, more detailed demographic information of those who listen to ASMR were investigated.

Along with this, I intended to understand ASMR across countries where ASMR is relatively new, since it has primarily been investigated in countries such as Canada, France, and the US, where ASMR is already quite popular. The focus on different places, ethnicities/races, income, and obtaining more demographic information in the following study will reveal who really takes part in ASMR and could possibly show information we did not know about the community. Thus far, ASMR has even been becoming popular in Japan (Jordan, 2016). Juslin et al. (2016) tell us how different cultures such as individualistic versus collectivistic cultures are different in music, which is the closest cousin to ASMR that we know can also cause a goosebump effect (Grewe et al., 2009). Individualistic cultures would be more inclined to listen to ASMR because in such cultures there is a tendency to do what one person would like to do, no matter what anyone else thinks. In collectivistic cultures, one may not be drawn to ASMR because people go with what their group believes and to think or act differently is to not be apart of that group. If someone listened to ASMR in a collectivistic culture and their group around them believed it was weird or strange, they would be more likely to not listen to ASMR.

Gallagher (2016) has theorized that ASMR is just an internet phenomenon due to YouTube's algorithm that throws recommendations to people and has caught on as a fad. Weinberg (2015) commented that videos are only popular because of the close community feeling such as ASMRtists, or people who make ASMR videos, who stay in constant contact with their viewers make them feel comfortable, therefore feeling more relaxed. Anderson (2015) contributed the explanation that people who are drawn to ASMR have no intimate relationships with their parental figures and will often like the personal attention videos to feel comforted.

All of this information has been applied to education, therapy, and advertisements. The rapid growth of ASMR can be seen everywhere. Apprich (2016) says that ASMR gives enough space for students to be able to passively listen to while studying or taking a test because of its repetitive gentle sounds that cause calmness. They applied it to the educational environment and found that this was true. People are using ASMR in therapy by playing ASMR in the background based off the idea that people with depression and chronic pain feel happier and no pain after listening to ASMR (Barratt & Davis, 2016). Craig (2017b) reports that TV is applying ASMR to a comedy show. He also reports that Toyota used ASMR in a car commercial (Craig, 2017c). Craig (2017a) also reports that a Master's student has completed an experimental project on ASMR in the media where she used a DOVE chocolate ad and had the original play to one group, a changed one that whispers and has music to another group, and another changed ad that whispers only to a third group. She found that the people enjoyed the DOVE ad as much as they enjoyed the original and conclude that DOVE can begin using ASMR in their commercials just like Toyota did (Craig, 2017a).

In the present study, more detailed demographic information of those who listen to ASMR was investigated. Based on previous studies, I predict there will be more Caucasian participants than participants of any other race or ethnicity. I predict that most of the participants would identify with being man, male, or masculine listeners of ASMR. Also, I predict that they will come from mostly Western and European regions, and be between the ages of 13-25. I also predict they will be middle class and prefer viewing whisper ASMR videos alone. Furthermore, they will be single, and will have been raised just one primary caregiver and currently live alone. These demographics are so vital to understand about a community that is rising so people can begin understanding why particular people feel one way and people outside the ASMR community sometimes do not.

Method

Participants

This research aimed to collect demographic information on the ASMR community using an online Qualtrics survey. A total of 990 participants were recruited through my social media accounts on Facebook, Reddit, Twitter, and the ASMR University website, but only a total of 675 participants completed the survey. Data collected from participants are still summarized in the results. A total of 728 participants answered the gender identity question, and 343 participants were man, male, or masculine; 368 participants reported identifying as woman, female, or feminine; 2 reported identifying as transgender man, male, or masculine; 10 identified as gender nonconforming, genderqueer, or gender questioning; and 5 preferred not to answer. All participants reported they were over the age of consent for participation in their country, and there were no reported minors in the study.

Material and Procedures

A recruitment description and link to the survey was put on my accounts on Facebook, Reddit, Twitter, and ASMR University website (see Appendix A), which is a site that has all the information that is known about ASMR, including publications, books, past, and current studies. Anyone can access this site following this link https://asmruniversity.com/. The participants who clicked the recruitment description, were asked if they were over or under the age of consent or under the age of consent in their country. Identical surveys were created -one for those over the age of consent and one for minors- with different consent processes. Participants who were over the age of consent had access to the first survey, but the participants who were under the age of consent in their country were to follow the informed consent process outlined and were given a survey link by the PI through an email.

A discussion people often have about ASMR is how people come into the community at such a young age. Now that the community knows there are minors listening to ASMR, there is more responsibility to protect them. Hertzel (2000) mentions that children represent a large and powerful segment and their information is sometimes collected and released without parental knowledge; this is especially a reality in ASMR data collection and needs to have proper precaution within the research studies. Jasmontaite and Hert (2015) write about the European nation and how they find the parental consent process is still flawed. They say that the process of parental/child consent often calls a minor at the age of 13 someone who can sign their name and give consent along with their parent, which does not make sense if the child is 13 they should not be able to sign. They also say that children have rights and should be treated with respect with decisions and if a parent does not want their kid partaking in surveys. This can limit the results of studies and children's autonomy. It also limits parents and ignores certain parent practices that teach kids not to give out their information. These limits in the consent process cannot be ignored, but in the following study the consent process remains only because there is not a better solution for getting consent from minors online and this study posed no harm to any of the participants.

The survey asked if the minors had completed printing the parental consent form and filling it out with a parent or guardian the private link was sent to them. Individuals were asked once more if the steps were done correctly for precaution and if they really wanted to participate. If they answered yes, they were sent to a child assent question and they would choose to continue taking the survey or not, while the ones who said no were sent to the directions again to complete it correctly. After providing assent from minors after obtaining parental consent, participants were asked to answer demographic questions (see Appendix C). They were then provided with a debriefing statement explaining the purpose of the study (see Appendix D). The

data were collected on an online Qualtrics survey, and the parental consent forms were printed

out and kept in a folder and an excel file sheet with a number assigned to each participant who

was a minor. The date and time was recorded when the parental consent form was sent me, and

when the private link was sent. This consent process was thoroughly planned out with the IRB

director of Lindenwood University. Precautions like this were taken because I wanted to collect

answers from as many participants as possible from the ages of 13 and above, in any part of the

world where it was allowable. This is because previous studies have shown that people from the

ages of 13 years and above were the ones mostly listening to ASMR (Ramirez, 2015).

Results

Age

I predicted that participants ages 13-25 would listen to ASMR the most. All participants

were over the age of consent in their country, and no minors partook in the

survey. Demographic data could not be reported on exactly what age participants were because

that question was overlooked and forgotten to put in the survey.

ASMR Community

Participants in the ASMR community were asked a series of questions pertaining to

ASMR specifically. I wanted to collect information about their viewing habits, I predicted people

would watch ASMR alone rather than around others. When asked when they listened to ASMR

the most, 69.20% of participants reported they listened to ASMR the most at night. When asked

how often they listen to ASMR per week, of 716 participants, 29.46% reported they listen to

ASMR 7 times per week. The next top two were 16.34% of people said once a week, and 14.8%

of people said three times per week (Appendix E). Another question asked, "How do you

usually listen to ASMR?", 95.93% of 737 participants reported they watched it alone. 4.07% of

737 participants reported they watched it around others. Out of 725 participants, 67.86%

reported the primary reason they listen to ASMR is for relaxation, while 37.65% of people use it as a sleep aid or help them sleep better, and 14.75% o f people reported they listen to ASMR for the tingles. The full list of reasons and percentages are listed in Appendix F. One person reported that they listened to ASMR because it "taps into a deeply personal and rarely visited place inside me- something I don't allow myself to feel often especially around others". Participants were also asked, "When was the first time you listened to ASMR?" Out of 723 participants there were a total of 769 responses. At 14.69% they reported that they first listened to ASMR in 2012, 13.78% of participants said in 2015, and 11.18% of participants in 2014 (Appendix G).

Caregivers

I predicted people who listen to ASMR lived alone or with one caregiver. I asked, "How many people do you live with at the moment?" and "Who were/was your primary caregiver(s) when you were growing up?" Responses to the first question included 712 participants, 31.46% of people said they live with one other person they live with at the moment. While 22.05% said they lived with two other people, 17.41% said they lived alone, and 16.57% said they lived with three other people. People below 10% lived with four or five people, and people below 1% lives with six to fourteen people, with one outlier who said they lived with 54 other people. A number of 719 participants answered the second question, with 51.73% reporting that their primary caregiver growing up was both their stepfather, father, stepmother, mother. The second highest response was 34.34% of people who reported only their mother was their primary caregiver. Everyone who responded below 10% included 2.36% for people who grew up with a mother and grandmother, 1.52% of people were cared for by a babysitter, 1.11% were cared for by their stepmom, mom, and stepdad, dad, and brother, or sister, while 1.8% of participants said they either grew up with their step/mom & step/dad & grandma/pa or just their mom and brother. Less than 10% of people reported they grew up with just their dad, grandma,

grandparents, brother, sister, parents/ grandma/ uncle/aunts, alone by their selves, with their

significant other, an aunt or uncle, or just their dad and grandparents (Appendix H).

Education

I predicted that most of the participants would be between the ages of 13-25, so their

education level would reflect this. No one reported being a minor in their country, and the

question asking a specific age was overlooked. Participants were asked "Are you currently a

student?" If they answered 'yes', they were sent to, "What grade are you in?" If they

answered 'no', they were sent to, "What is the highest education level you have?" A total of 724

participants answered, "Are you currently a student?"

while 28.87% said 'yes', 71.13% answered 'no'. A total of 495 participants answered the "What

is the highest education level you have?" question. A total of 36.97% of participants said their

highest level was a Bachelor's degree. With 17.98% participants answered some college, and

14.95% of participants said a Master's degree. All other choices were below

10% (Appendix I). A total of 187 participants answered the question, "What grade are you in?"

After responding 'yes' to being a student, two responses were deleted because they said

"N/A", Out of the students who did respond, 16.75% were seniors in college. The next biggest

answers were 15.67% who reported a generic answer such as "university, undergraduate,

college", 14.59% reported being a sophomore in college, 13.51% reported being a junior in

college, and 11.35% reported being a freshman in college. Under 10% of the data lay the super

seniors, high school seniors, high school juniors, master's students, doctoral students, postgrad

students, certification programs, and people who said the generic term "graduate school" or

"studies", Under 1% of representation were both 0.54% and they were students who just finished

studies, and returning students (Appendix J).

Gender Identity

I predicted that there would be more participants that identify as man, male, or masculine. Out of 990 participants, 728 people responded meaning 262 or 34.56% of participants did not respond to this specific question. People who identified as man, male, or masculine made up 47% or 343 participants. People who identified as woman, female, or feminine made up 51% or 368 participants. People who reported they were gender nonconforming, genderqueer, or gender questioning made up 1.37%, 0.68% made up participants who said they did not want to answer, and 0.27% of participants said they identified as transgender man, male, or masculine.

Language

I did not predict anything about language but was interested in the demographics of what languages people in the ASMR community spoke. I asked "What languages do you speak?" which was a question where participants could pick as many languages as they wanted, and "What is your primary language?", an opened answer question. The first question "what languages do you speak?" received 1113 responses, 62.98% of participants reported being able to speak English. The rest were below 10% where 8.63% of participants could speak French, 7.64% said other language not listed, 7.28% said Spanish, 1.53% said Japanese, 1.44% said Italian, 1.35% said Portuguese, and 1.17% said Mandarin. The rest of the languages were below 10% including Arabic, Cantonese, Hindi, Korean, Russian, Tegalog, and Vietnamese.

Location

The study asked where participants currently lived because I predicted that Europe and North America would report being in the ASMR community more than other regions. I also asked for participants to click where they were born, and click all the places they have lived on a map that tracks clicks. For the first question, a word map was created instead of sifting through responses. The largest words revealed that most participants stated they currently lived in North America and Europe (Appendix K). When asked to click where participants were

born, they did so on a heat map where the most clicks would be red. As evident by the map

North America and Europe were also the most clicked, therefore a majority of participants were

from those regions (Appendix L). When asked to click all the places they had lived for a

substantial amount of time which was defined as two years, participants clicked the same areas

within North America and Europe (Appendix M).

Race and Ethnic Identity

I predicted that racially and ethnically participants would report being Caucasian over

other racial and ethnic identities. Out of 990 participants, 771 reported their racial and ethnic

identity. Out of those 771 participants, 83.36% of participants reported being

Caucasian. While those who were Hispanic, Latino, or Spanish Origin, some other race such as

Jewish or Human, Asian, American Indian or Alaska Native, or said they preferred not to

answer all were below 10%. While people who were represented as less than 1% were Black or

African American, Middle Eastern or North African, and Native Hawaiian or other Pacific

Islander.

Relationship Status

I hypothesized that people who listened to ASMR would currently be single. Out of 729

participants who reported their relationship status, 39.78% reported being single. This was the

highest of all relationship statuses reported. People reported being married at 24.69%, and being

in a relationship made up 23.32% of the participants. Everyone who reported being

below 10%, were engaged, in a civil union, a domestic partnership, open relationship, marking

it's complicated, being separated, divorced, or widowed. Five people picked the "other" choice

for being aromantic or other reasons.

Religion

I did not predict anything about religion, but was interested in what religions the ASMR community aligned with. A total number of 774 participants responded to the Question "Which belief do you identify yourself with?" Participants responded with 30.49% saying they were Atheist, 27.78% reported being Agnostic, and 20.67% reported being Christian. All other religions were below 10% where 2.58% reported being Buddhist, 1.94% reported being Spiritualists, 1.16% reported being Unitarians and Humanists, and 1.03% reported being Wiccan. All other religions were below 1%.

Social Class

I believed that people who were middle class would listen to ASMR more than other social classes. A total of 716 participants answered this question with 55.17% reporting they were middle class. While 35.20% reported being working class, 5.59% reported being poor, and 4.05% reported being affluent.

Social Media

I posted my survey on Reddit and Facebook because of the significant amount of people in the ASMR community who gravitate towards those specific social media websites. I was interested in collecting more demographic data on what social media sites the ASMR community usually used. I told the participants to rank social media websites they use in order from most used to least used. Participants ranked YouTube, Facebook then Reddit as the social medias they use on a daily basis.

Videos and Triggers

I predicted that people would pick whispering as their primary trigger. When asked what their top three triggers were 2,099 responses were recorded. The top three responses were whispering with 342 people, personal attention and close-up videos with 238 people, and tapping

videos with 152 people. A close fourth was roleplaying videos which made up 121 participants responses in their ranking.

Discussion

What I set out to find was demographics on the ASMR community because of their emerging popularity and new psychological interest, I wanted to see who these people were. In knowing who the main people are, we can understand them better as scientists, researchers, and psychologists. I formulated my predictions on the ASMR community based off of previous research and all of the ASMR journals, publications, and articles that I have read. I predicted that people in the ASMR community would mostly be Caucasian participants who identified as being man, male, or masculine listeners of ASMR. Who would mostly come from North America and European regions. They'd be between the ages of 13-25, be middle class, and prefer viewing whisper ASMR videos alone. They would also be single or in no relationship, and will not have grown up with more than one primary caregiver and live alone.

Unfortunately, my prediction about the cohort of ages 13-25 was not supported. This could be a result of several factors, such as participants possibly lying about their age to not go through a lengthy consent process, to the cohort getting older from previous years, to my prediction just being wrong. It would be interesting to see what cohort is actually the largest within the ASMR community.

My hypothesis that people in the ASMR community would watch ASMR alone was supported with 95.93% of people reporting they watch ASMR alone. This was expected because a lot of people in the community talk about watching ASMR alone. It would be interesting to see how a group of people react, and how they'd feel about watching ASMR videos. For those who feel like ASMR is not just a video-like experience, this may have been a

tough question to ask as many questions referred to only the online ASMR viewing experience rather than the body-like experience.

I predicted that people in the ASMR community would have little to no caregivers growing up, which meant a one parent/guardian household. This was not supported with 51.73% of people reporting they grew up in a two parent/guardian household. The next largest cohort was a one parent/guardian household. It would fare well to see if more participants responded, how the results would change. I believed mainly that participants would have grown up in a one parent/guardian household based off of the "phantom limb" ASMR theory that states people are drawn to ASMR because of the lack of comfort from caregivers, and they'd often feel more tingles because of the caregiving videos they watch.

I did not have a hypothesis for education, but most people reported not being in school, but completing a Bachelor's degree. This means that most people in the ASMR community are students or have gained a higher education than a high school diploma. This maybe because ASMR is within the millennial age and getting more than a high school diploma is often necessary in the climate we often grow up in. The ASMR community is made up of educated individuals.

I predicted that more participants would report being man, male, or masculine. This was because based off of Barratt & Davis (2015), and Ramirez (2016), that most of the participants were in fact male. This demographic study reported more woman, females, or femme participants. I still believe there were not accurate results because 34.56% of participants did not answer the question about gender identity. This is a large number of unaccounted people, and therefore depending on their results could have skewed the statistics. Needless to say, in my study women are the largest cohort and this maybe because women are the largest ASMR video-making cohort. There are many men, males, masculine people who create videos, but it is

in large part women who are making several more. It would be interesting to find out how many videos there are in each gender category ever made within ASMR.

I did not predict anything for language, but most participants put they knew English. This may have been due to the online Qualtrics survey being in English, and that many people in other countries are often taught English as a second language.

I predicted that many people would come from Europe and North America, which was supported by the survey as well. Many people answered that they both were born and lived in Europe and North America most of the time. Many people reported having trouble with the map, clicking areas, and not being able to choose more than one. This may have skewed results and should be accounted for. Many others reported that they did not understand the question, which should also be taken into account when creating future surveys. I believed that many people from Europe and North America are more inclined to watch ASMR because of the individualistic cultures that surround them. According to Jordan (2016) I was interested in seeing an increase of ASMR within Japan, because of its growing popularity among the Asian participants. But, this may not be the case as more and more videos of "Mukbang" are becoming more popular instead. These are videos where people will eat a large amount of food in front of a camera, possibly alone or with others around. The intentions of this is unknown to the writer, but maybe because of a cultural interest in food and possibly attractive to people who are hungry, or alone and want something to watch. Juslin et. Al (2016) commented that individualistic and collectivistic cultures have differences in music, and the same results in ASMR have been apparent. It seems if you are in a collectivistic culture, you may not be drawn to ASMR if the group is not.

I believed that Caucasian people would presented in the ASMR community more than other racial and ethnic identities. This was supported with 83.36% of participants reporting being

Caucasian. This may be in due part that most participants who answered are from Europe or North America and currently live in individualistic cultures. Other cultures in Europe or North America such as the minorities may not be drawn to listening to ASMR because there is no appeal to them. Minorities in individualistic cultures are often influenced by their groups as well. They are often believed to be their own self, but also highly influenced by the people around them because of their cultures. While Caucasian people are often pushed to become their own person, with no cultural support. Many Caucasian people often grow up without knowing their lineage or history, while many minorities grow up knowing full well what history has done to influence their cultures.

I believed many people would be single in the ASMR community because of the same caregivers "phantom limb" theory. This belief that people seek comfort in the ASMR videos because they also do not have anyone around them. The hypothesis was supported with many participants reporting they were single. The most interesting is that the next largest cohort reported being married. This may as well debunk the hypothesis support since this is the second largest cohort and they have a spouse or partner around them.

I did not predict anything about religions, but most people said they were Atheist, Agnostic, or Christian. As Atheism is a lack of religion based off of the belief that there is none, Agnostics believe that there may or may not be a higher being or power over them. Then Christianity with all of its different sects is the most interesting because of their belief in a higher power which greatly differs from the first cohort of Atheism. I believe these are the three largest religious beliefs presented because the ASMR community is made of users who are mostly from Reddit, and the Reddit community are often filled with people who are atheist or agnostic. Even if this is not the case, it would be interesting to see if there were correlations between religiosity and ASMR.

I believed that people who were into ASMR would be in middle class, and that was

supported by the data as well. The most surprising statistic is that 4.05% reported being affluent,

because I did not expect a large number to be affluent. There are no definite implications that

social class has anything to do with ASMR.

I believed that people would rank Reddit as their number one social media, but

they actually ranked YouTube, Facebook, then Reddit in that order. YouTube as being ranked

number one is not surprising because that is where ASMR videos are being hosted. Facebook

being second is what surprises me because Reddit is where the ASMR video community is

located. It maybe that Facebook is ranked number two because of how many more Facebook

users may have taken the survey over Reddit users. How many participants from each social

media site I acquired for the survey would play a big role for how the social media was ranked.

I predicted that participants would listen to whisper videos the most, and that was

supported by the data as well. I did not ask why people listen to whisper videos, but it would be

interesting to find out. I thought it'd be whispering videos because that is what people have

reported in Ramirez (2016) as well.

All together the data suggests that participants are mostly single middle-class Caucasian

women, female, or femme who are over the age of consent in their country. They grew up in a

two-parent household, and have attained education over the high school level, getting

a Bachelor's mostly. They mostly speak English, are from Europe or North America and are

Atheist. Their most viewed social media is YouTube, and they like to watch and or listen to

ASMR whisper videos.

Future Research

In the future, I would advise developing a different consent process for minors, because

out of 990 participants that originally started the survey only 675 completed the

survey. Within those 675 people there were no minors. The study was first sparked by the first

question about age, and it would be interesting to investigate whether this cohort was

discouraged from completing my survey because of the lengthy process of parental consent and

their own assent. I would also actually ask the Question "What is your age?" Instead of just

asking if they are majority age in their country for consent. In addition, I would re-word some

questions, and think about what ASMR really means, as people commented back that ASMR is

more than a video phenomenon, but a body-like phenomenon they have had since

birth. ASMR More research should be done not only in demographics, but in already researched

areas like tingles, relaxation, flow state, triggers, and studies only once or twice done such

as fMRI or EEG brain studies. More experimental studies should begin within the ASMR

community, such as a blind or double-blind study, and more knowledge must be acquired from

how people feel what ASMR means to them.

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Appendix A

Recruitment Statement

Please consider taking my anonymous survey on Autonomous Sensory Meridian Response (ASMR) and Culture. This is a demographic study to (purpose) and my research project for my Psychology Research lab class at Lindenwood University. Your participation is completely voluntary and you may stop at any time. Thank you!

Appendix B

Under the age of consent in their country directions

If you are under the age of consent in your country (For example in the United States it is under the age of 18), then you will have to follow these steps precisely.

1. Download the consent form at the bottom of the page by clicking on it
2. Print and read it over with a parent/guardian/adult and have them sign, and you have to sign it too.
3. Scan the consent form to AMR905@lindenwood.edu
4. I (the researcher) will send you a private link to the survey, where you can take it.

Thank you for your participation and interest in my study.
Parental/ Child Consent Form

Appendix C

Demographic Questions

When do you listen to ASMR the most? (Mark all that apply)

During the day

During the afternoon

During the night

How often do you listen to ASMR per week?

How do you usually listen to ASMR?

Alone - For example, in a room alone, not around others

Around others- For example, around family and or/friends, in a crowded area, on the bus/train/ or any public area

What is the primary reason you listen to ASMR?

What are your top 3 favorite ASMR video triggers to watch? (For example - whispering, carving, no talk, soap, personal attention, etc.)

First Choice

Second Choice

Third Choice

When was the first time you've heard of ASMR?

What is your age?

[   ]

What is your relationship status?

Single

In a relationship

Engaged

Married

In a civil union

In a domestic partnership

In an open relationship

It's complicated

Separated

Divorced

Widowed

Other, please specify:

[   ]

How do you currently describe your gender identity?

Man, male, or masculine

Transgender man, male, or masculine

Transgender woman, female, or feminine

Woman, female, or feminine

Gender nonconforming, genderqueer or gender questioning

Intersex, or two-spirit

I prefer not to answer

What is your nationality? (Example: Colombian, American, Nigerian, etc.)

Which ethnicity describes you best? Select all that apply to you.

American Indian or Alaska Native- For Example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community

Asian- For example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese

Black or African American- For example, Jamaican, Haitian, Nigerian, Ethiopian, Somalian

Hispanic, Latino or Spanish Origin- For example Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian

Middle Eastern or North African- For example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian

Native Hawaiian or Other Pacific Islander- For example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese

White- For Example, German, Irish, English, Italian, Polish, French

Some other race, ethnicity, or origin, please specify:

I prefer not to answer

What languages do you speak at home? (This is in alphabetical order and you may click more than 1 belief using the SHIFT key)

```
Arabic
Cantonese
English
French
German
Hindi
Italian
Japanese
Korean
Mandarin
```

What is your primary language?

With which belief do you identify yourself with? (This is in alphabetical order and you may click more than 1 belief using the SHIFT key)

Agnostic
Amish
Ancestor Worship
Animism
Asatrú
Atheism
Baha'i Faith
Brahma Kumari
Buddhism
Celtic Paganism

Are you a student?

Yes

No

What social class group do you identify with?

Poor

Working class

Middle Class

Affluent

How many people do you live with at this moment?

Who were/was your primary caregiver(s) when you were growing up? (ex: babsitter, mom, and brother)

What social media pages do you use daily? (almost every day) (Please click and drag the social media pages you uses into the box below, then order them in importance. 1 being the one you use the most, and 2 being the second you use the most. You do not need to put the ones you do not use in the list)

Items

Facebook

Twitter

Instagram

Pinterest

YouTube

LinkedIn

Tumblr

Reddit

Snapchat

Other

Click to write Group 1

Where do you currently live? (Please provide country and state/province/
region/territory/etc.) (For example: North America, United States, Missouri or North
America, Canada, Ontario) Do not specify zip codes or addresses as this is not needed.

Please click where you were born.

Please click all places where you have lived for a substantial amount of time (2+ years)

Appendix D

Thank You statement

Thank You Statement

Thank you for taking the time to complete this survey for my class project at Lindenwood University. This survey was made to study culture and ASMR. I wanted to know what demographic characteristics are shared by people who engage in ASMR.

If you would like to see the results of my survey after Dec 15, 2017, please feel free to contact me using the contact information below. Again, thank you very much for your time and effort

Principal Investigator,
Alfa Ramirez
954-294-4368
AMR905@lionmail.lindenwood.edu

Faculty Supervisor
Dr. Nohara-LeClair
636-949-4371
mnohara-leclair@lindenwood.edu

Appendix E

"How often do you listen to ASMR per week?" Question 7

# of Responses	Times per week	%	
117	**1**	**16.34**	
89	2	12.43	
106	3	14.8	
41	4	5.72	Below 1%
71	5	9.91	1-10%
48	6	6.7	Above 10%
211	7	29.46	
11	8	1.53	
4	9	0.69	
12	10	1.67	
2	12	0.279	
2	14	0.279	
1	20	0.13	
total responses 716			

Appendix F

Primary reasons to listen to ASMR Question 9

Participants	Primary Reason
107	tingles
492	relax
273	sleep
15	background white noise
39	entertainment pl
24	anxiety control
10	meditation
17	comfort/ soothes/ calms
3	curiosity
2	dep control
3	sexual
1	chronic pain control
22	stress relief
1	migrain relief
1	play sports
4	concentration

Appendix G

First time you heard ASMR Question 11

22	specific ASMRtist		2.86	
38	youtube		4.94	
26	reddit		3.38	
6	college		0.78	
8	google		1.04	
38	don't remember		4.94	Less than 1%
2	age 14		0.26	1-10%
6	age 15		0.78	Over 10%
3	age 17		0.39	
2	age 20		0.26	
1	age 24		0.13	
1	age 47		0.13	
1	age 6		0.13	
1	age 8		0.13	
9	podcast		1.17	
6	college		0.78	
6	friend/hearsay		0.78	
5	magazine		0.65	
8	google		1.04	
3	whisper comm		0.39	
3	television		0.39	
2	specific place		0.26	
1	high school		0.13	
2		1977	0.26	
1		1997	0.13	
1		2004	0.13	
1		2005	0.13	
0		2006	0	
5		2007	0.65	
6		2008	0.78	
13		2009	1.69	
39		2010	5.07	
53		2011	6.89	
113		2012	14.69	
72		2013	9.36	
86		2014	11.18	
106		2015	13.78	
58		2016	7.54	
35		2017	4..55	

total 769

Appendix H

Q23 - Who were/was your primary caregiver(s) when you were growing up? (ex: babsitter, mom, and brother)

Q23		
participants	code	%
248	mom 1	34.49
10	dad 2	1.39
372	both m/d 3	51.73
6	4 grandma/	0.83
6	5 grandpare	0.83
0	6 step mom	0
0	7 step dad	0
2	8 brother	0.27
17	9 mom/gma	2.36
8	10 parents a	1.11
11	11 babysitte	1.52
3	12 sister	0.417
3	13 parent gr	0.417
13	14 parent ar	1.8
13	15 mom and	1.8
2	16 myself	0.27
1	17 SO	0.13
2	18 aunt/unc	0.27
2	19 dad and g	0.27
719		

Appendix I

What is the highest education level you have?

Some high school	2.63%	13
High school diploma or equivalent	8.48%	42
Vocational training	3.64%	18
Some college	17.98%	89
Associate's degree (e.g., AA, AE, AFA, AS, ASN)	6.67%	33
Bacehlor's degree (e.g., BA, BBA, BFA, BS)	36.97%	183
Some post undergraduate work	2.22%	11
Master's degree (e.g., MA, MBA, MFA, MS, MSW)	14.95%	74
Specialist degree (e.g., EdS)	2.22%	11
Applied or professional doctorate degree (e.g., MD, DDC, DDS, JD, PharmD)	0.20%	1
Doctorate degree (e.g., EdD, PhD)	1.62%	8
Other	2.42%	12

Appendix J

Q32- What grade are you in?

| participants	code	%	
21	1 freshman	11.35	
27	2 sophomore	14.59	
25	3 jr	13.51	
31	4 senior	16.75	
2	5 super senior	1.08	
8	6 high school senior	4.32	Over 10%
29	7 generic answer	15.67	Under 10%
4	8 high school jr	2.16	Below 1%
14	9 Masters	7.56	
4	10 Doctorate	2.16	
8	11 Postgrad	4.62	
2	12 certificate progran	1.08	
1	13 just finished studi	0.54	
1	14 returning student	0.54	
7	15 generic "grad sch	3.78	

Appendix K

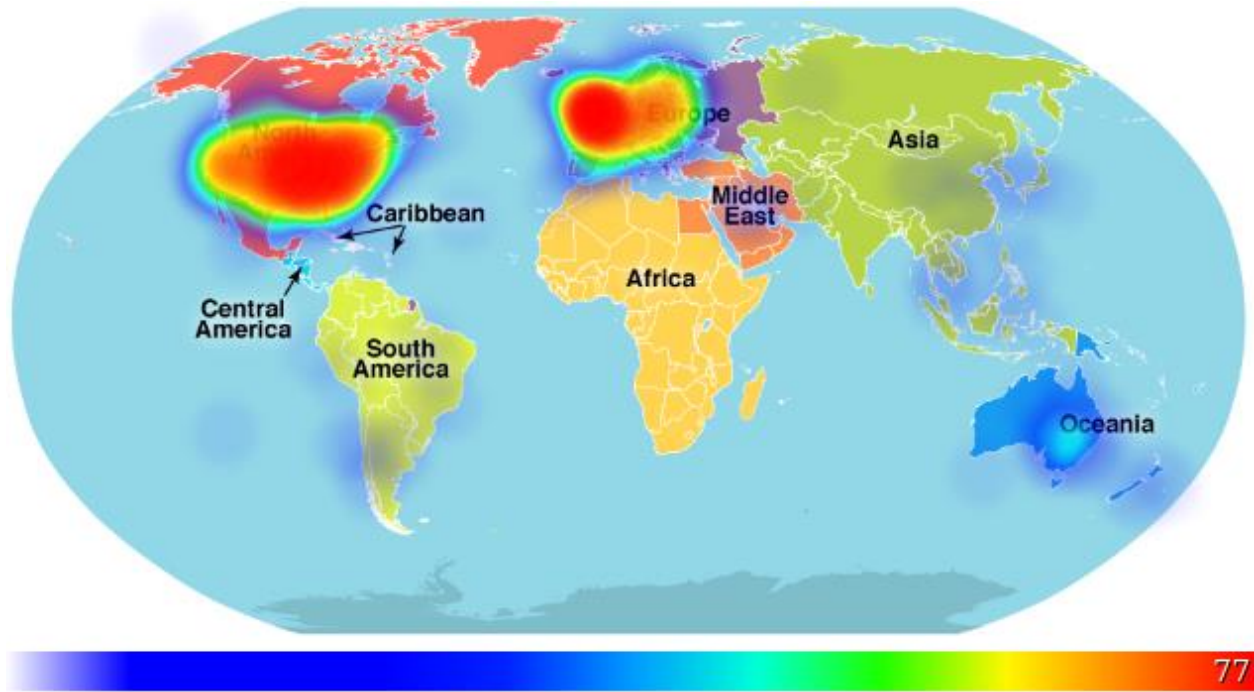Q34- Where do you currently live? Word Map

Appendix L

Q26- Please click where you were born
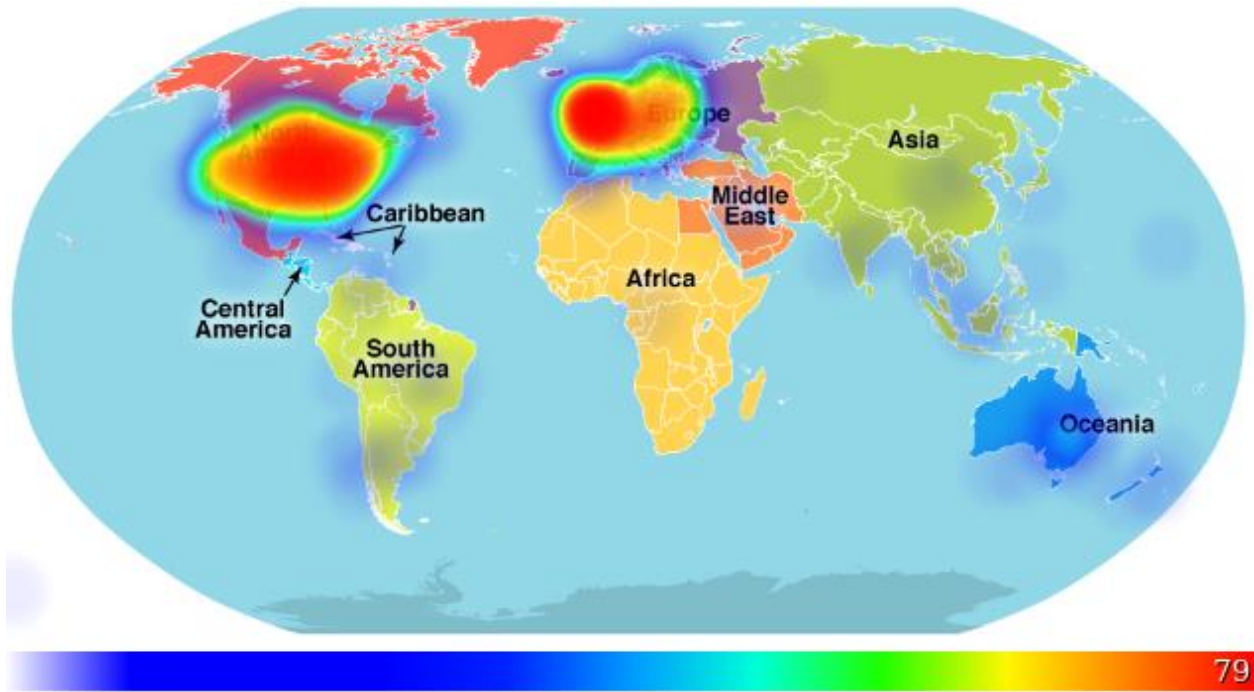
Appendix M

Q27- Please click all places where you have lived for a substantial amount of time (2+ years)

Spotting a Criminal: Examining Perceived Racial Typicality in Violent and Non-violent Crimes

Krystia Grembocki[18]

As humans, we rely on our eyes to help us understand the world around us. While this seems like the ultimate asset, it is also detrimental because our eyes are often deceiving. Specifically, when we use visual information to draw conclusions about other people, our perceptions are shaped by what we see, and sometimes such information is misleading and inaccurate. The present study's purpose is to identify how visual information (i.e. race) influences our judgement of criminals who have committed violent and non-violent felony crimes. Participants were shown lineups containing headshots of four male criminals, which varied in race (i.e. Black, White, Asian, and Latino), and they were asked to determine which criminal they believed was responsible for 10 violent felony crimes and 10 non-violent felony crimes. I hypothesized that the nature of the crime would impact participants' perception of who committed each crime. Furthermore, I predicted that the amount of time it would take for participants to determine a suspect would vary by crime, and that participants' race would influence who they found responsible for each crime. The findings indicated that racial typicality was evident, and it is possible that new patterns of racial typicality among minority groups are also emerging.

Stereotypes play a prominent role in our everyday lives. Without thinking about it, we often categorize people and make assumptions about their character simply as a result of the visual information we observe about them. The problem with this is that it leads to biased perceptions and inaccuracies in our assessments of other people, which can be detrimental in many ways. Stereotypes are especially damaging in a criminal context because they can lead to wrongful convictions and unfair sentencing, as well as misidentifications in a criminal lineup, which affect thousands of people who are unfairly implicated in the justice process each year.

[18]Krystia Grembocki, Department of Psychology, Lindenwood University. Correspondence concerning this research paper should be addressed to Krystia Grembocki, Department of Psychology, Lindenwood University, St. Charles, MO 63301 or Email: klg997@lindenwood.edu

Perceived racial typicality describes the stereotypes that are often made regarding assumptions about the behavior and attitudes of people belonging to different races. Researchers in this field focus on crimes that are perceived as "stereotypical" of people belonging to various races. Primarily, this research pertains to differences between Black and White criminals and often emphasizes the attribution of guilt in criminal trials. Simulated jury trial studies have repeatedly suggested that there is a difference in the treatment of Black and White criminal offenders based on the crimes which they are perceived as "likely" to have committed. Specifically, Black defendants who commit illegal acts involving drugs, harming another person, and stealing are more likely to be found guilty and to be punished more harshly than offenders of another race (Jones & Kaplan, 2003; Sunnafranks & Fontes, 1983). On the other hand, attributions of guilt and harsher sentences tend to be made for White offenders when they commit white collar crimes (e.g. fraud, forgery, embezzlement, etc.), crimes against women and children, and sex crimes (Gordon, Bindrim, McNicholas, & Walden, 1988; Jones & Kaplan, 2003; Sunnafranks & Fontes, 1983).

Perceived stereotypicality has also been examined in eyewitness testimony and lineup identification. It is widely accepted that people make associations and develop attributional labels about faces according to their own schematic categories (Klatzky, Martin, & Kane, 1982). These categories are likely the result of subjective experience and expectations about others' dispositions based on the presence or absence of certain facial features, as evidenced by the 'What is Beautiful is Good' effect – the idea that attractive people are perceived as having positive character qualities and unattractive people are perceived as having less positive qualities (Dion, Berscheid, & Walster, 1972). The problem these facial attribution associations pose, according to Kleider, Cavrak, and Knuycky (2012), is that people may be more influenced by facial structure than by skin color when assessing stereotypicality in witness lineups.

Unfortunately, it is difficult to tease apart the effects of various physical features, such as attractiveness and skin color, because they are processed simultaneously as critical pieces of visual information. Furthermore, they are both used to assess the extent to which someone "looks" like a criminal; this means it is nearly impossible to determine whether facial structure or skin color alone has more of an impact on whether people appear as criminals or not. However, it has been made evident that there is a relevant difference in facial processing for Black and White faces. That is, the more "Black" an individual appears (e.g. the more stereotypical facial features they possess), the more likely that person is to be identified as a criminal in a witness lineup, a finding that is both frightening and detrimental to the criminal justice process (Kleider et al., 2012). Moreover, people tend to label those with stereotypically "Black" facial features as criminals much more quickly than those with stereotypically "White" facial features. Perhaps, this is a result of racially stereotypical facial features breeding a sense of familiarity, and thus leading to misidentification of the correct criminal in a lineup (Knuycky et al., 2013).

Despite these findings, little attention has been paid to other racial and ethnic minority groups, such as Latinos and Asians, which is perhaps a shortcoming of the literature that currently exists on perceived typicality in criminal contexts. The present study aimed to identify how people make determinations about who is most likely to commit violent and non-violent felonies when given four different offenders to choose from in a criminal lineup: White, Black, Asian, and Latino. Additionally, the present study included a time element, meaning that participants' response times were recorded for evaluating each crime and analyzed to determine whether it took less or more time to select some races over others. Another factor differentiating the present study from that of previous researchers is the present study sought to uncover implicit associations and stereotypes by mitigating contextual effects of each crime (i.e. not including a crime scenario, but rather just a crime with its corresponding definition).

In concordance with previous findings on perceived racial typicality in crimes (Gordon, et al., 1988; Jones & Kaplan, 2003; Sunnafranks & Fontes, 1983), I wanted to know whether there are differences in the perception of who committed a crime relative to the nature of the crime. Specifically, I hypothesized that participants will attribute criminal responsibility for drug crimes, violent crimes against people, and stealing crimes (e.g. possession of a controlled substance, assaulting a police officer, elder abuse, murder, robbery, and unlawful use of a weapon) to Black suspects more than to White suspects or Asian and Latino suspects. I also predicted that White suspects will be selected more frequently than other suspects for white collar crimes (e.g. forgery and money laundering), crimes against children and women (e.g. kidnapping, child abuse, and possession of child pornography, and domestic assault), and sex crimes (e.g. rape and patronizing prostitution) than suspects of other races. Overall, I believed that Black and White suspects would be selected more often than Asian and Latino suspects for all crimes.

In addition, I wanted to investigate whether the amount of time it takes to determine a suspect varies by crime. Since Knuycky et al. (2013) found that time is a relevant factor when evaluating faces and making criminal attributions, I assumed that participants will have a longer response time, on average, when selecting the suspect in violent crimes than in non-violent crimes. I also predicted that participants' average response time would be longer for Black suspects than for White suspects, regardless of the crime.

Lastly, I sought to examine whether the race of a participant had impact on whom they select as responsible for each crime. I hypothesized that participants would be less likely to attribute criminal responsibility to suspects with whom they share their racial identity. These variables were assessed using an online survey.

Method

Participants

Participants for this study were recruited from several sources, including social media sites such as Reddit and Facebook. Additionally, participants were recruited through the Psi Chi website (www.psichi.org); Psi Chi is the international honors society for undergraduate psychology students, and one of the benefits of membership is posting and participating in research studies on the site. Finally, participants were recruited through the Lindenwood Participant Pool (LPP), which is a subject pool at Lindenwood University that allows students to participate in undergraduate research studies for bonus credit.

In total, recruitment efforts yielded a sample of 105 participants. There were 76 women and 28 men, ranging in age from 18 to 73 years ($M_{age} = 27.2$, $SD = 11.0$). Most participants were White/Caucasian American (76.2%), but the sample also included Black/African American (8.6%), XX Hispanic/Hispanic American (7.6%), XX Asian/Asian American (1.9%), bi-racial individuals or other individuals (5.7%). Most participants identified as having at least a two-year college degree (56.2%) and being employed full or part time (53.3%) or maintaining student status (33.3%). Non-LPP participants were given the opportunity to enter a drawing for a $25 Amazon gift certificate. Participants recruited through the LPP were granted one bonus credit toward a course for participating in the study.

Materials

Recruitment materials. Participants who were recruited through Reddit, Facebook, and the Psi Chi website were provided with a study link and recruitment description indicating that they would be asked to quickly determine who they believed the criminal to be in a lineup for several different crimes. LPP participants were recruited through a link, which was posted on Sona Systems, using a similar recruitment description about the study (see Appendix A).

Suspect pictures. Pictures of suspects were headshots provided by the Chicago Face Database (Ma, Cornell, & Wittenbrink, 2015). All pictures showed young men with short hair, little to no facial hair, a neutral facial expression, and no outstanding or unusual facial features. Pictures of 10 White men, 10 Black men, 10 Asian men, and 10 Latino men were used for the study (see Appendix B).

Survey. The online Qualtrics survey in the present study consisted of 20 questions. Each question showed the name of a violent or non-violent felony crime, a brief description of the crime, and four pictures of suspects. Violent crimes included arson, kidnapping, assaulting a police officer, murder, child abuse, rape, robbery, domestic assault, elder abuse, and unlawful use of a weapon. The violent crimes were offset with equally severe, non-violent crimes, such as vandalism, stalking, driving while intoxicated, patronizing prostitution, trespassing, forgery, possession of a controlled substance, leaving the scene of an accident, possession of child pornography, and money laundering.

Each lineup consisted of one White man, one Black man, one Asian man, and one Latino man, from which the participant could choose a suspect responsible for the associated crime. It should be noted that the suspects' pictures were randomized and used for lineups in two different crimes, but the order in which those pictures were presented varied. For example, for the first crime, vandalism, the order of the suspects was as follows: Asian, Black, White, Latino. For the second crime, Arson, suspects were presented as Latino, Asian, Black, and then White. Suspects in the third lineup were presented in the order of White, Latino, Asian, and Black. In the fourth lineup, they were shown as Black, White, Latino, and Asian, and so on. Systematically manipulating the order of the races as they were presented in each lineup helped to serve as a control for mitigating potential order effects (see Appendix C).

Procedure

Upon accessing the link to the survey, participants were asked to read and agree to the electronic consent statement. They were subsequently redirected to the survey and were provided with a prompt explaining the task of identifying the suspects in a series of crimes as quickly as possible. After answering all 20 survey questions, participants were asked to complete a demographic questionnaire on their gender, age, racial identity, education, employment status, profession, and income. Following this, participants were provided with a debriefing statement, which explained the purpose and method of the study. Non-LPP participants were then redirected to another page containing a link for the option to enter their email address for the Amazon gift certificate drawing.

Results

My first hypothesis was that there would be a significant difference in the perception of who committed certain crimes, based on the type of crime. Specifically, I believed Black suspects would be selected more frequently for stereotypical "Black" crimes – that is, those involving drugs, violence, and theft. A frequency count indicated that Black suspects had a selection rate of 23.5%, White suspects had a rate of 35.7%, Latino suspects had a rate of 22.7%, and Asian suspects had a rate of 18.1% for these crimes. A 4 (race) x 3 (crime category) chi-squared analysis was conducted to determine whether suspect race – White, Black, Asian, Latino – and crime category – drugs, violence, and theft – had a significant interaction. The results revealed that there was a statistically significant difference in the selection rate between these groups, $\chi^2 (8, N = 105) = 39.4, p < 0.01$. However, given that White suspects had the highest selection rate for these crimes, my hypothesis was not supported.

I also thought White suspects would be selected more for stereotypical "White" crimes – those involving financial matters, women and children, and sexual conduct. For these crimes,

White suspects had the highest selection rate (47.0%), followed by Latino suspects (20.1%), Asian suspects (17.9%), and Black suspects (15.0%). I conducted another 4 (race) x 3 (crime category) chi-squared analysis, which indicated that there was also a significant difference in the selection rates between these groups, χ^2 (8, $N = 105$) = 82.1, $p < 0.01$. Because I believed that White suspects would have the highest selection rate for stereotypical "White" crimes, and the chi-squared analysis results confirmed that, my hypothesis was supported.

I also predicted that Black and White suspects would be selected more frequently than Latino and Asian suspects, regardless of the crime type. Descriptive results indicated that, when combined, Black and White suspects had a selection rate of 61.8%, and Asian and Latino suspects had a selection rate of 38.2% for all crimes. A 2 (racial group) x 20 (crime) chi-squared analysis revealed that the difference in the overall selection rate between these groups was statistically significant, χ^2 (19, $N = 105$) = 131.9, $p < 0.01$. Therefore, given that Black and White suspects had the higher selection rate, my hypothesis was supported.

Additionally, I hypothesized that participants would take a longer time to select the criminals whom they believed to be responsible for violent crimes. The average response time for non-violent crimes ($M = 8.62$ s, $SD = 10.11$) was not much higher than the average response time for violent crimes ($M = 8.53$ s, $SD = 10.19$). To determine whether there was a meaningful difference in response times for violent and non-violent crimes, I conducted a paired-samples t-test, which yielded no significance, $t(104) = 1.04$, p = 0.30, meaning that my hypothesis was not supported.

I also predicted participants would have longer average response times for Black suspects than for White suspects, regardless of the severity of the associated crime. Overall, participants actually had a longer average response time when selecting White suspects ($M = 9.48$ s, $SD = 9.25$) than when selecting Black suspects ($M = 8.91$ s, $SD = 5.09$). A paired-

samples t-test indicated that this difference was not significant, $t(104) = -0.62$, $p = 0.54$, and thus my hypothesis was not supported.

Furthermore, I hypothesized that participants' race would have an impact on their selections for each crime; that is, Black participants would be less likely to choose Black suspects, White participants would be less likely to choose White suspects, and so on. This was tested using a 4 (suspect race) x 5 (participant race) chi-squared analysis. The results demonstrated that there was not a statistically significant effect of participant race on suspect selection, χ^2 (12, $N = 105$) $= 26.08$, $p = 0.01$; this hypothesis was not supported.

Finally, a post-hoc analysis was also conducted to identify typicality patterns by race and crime. A frequency count showed that the overall selection rate for all crimes was highest for White suspects (44.4%), followed by Latino suspects (22.5%), Black suspects (17.3%), and Asian suspects (15.8%). A 4 (race) x 20 (crime) chi-squared analysis demonstrated that there was a statistically significant difference in selection rates based on suspect race and the crime committed. Based on this finding, it is worth noting that White suspects were selected most for stalking (72.4%), arson (64.4%), child abuse (61.0%), possession of child pornography (60.0%), driving while intoxicated (52.4%), patronizing prostitution (50.5%), rape (50.0%), domestic assault (49.5%), kidnapping (47.8%), elder abuse (46.7%), assaulting a police officer (42.9%), possession of a controlled substance (35.2%), unlawful use of a weapon (33.3%), and leaving the scene of an accident (31.7%). Latino suspects were selected most frequently for vandalism (50.5%) and murder (42.0%). Black suspects were selected most for trespassing (45.8%) and robbery (37.1%), and Asian suspects were selected most for financial crimes – money laundering (33.7%) and forgery (33.7%).

Discussion

The present study's findings demonstrated that patterns of racial typicality were evident in the context of perceived criminality among different races of suspects. Although somewhat contrary to the findings of Jones and Kaplan (2013), Black suspects were not selected most frequently for stereotypical "Black" crimes involving drugs (i.e. possession of a controlled substance) or violence against another person (i.e. elder abuse, assaulting a police officer, murder, and unlawful use of a weapon), but they were selected most frequently for robbery, which is considered a racially typical crime (Sunnafranks & Fontes, 1983). Similarly, consistent with other researchers' findings (Gordon et al., 1988; Jones & Kaplan, 2003; Sunnafranks & Fontes, 1983), White suspects were selected most for stereotypical "White" crimes involving acts against women and children (i.e. child abuse, possession of child pornography, domestic assault, and kidnapping) and sexual conduct (i.e. patronizing prostitution and rape), but they were not selected most for white-collar crimes, such as forgery and money laundering. Perhaps these findings can be explained by the fact that White suspects had the highest selection rate overall, making them more likely to be selected for both "Black" and "White" crimes than other suspects.

It is also worth recognizing that the present study yielded results that suggest new patterns of perceived racial typicality may also be emerging. For instance, Latino suspects were selected most frequently for the crimes of vandalism and murder. Although there is little empirical evidence that is useful in explaining this finding, it is possible that popular culture is contributing to this pattern in perception; particularly, the media may portray Latinos in certain parts of the world as being associated with gang-related activity, such as vandalism and homicide. Furthermore, although Asian suspects had the lowest selection rate overall, they were selected most frequently for both white-collar felonies that were included in the study: forgery

and money laundering. The association between Asian suspects and financial crimes is unclear, but it still suggests that participants relied on their own schematic categories to determine that Asian suspects were most culpable for these crimes, an explanation that is consistent with that of Klatzky et al.'s (1982) ideas regarding perceived racial typicality.

Although Black and White suspects had an overall higher selection rate than Asian and Latino suspects, the implicit measure of response time did not yield significant results in the context of crime type or suspect race, despite previous findings of Knuycky et al. (2013). As mentioned, there were very small differences in the average response times for violent and non-violent crimes, as well as for Black and White suspects. What this suggests is that crime severity and suspect race may not have a substantial effect on how long it takes for people to determine who looks most responsible for committing a crime.

I also found that participant race did not have an effect on suspect selection by race. That is to say that participants were no more or less likely to select suspects with whom they shared their racial identity. However, it should be noted that the actual p value was slightly higher than the alpha level of 0.01, which suggests that, had I recruited more participants, it is possible that my initial hypothesis would have been supported at this alpha level.

The present study had several potential limitations. For example, only 105 participants were recruited. While this is not a small sample size, my findings would be more generalizable with a larger group of participants. With a larger sample size, it is also possible that I would have found significance for some of my refuted hypotheses, such as that regarding the effect of participant race on suspect selection.

Additionally, it is possible that the present study's design was flawed in a few ways. First, no context was provided regarding the criminal act. To avoid confounding the results, I decided not to provide a detailed account of the crime because I wanted participants to make

quick judgments about culpability based on visual information alone; specifically, I did not want

participants to use details of the occurrence to make their decisions about which suspect

committed each crime. Secondly, it is possible that the race of certain suspects may not have

been transient enough. For example, it may have been difficult for participants to determine

whether some suspects were Asian or Latino due to the presentation of similar skin tones or other

facial characteristics, whereas it is likely that participants did not have much difficulty

differentiating Black and White suspects. Third, it is also possible that my crime list

was ineffective or inadequate in some way (e.g. too many crimes used, lack of diversity in

perceived severity, unfamiliarity, etc).

Lastly, some participants who were recruited through Reddit reported feelings of

discomfort and discontentment in "profiling" suspects for certain crimes; a few of these

participants stated that they were so uncomfortable in completing the survey that they were

unable to do so. This could be a potential result of two factors. On one hand, Reddit indicates

that its users are moderately liberal, which implies that an underlying liberal bias may have

affected some participants' perspective and ability to finish the survey. Alternatively, it is

possible that, since there is a general awareness of race issues in modern society, especially in

the United States, some individuals may generally feel less comfortable than others in

participating in racially-charged conversations or completing race-oriented research studies.

The present study has provided at least some evidence that people assign stereotypes to

criminals based on their appearance, and more specifically, their race. Going forward,

researchers should continue studying the effects of visual information, such as gender and facial

features, on stereotyping and the perception of culpability in a criminal context. It is important

that we continue our efforts to identify flaws within our justice system, and to find ways to

mitigate their effects, so we are able to preserve the fairness and equality of the criminal justice

process in the United States.

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Appendix A

Recruitment Materials

LPP Recruitment Description:

"Do you think you have what it takes to be a private investigator? Well, several crimes have been committed recently, and we need your help to figure out who committed each one! As a participant, you will be asked to spot the criminals responsible for 20 different crimes as quickly as possible. The study should take no more than 10-15 minutes of your time. Good luck!"

Non-LPP Recruitment Description:

"Do you think you have what it takes to be a private investigator? Well, several crimes have been committed recently, and we need your help to figure out who committed each one! As a participant, you will be asked to spot the criminals responsible for 20 different crimes as quickly as possible.

This online psychology study is for my Independent Research Lab course at Lindenwood University. It is completely anonymous, it should take no more than 10-15 minutes of your time, and upon completing it, you may enter to win a drawing for $25 Amazon gift certificate for completing it!

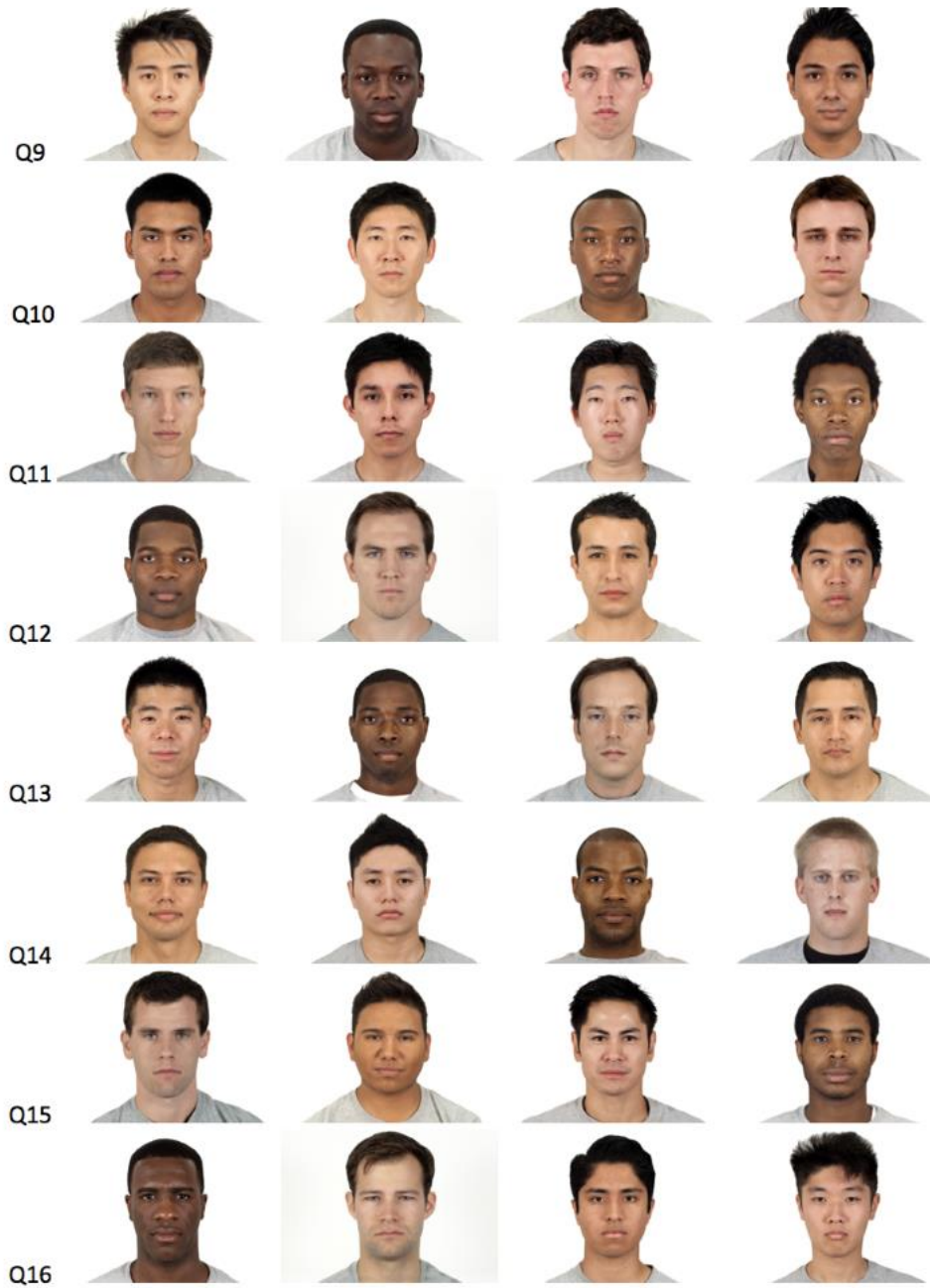Thank you, and good luck!"

Appendix B
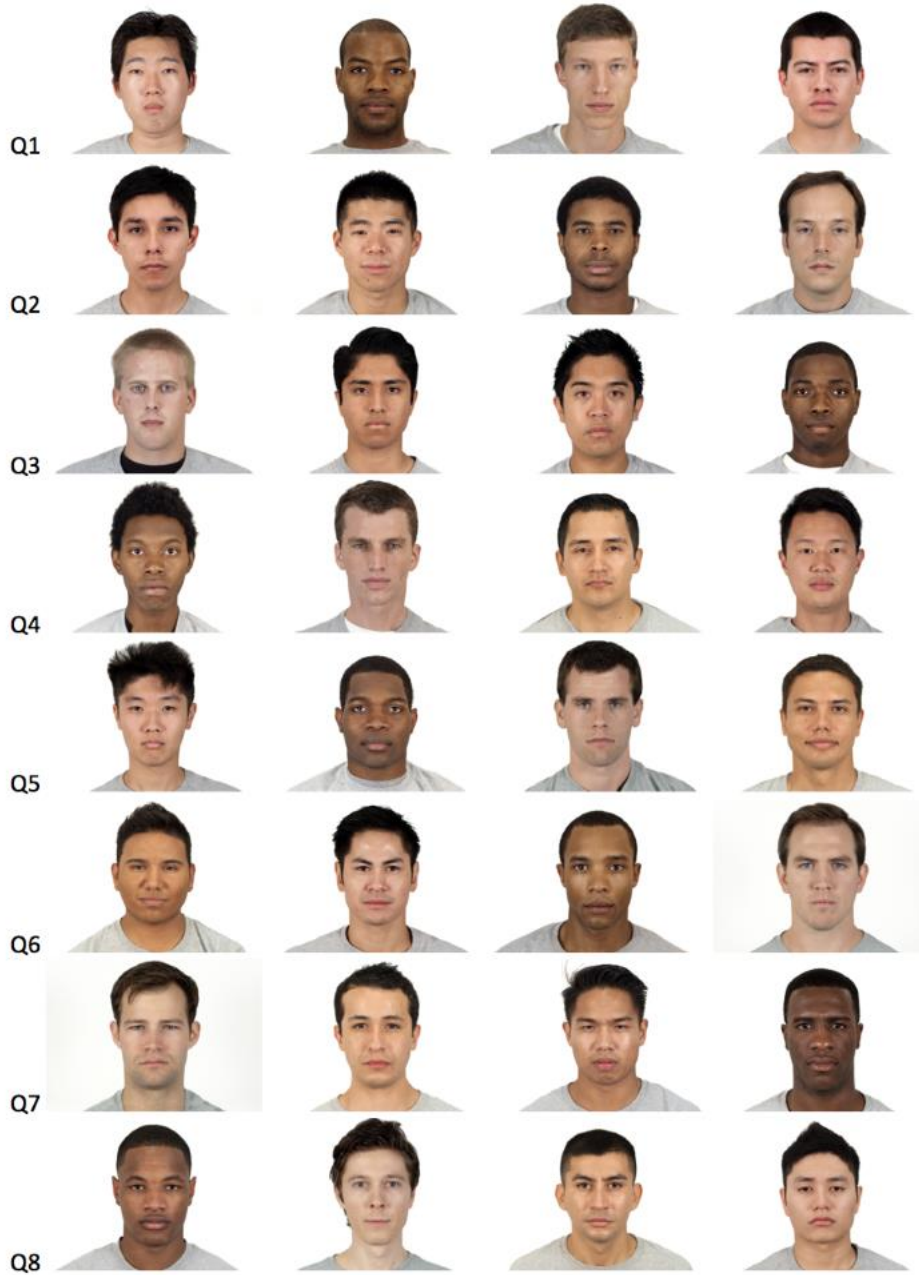
Suspect Pictures/Lineups (Ma et al., 2015)

Appendix B cont.

Suspect Pictures/Lineups (Ma et al., 2015)

Q9

Q10

Q11

Q12

Q13

Q14

Q15

Q16

Appendix B cont.

Suspect Pictures/Lineups (Ma et al., 2015)

Appendix C

Survey

CAN YOU SPOT A CRIMINAL?

A series of crimes have been committed by several individuals recently, and we need your help figuring out who they are! In the following questions, you will be shown a crime and its definition. As the investigator in each case, it is your responsibility to identify the criminal you think is responsible for each crime! Only one criminal can be responsible for each crime committed, so use your best judgement to figure out who it is! Also, remember your performance will be timed, so be sure not to take too long! Good luck!

(1) VANDALISM
Knowingly vandalizing, defacing, or damaging institutional property, such as that of a religious, educational, military, or government building or structure

O   O   O   O

(2) ARSON
Knowingly damaging a building or inhabitable structure by starting a fire or causing an explosion

O   O   O   O

Appendix C cont.

Survey

(3) STALKING

Engaging in behavior without a clear purpose that would cause a reasonable person under the circumstances to be frightened, intimidated, or emotionally distressed

O   O   O   O

(4) KIDNAPPING

Unlawfully removing another person without his or her consent from one place to another

O   O   O   O

(5) DRIVING WHILE INTOXICATED (DWI)

Operating a motor vehicle while in an intoxicated or drugged condition

O   O   O   O

Appendix C cont.

Survey

(6) ASSAULTING A POLICE OFFICER

Knowingly causing or attempting to cause physical injury to a law enforcement officer

O   O   O   O

(7) PATRONIZING PROSTITUTION

Giving something of value to another person as compensation for engaging in a sexual act

O   O   O   O

(8) MURDER

Intentionally and deliberately killing another person without a legally justified reason

O   O   O   O

Appendix C cont.

Survey

(9) TRESPASSING

Knowingly, unlawfully enters into a building or inhabitable structure without permission

O   O   O   O

(10) CHILD ABUSE

Intentionally inflicting physical, sexual, or mental injury against a child

O   O   O   O

(11) FORGERY

Making, completing, altering, or authenticating writing so that it appears to have been made by another person

O   O   O   O

Appendix C cont.

Survey

(12) RAPE

Having sexual intercourse with another person who is incapacitated, incapable of consent, or by the use of force

O   O   O   O

(13) POSSESSION OF A CONTROLLED SUBSTANCE

Knowingly possessing a controlled substance (illegal illicit drugs or chemicals)

O   O   O   O

(14) ROBBERY

Forcibly stealing property and threatening to harm or harming another person, with or without the use of a deadly weapon

O   O   O   O

Appendix C cont.

Survey

(15) LEAVING THE SCENE OF AN ACCIDENT
Using a motor vehicle to flee the place of damage or injury following a motor vehicle accident

O   O   O   O

(16) DOMESTIC ASSAULT
Intentionally causing physical injury to a domestic victim with or without the use of a deadly weapon, or by choking or strangulation

O   O   O   O

(17) POSSESSION OF CHILD PORNOGRAPHY
Knowingly possessing any obscene material that has a child as one of its participants or portrays what appears to be a child as an observer or participant of sexual conduct

O   O   O   O

Appendix C cont.

Survey

(18) ELDER ABUSE

Attempting to kill, or knowingly causing or attempting to cause serious physical injury to any person 60 years of age or older

O   Q   Q   Q

(19) MONEY LAUNDERING

Conducting or attempting to conduct a monetary transaction with the purpose of promoting criminal activity

O   Q   Q   Q

(20) UNLAWFUL USE OF A WEAPON

Carrying a knife, a firearm, or any other weapon readily capable of lethal use in a concealed manner on one's person

O   Q   Q   Q

Appendix C cont.

Survey

DEMOGRAPHICS

Q1. Your gender:
 o Male
 o Female
 o Other, please specify:
 o Prefer not to answer
Q2. Your age: _____
Q3. Your racial identity (please select all that apply):
 o Black/African American
 o White/Caucasian American
 o Hispanic/Hispanic American
 o American Indian or Alaskan Native
 o Asian/Asian American
Q4. The highest level of education you have completed:
 o Less than a high school diploma
 o High school degree or equivalent (e.g. GED)
 o Some college, no degree
 o Associate degree (e.g. AA, AS)
 o Bachelor's degree (e.g. BA, BS)
 o Master's degree (e.g. MA, MS, MEd)
 o Professional degree (e.g. MD, DDS, DVM)
 o Doctorate (e.g. PhD, EdD)
Q5. Your current employment status (please select all that apply):
 o Employed full time (40 or more hours per week)
 o Employed part time (up to 39 hours per week)
 o Unemployed and currently looking for work
 o Unemployed and not currently looking for work
 o Student
 o Retired
 o Homemaker
 o Self-employed
 o Unable to work
Q6. Your current profession: _____
Q7. Your annual income:
 o Less than $20,000
 o $20,000 to $34,999
 o $35,000 to $49,999
 o $50,000 to $74,999
 o $75,000 to $99,999
 o Over $100,000

Appendix C cont.

Survey

DEBRIEFING STATEMENT

Thank you for your participation! The present study was conducted in order to examine perceived racial typicality of felony offenses. Participants were asked to make judgments about which "criminal" was responsible for 10 violent crimes (arson, kidnapping, assaulting a police officer, murder, child abuse, rape, robbery, domestic assault, elder abuse, and unlawful use of a weapon), as well as for 10 non-violent crimes (vandalism, stalking, driving while intoxicated, patronizing prostitution, trespassing, forgery, possession of a controlled substance, leaving the scene of an accident, possession of child pornography, and money laundering). For each crime, participants were presented with pictures of four offenders varying in race (White, Black, Asian, and Latino), and participants' response times were recorded to determine which offenses were more difficult to answer.

I believe that participants will take a longer time to determine which suspect is responsible for committing violent felonies. I predict that participants will attribute criminal responsibility for violent crimes to Black suspects more frequently than to White suspects. Furthermore, I hypothesize that White suspects will be selected more frequently than those of other races in white-collar crimes (such as forgery and money laundering), crimes against children (kidnapping, child abuse, and possession of child pornography), and sex crimes (rape, patronizing prostitution). Additionally, I assume that Asian and Latino suspects will be selected less frequently than Black and White suspects for all crimes. Lastly, I predict that participants will be less likely to attribute criminal responsibility to suspects with whom they share their racial identity.

One potential benefit of this study is that its findings may provide insight into the perception of race and crime in American society. Specifically, it may reveal stereotypes associated with race in the context of criminality, which is a highly relevant issue. In a broader way, this research may indicate that peoples' judgements of character are, at least initially, implicitly influenced by visual information pertaining to appearance.

Please note that the purpose of this study was not to obtain or evaluate your individual results; rather, we are only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for us to trace your responses on an individual basis.

If you are interested in obtaining the final results of this study, or if you have any questions or concerns regarding any portion of this study, please do not hesitate to let the researcher know now or in the future. Contact information can be found at the bottom of this letter.

Thank you again for your valuable contribution to this study.

Sincerely,

Krystia Grembocki &   Dr. Michiko Nohara-LeClair
Principle InvestigatorSupervising Faculty Member
(636) 675-5117(636) 949-4371
klg997@lindenwood.edumnohara-leclair@lindenwood.edu

Non-LPP participants will be re-directed to a second anonymous link after survey which asks for email address for gift certificate drawing. See below.
If you would like to be entered into a drawing for a $25 Amazon gift certificate, please enter your email address. This will not be connected to your survey responses. _____

The Connection among Color, Lighting, and Anxiety

Mariah Palmer[19]

Color is a sensory stimuli that is encountered on a daily basis. There is a great deal of differing information pertaining to color research. Some of this research deals with color associations (Boyatzis & Varghese, 1994; Kaya & Epps, 2014). Other research studies the influence of color on emotional states or physiology (Jacobs & Suess, 1975; Kuller, Mikellides, & Janssens, 2008). Much of the prior research has concentrated on two primary colors; red and blue. The current study will look at the ways in which specific lighting conditions influence mood states, more specifically, anxiety levels. This research will have a goal of recruiting, at minimum, 90 participants. Participants will be tested in a lab setting where a colored light bulb will be manipulated. Color conditions that will be measured are red lighting, blue lighting, and neutral lighting. Anxiety level tests will be completed twice, once to obtain a baseline measure and once after exposure to a color lighting condition to test any effects that color may have had on anxiety. The hypotheses are that when exposed to red lighting, anxiety will increase, when exposed to blue lighting, anxiety will decrease, and participants in the neutral condition will have no significant change in level of anxiety.

One common perceptual experience among humans is the sensory stimuli of color. Moreover, color has many differing roles, for example, there are emotional associations made relative to colors (Boyatzis & Varghese, 1994; Kaya & Epps, 2014). Previous research also suggests that the concept that color may have an influential relationship with various emotional, biological, or psychological responses (Jacobs & Suess, 1975; Kuller et al., 2008). A great deal of previous research focuses on the associations between color and emotion versus an actual implicit influence of color on emotions or mood. However, there is a handful of research that does look at various influences of color on psychological aspects such as purchase likelihood, reaction times, performance, and other impacts (Bellizzi & Hite, 1992; Duncanson,

[19]Mariah Palmer, Department of Psychology, Lindenwood University. Correspondence concerning this article should be addressed to Mariah Palmer, Department of Psychology, Lindenwood University, St. Charles, MO 63301. Email: mkp622@lindenwood.edu

2009; Kombeiz & Steidle, 2018; Wang, Shu, & Mo, 2014). Previous investigations on color have

determined varying results, making it an imperative topic to continue studying.

There is a great deal of information that is relative to color associations. Many

researchers first start color studies by speculating on what types of words or emotions are

associated with different colors. Boyatzis and Varghese (1994) studied children's emotional

associations to color. While specific reactions among the children differed, the ratings for color

were overall positive at 69%. These data are similar to that provided by Kaya and Epps (2004),

later studying adults' color associations, which was that 62.2% of color was rated positively. In

the current research, Boyatzis and Varghese (1994) collected data by showing children nine

different colors on sheets of paper. Researchers tested a total of 30 children. The colors rated as

most "happy" were pink, which 44% of participants rated as happy, then purple (39%), and red

(35%). The more negative attributes were "sad" which 21% reported gray (21%) and black

(16%). Black was identified as being the most "angry" rated color at 24% of children. In

a study by Kaya and Epps (2004), participants were tested to look for trends in emotions that

were related to specific colors. A total of 98 participants with no color-blindness were

shown 13 colors on a computer screen and then asked to give their emotional response to the

color on the screen. With the 13 colors, there were 3 categories that they were separated

into: principal hues, intermediate hues, and achromatic colors. The emotions were then coded to

determine whether they were neutral, negative, or positive associations to the 13 colors

shown. Overall, the frequency of positive association was 792 (62.2%) for all colors with 436

negative (34.2%), and 46 neutral (3.6%). As for principal hues, green was the most positive (94

participants), followed by yellow (92 participants), blue (78 participants), then red and purple (63

participants). The most negatively associated color was gray where 89.8% of participants rated

this unfavorably (Kaya & Epps, 2004). While this study cannot describe implicit emotions

resulting from color, it gives some insight into further color research. For example, if data shows

that participants relate colors to emotions, or moods, it is possible that they do this because they

are physically feeling these emotions. These two studies show that there are significant color

association patterns that remain similar over time and demographic

Another study, which focused on children's color emotions, had children complete an

activity where they used colored crayons to fill in positive or negative emoticons (Annamary et

al., 2016). Upon testing a total of 382 children, the researchers found that the boys colored

in a happy face more often blue (44.8%) and girls colored a happy face more often pink

(63.6%). However, an equal percentage of boys (46.8%) and girls (46.9%) colored in the

negative emoticon with the red shade. The information provided by this study again shows the

trends with color and emotional association (Annamary et al., 2016).

Wang et al. (2014) investigated how the colors blue and red priming conditions would

influence emotional states in participants. In order to do this, they tested 31 Chinese college

students with no color-blindness. To mask the purpose of the study, the task given to the

participants was to decide if a word they were presented with was either true or untrue; however,

the researchers were focused on the time that it took a participant to respond to a specific

word. They used a total of 180 words, splitting them up evenly into positive, neutral, and

negative. The researchers found support for their hypothesis that red induced positive and

negative emotional states and that blue induced positive emotional states (Wang et al., 2014).

In a comparable study looking at task time, Kombiez and Steidle (2018) tested 146

participants to see if performance was facilitated by accent lighting of either blue or

red. Participants were tested, up to eight at a time, in a room that was lit with white lighting and

accent lighted with either red, blue, or white projection. Participants were asked to do multiple

tasks including, mood ratings and regulatory focus (connect the dots activity), preceding ratings

of task difficulty, motivation, and fun. Participants were measured on each of these items

including speed and accuracy of regulatory focus activity. The results of this study indicated that

the room lighting significantly influenced the regulatory focus activity in speed; however, it did

not significantly report that the lighting influenced accuracy of the task. The data did not show

any statistically significant support for any influence on other measured variables

(Kombiez & Steidle, 2018).

        Studies have also been completed researching the influence that color has on businesses,

or selling opportunities. Bellizzi and Hite (1992) did a two-part study to gather data on the

feelings of consumers. In the first experiment, researchers tested 70 women and only exposed

each participant to only one of the conditions. The two conditions in the study were either

a red projection or a blue projection on the wall. The projectors gave information on four

television options and participants were asked to decide which one they would prefer to

purchase, along with one option to purchase none at all. The data of this experiment showed

significant differences between the two conditions. In the red condition, more participants (39%)

selected none at all versus less participants (18%) selecting this option in the blue

condition. Additionally, the average theoretical amount spent in the two conditions was less in

the red condition ($314) versus in the blue condition ($458). The researchers found that no other

factors, such as time spent shopping, age, education, or income influenced their

results (Bellizzi & Hite, 1992). In a continuation of this study, 107 undergraduate students were

questioned in color conditions of red and blue. In the second part of the experiment, researchers

were curious about the interior settings of a furniture store and whether it would influence

purchase choices. Participants were shown slides of the interior of this particular store in either

the red or the blue condition and then asked about their opinions of the store. Similar to first

experiment, blue and red provided significant differences (Bellizzi & Hite, 1992).

In a more dated study, looking at trait anxiety and color exposure, Jacobs and Suess (1975) tested 40 undergraduate students by exposing each of them to a color condition and measuring their anxiety after periods of time. Participants were randomly assigned to either blue, red, green, or yellow. Participants were then given the State-Trait Anxiety Inventory that they would fill out 3 times, spending a total of 5 min on each. The data show that the blue and green ($M = 30.47$) conditions significantly differed from the two other color conditions, red ($M = 42.70$) and yellow ($M = 41.10$) at the $p < .025$ level. These data are consistent with previous data that show how red is a more arousing than blue or green (Jacobs & Suess, 1975).

Much like this study, Kuller et al. (2008) completed a three-part experiment looking at the arousal impacts of different colored rooms by comparing a multi-colored room versus a gray room and then a red versus blue room. In the first experiment, researchers measured the arousal levels of 12 participants exposed to both conditions. The two conditions were the colorful room and the gray room. They found that there was no significant difference in the assessment of emotional state between the two conditions (Kuller et al., 2008).

Previous research provides both data that supports and does not support the current study, making it even more essential to continue looking for answers. Knowing that color may influence mood, arousal levels, decisions, and even task or time management, the current study will look at how lighting may influence levels of measured anxiety. Similar to studies like Bellizzi and Hite (1992) or Kombiez and Steidle (2018), the current study will use artificial colored lighting to test three hypotheses. Bellizzi et al. (as cited in Bellizzi & Hite, 1992) provide the information that warmer colors (such as red) are more arousing than cooler colors (such as blue) which are the reasoning for the following hypotheses. The first, is that participants in red lighting will have increased anxiety from pre- to posttest. The second is that

participants in blue lighting will have decreased anxiety from the pre- to posttest. The third hypothesis is that participants in the control setting will have no change in measured anxiety.

Proposed Methodology

Participants

For this research study, participants will be recruited through the Lindenwood Participant Pool (LPP), through flyers placed around the campus of Lindenwood University, and online through Facebook. The anticipated participant count is 90 participants, with 30 per condition. As a result of only being able to recruit a sample of convenience, a majority of the participants will be college students from Lindenwood University. However, all consenting adults will be allowed to participate. Participants will be compensated in one of two ways; those recruited through the LPP will earn two bonus points while participants recruited from flyers or Facebook will be given the option to enter a drawing for a $25 Amazon e-gift card.

Materials and Procedure

The anxiety scale, derived from Abdel-Khalek (2000), and demographic questionnaires will be set up online using Qualtrics (see Appendices A and B for questionnaires). The questions utilized to measure anxiety will be adapted so that an equal number of each question type will be distributed for the pretest and the posttest. No other changes to the questions or to the measuring of the questions will be made. The demographic questionnaire will be designed by the primary investigator. A secondary survey will be utilized so that non- LPP participants would be able to submit their email address with confidentiality (see Appendix C). This information will be necessary for the participants who wish to enter into the e-gift card drawing. This second anonymous survey will be used to ensure that no records of the participants would be traced back to their data provided. Participants will fill out the surveys on an iPad to warrant privacy for those who take it. The activities for the participant

to select from will also consolidated by the primary investigator from a variety of webpages (see

Appendix D for activities and links to webpages). These activities will be offered on paper, in

the testing room. Participants will be given non-colored pencils to fill out the activities if they

choose to do so. The room that the participant is in will be one of three colors: blue, red, or

neutral white lighting. The lightbulbs used are the Phillips Hue which adapt to many different

colors to keep setting up the study simple. The lightbulbs will be inside of lamps rather than in

ceiling lights; however, the ceiling lights will be turned off in all conditions.

When participants meet at the location, they will first be asked to fill out the informed

consent and agree to participate. Following this, participants will then answer the pre-test

outside of the testing room. They will then enter the testing room where they have the option

of partaking in the offered activities or just sitting in the colored room. When participants enter

the testing room, they will be asked to refrain from using their own cell phones as it may

interfere with the collected data. They will be timed for a total of 7 min on the primary

investigator's cellular device. After the 7 min, they will take the post-test inside of the testing

room while still under the influence of the color, or non-color stimuli. Upon completion,

participants will be debriefed on the purpose of the study and thanked for their

contribution. Non- LPP participants will be given the option to provide their email on the second

anonymous survey. After all data is collected, the e-gift card drawing will take place by

encoding the participants by number and using a random number generator. Additionally, upon

collection of data, statistical analyses will be conducted using SPSS and Microsoft Excel.

Projected Results

The anticipated results of this research study are that red and blue lighting color will have

an impact on anxiety levels. Statistical analyses will be conducted to see if red lighting increased

participant anxiety, if blue lighting decreased participant anxiety, and if there was no change

among participants in the control condition. Using either SPSS or Excel, related samples *t*-tests will be conducted to look at each of the lighting conditions (red, blue, and control). Descriptive statistical analyses will also be conducted to look at the demographics of the participants in all conditions.

Discussion

As mentioned earlier, there are varying conclusions drawn about the influence that color and lighting have on mood states. This study is proposing to look at how color, lighting, and anxiety intersect and to hopefully provide more information regarding this area of literature. This research will tentatively offer suggestions on how color influences mood so that changes could be made in our daily lives to reflect the data. For example, if the color red shows to increase anxiety, then suggestions can be made to decrease the amount of red one is exposed to per day. Not only that, but it may also increase interest in this area of study and further encourage researcher to study how color influences our daily lives.

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Appendix A

Q1 Please rate your feelings of the following on a scale of 1 (rarely) to 4 (always).

	1 (1)	2 (2)	3 (3)	4 (4)
My nerves are strained. (1)	○	○	○	○
I feel frightened. (2)	○	○	○	○
I suffer from short breath. (3)	○	○	○	○
I think of things that worry me. (4)	○	○	○	○
My heart beats fast. (5)	○	○	○	○
I get dizzy. (6)	○	○	○	○
I expect bad things to happen. (7)	○	○	○	○
I am a nervous person. (8)	○	○	○	○
My heart beats are irregular. (9)	○	○	○	○
I feel nervous. (10)	○	○	○	○

Q2 Please rate your feelings of the following on a scale of 1 (rarely) to 4 (always).

	1 (1)	2 (2)	3 (3)	4 (4)
I am afraid of losing self-control. (1)	○	○	○	○
I am tense. (2)	○	○	○	○
I feel anxious. (3)	○	○	○	○
I am not at ease. (4)	○	○	○	○
I worry of the future. (5)	○	○	○	○
I feel unstable. (6)	○	○	○	○
My muscles feel tense. (7)	○	○	○	○
I feel jittery. (8)	○	○	○	○
I feel worried. (9)	○	○	○	○
I am restless. (10)	○	○	○	○

Appendix B

Q3 How would you define your current gender identity?
- o   Female (1)
- o   Other, please specify (2) _____
- o   Male (3)

Q4 What is your age?

_____

Q6 Which of the following activities did you participate in during your time today? Please select all that apply, even if you did not complete the task.
- Word Search (1)
- Word Scramble (2)
- Crossword Puzzle (3)
- Sudoku (4)
- Maze (5)
- Other, please specify (6) _____

Q7 Select the following words that would describe your experience in the testing room, please select all that apply.
- cheerful
- energetic
- exciting
- Irritating
- loud
- neutral
- noisy
- peaceful
- quiet
- restful
- sad
- warm

Q5 Do you have any type of color blindness?
- o   Yes, please specify (1) _____
- o   No (2)

End of Block: Demographic

Appendix C

Q1 Please provide an email that I can use to contact you if you win the gift card drawing:
_____

Appendix D

Crossword Puzzle
http://www.whenwecrosswords.com/crossword/earth/264437/crossword.jsp
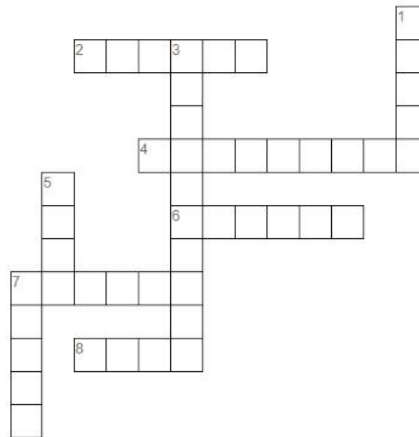
Earth

Across

2 Small areas of Earth's crust that rise above water.
4 Very large areas of land; there are seven _____ on Earth.
6 The crust is broken into many pieces called _____.
7 The layer beneath the crust made of melted rock called magma.
8 The center of Earth.

Down

1 The outer layer of Earth.
3 A blanket of gases, including oxygen, on the surface of planet Earth.
5 Hot magma that comes out of a volcano.
7 Melted rock in the Mantle.

Crossword Puzzle
http://www.whenwecrosswords.com/crossword/earth/251019/crossword.jsp

Earth

Across

3   the dense metallic center of the Earth
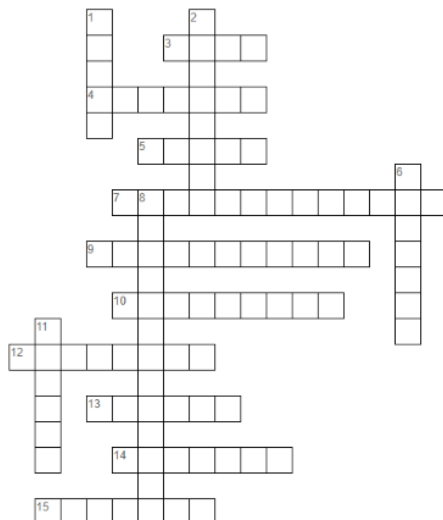4   the investigation and exploration of natural events and of the new information that results from those investigations
5   landforms with low relief and low elevation
7   the outer part of the magnetic field that interacts with these particles
9   the crust and the uppermost mantle grouped into a rigid layer by scientists
10 Earth's entire solid body
12 topographic features formed by processes Earth's surface
13 shaped like a ball, with all points on the surface at an equal distance from the center
14 the amount of mass in a material per unit volume
15 areas with low relief and high elevation

Down

1   the brittle rocky outer layer if the Earth
2   landforms with high relief and high elevation
6   the force that every object exerts on all other objects because of there masses
8   the plastic layer within the mantle
11 the thick middle layer in the solid part of the Earth

Word Search

All About Plants

```
M R E P S O I G N A C S S F G E O O
J X Y L E M K N F S O H T R F S O A
E N O C I S A W M X N B N U M O S S
D P G U S K I A A F I Q A I O C A U
F U D M E O L F K T F G L T V U E L
T E N D M L U R M I E O P G V L N R
M V Q P J P A P K A R R S H G G O E
S D C A R B O N D I O X I D E S N W
E U E E R O Z L S P E N N V E S V O
B C N T L A T R L E L G D S G E A L
N O O L C S L E N I T I R A F L S F
R S E M I E P U C E N Y G A V D C B
E T L O P G T O C T G A H H L E U R
F O P S L L H O R S E Y T P T E L A
M M M A E M E T R E A D X I O S A G
W A I T A L L X T P S V N O O Y R U
R T S S F G Y M N O S P E R M N R S
J A D E D E E S M X P T R O H S L B
```

ANGIOSPERM	LARGE	SEEDS
BARK	LEAF	SHORT
BRYOPHYTES	LIGHT	SIMPLE
CARBON DIOXIDE	MEDUIM	SMALL
COMPLEX	MOSS	SPORES
CONE	NAKED	STOMATA
CONIFER	NONVASCULAR	SUGAR
FERN	OXYGEN	SUNLIGHT
FLOEM	PLANTS	TALL
FLOWER	POLLINATION	UNPROTECTED
FRUIT	PROTECTED	VASCULAR
GLUCOSE	SEEDED	WATER
GYMNOSPERM	SEEDLESS	XYLEM

http://www.whenwewordsearch.com/word_search/all_about_plants/23262/word_search.jsp

Word Search

http://www.whenwewordsearch.com/word_search/earth/38/word_search.jsp

Earth

Spot words to describe Earth

```
I  S  E  E  V  D  N  E  R  O  C  R  E  T  U  O  E  K
C  T  R  L  Y  Y  Y  K  A  D  K  L  T  F  J  L  T  V
C  N  E  J  T  C  J  E  H  J  R  O  R  M  T  A  Z  X
U  E  H  Q  P  E  P  E  Y  S  M  E  W  N  R  B  Y  T
Z  N  P  L  U  J  C  L  D  Y  O  Y  A  E  N  S  A  P
Q  I  S  U  R  X  X  T  R  E  V  M  Y  Z  D  O  Q  V
M  T  O  W  E  A  Y  Y  O  G  R  A  V  N  E  H  O  N
V  N  R  G  T  L  F  D  G  N  L  O  A  D  O  Z  D  M
C  O  D  K  A  N  P  N  E  E  I  L  C  C  L  W  G  L
D  C  Y  H  W  J  P  K  N  B  S  C  E  R  T  R  Y  B
R  T  H  N  T  M  E  O  F  I  G  A  P  E  E  U  O  Y
I  X  O  J  L  B  Z  N  U  D  N  Y  R  L  J  N  W  W
H  V  F  C  A  O  Q  J  E  S  U  R  J  M  A  A  N  E
T  N  S  F  S  Y  H  P  L  M  A  Z  Q  Y  E  T  H  I
B  U  V  W  E  L  R  Y  O  X  I  M  K  I  X  M  E  A
N  H  R  D  I  O  R  E  H  P  S  E  T  A  L  B  O  S
V  V  D  N  E  R  T  E  N  A  L  P  E  U  L  B  E  Y
M  P  A  U  D  V  G  E  Z  G  N  Z  S  U  E  Z  L  R
```

BLUE PLANET	MANTLE	SALT WATER
CONTINENTS	MOON	SUN
HYDROGEN FUEL	OBLATE SPHEROID	TECTONIC PLATES
HYDROSPHERE	OCEANS	TERRA
INNER CORE	OUTER CORE	THIRD
ISLANDS	OZONE LAYER	WORLD

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Sudoku
https://www.websudoku.com/?level=3

9		5	4					
		4	3				5	
		2			6	7		
				4		5		
5	4			2			7	9
		6		1				
		9	5			8		
	2				7	9		
					1	4		3

Sudoku
https://www.websudoku.com/?level=3

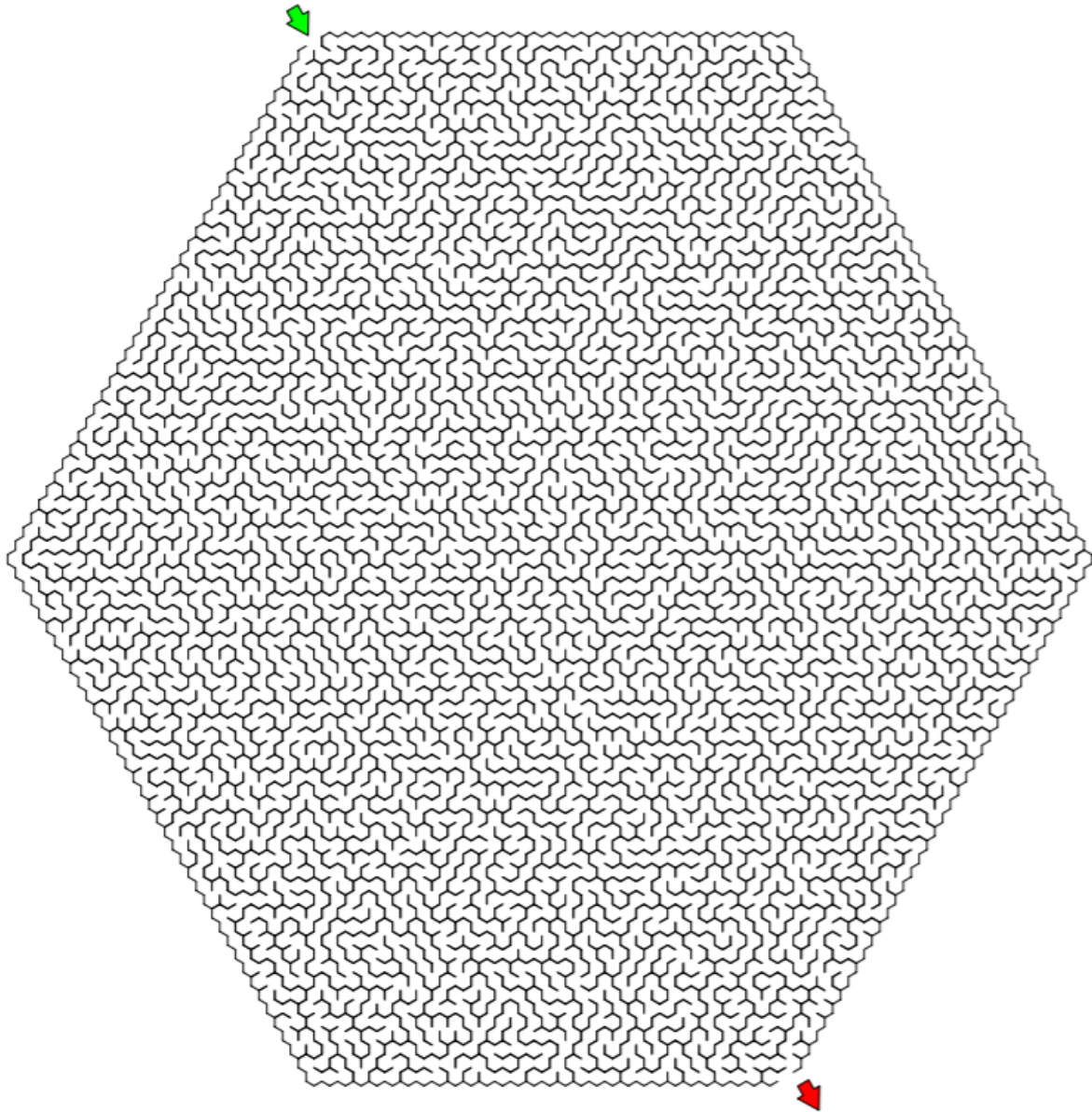| 3	2			4	7			5
8					3	6	4	
5		4						
				1				
2		8				3		4
				3				
						4		1
	5	6	4					7
4			1	8			5	9

Maze Game
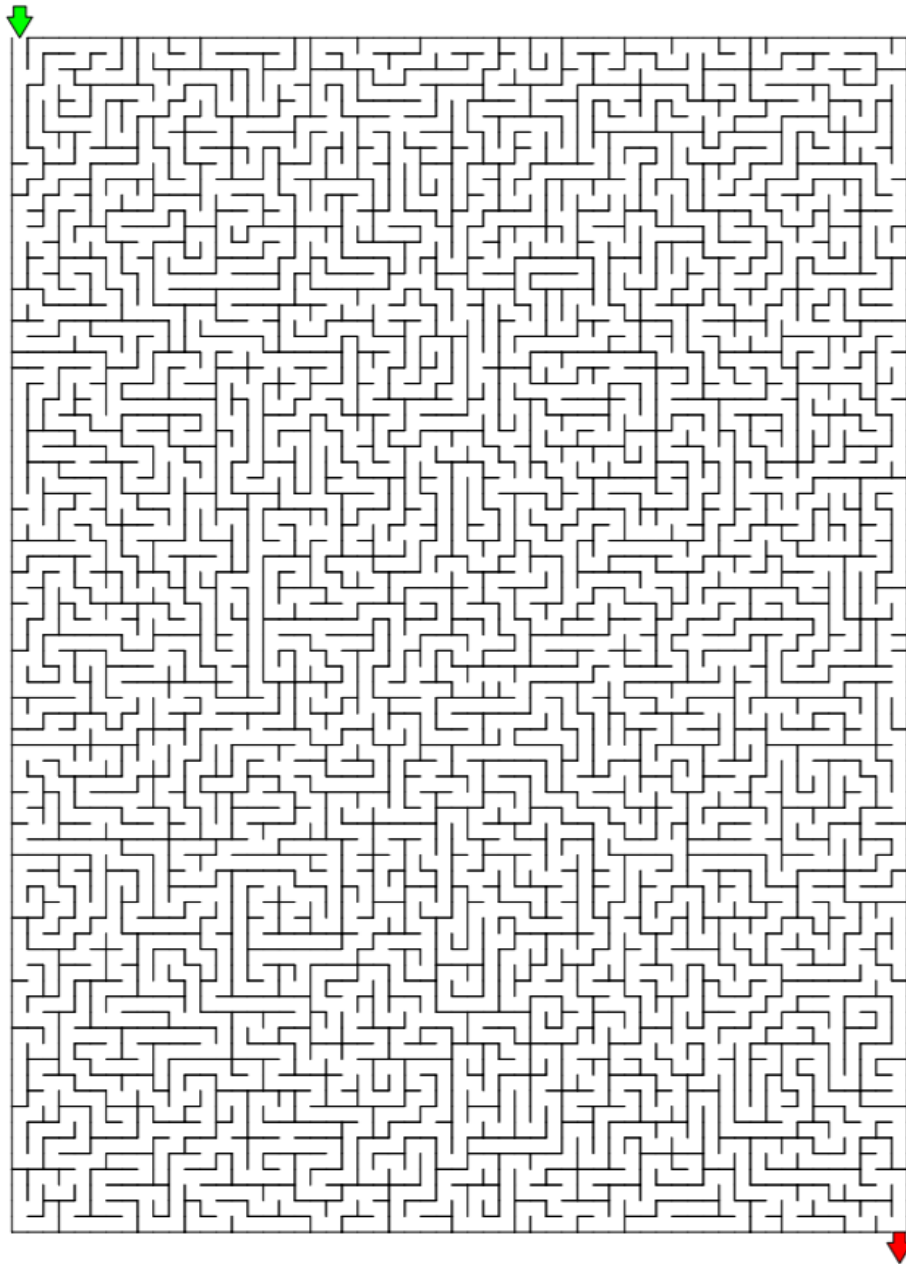
https://krazydad.com/mazes/sfiles/KD_Mazes_ST_v8.pdf

Maze Game
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Free Drawing