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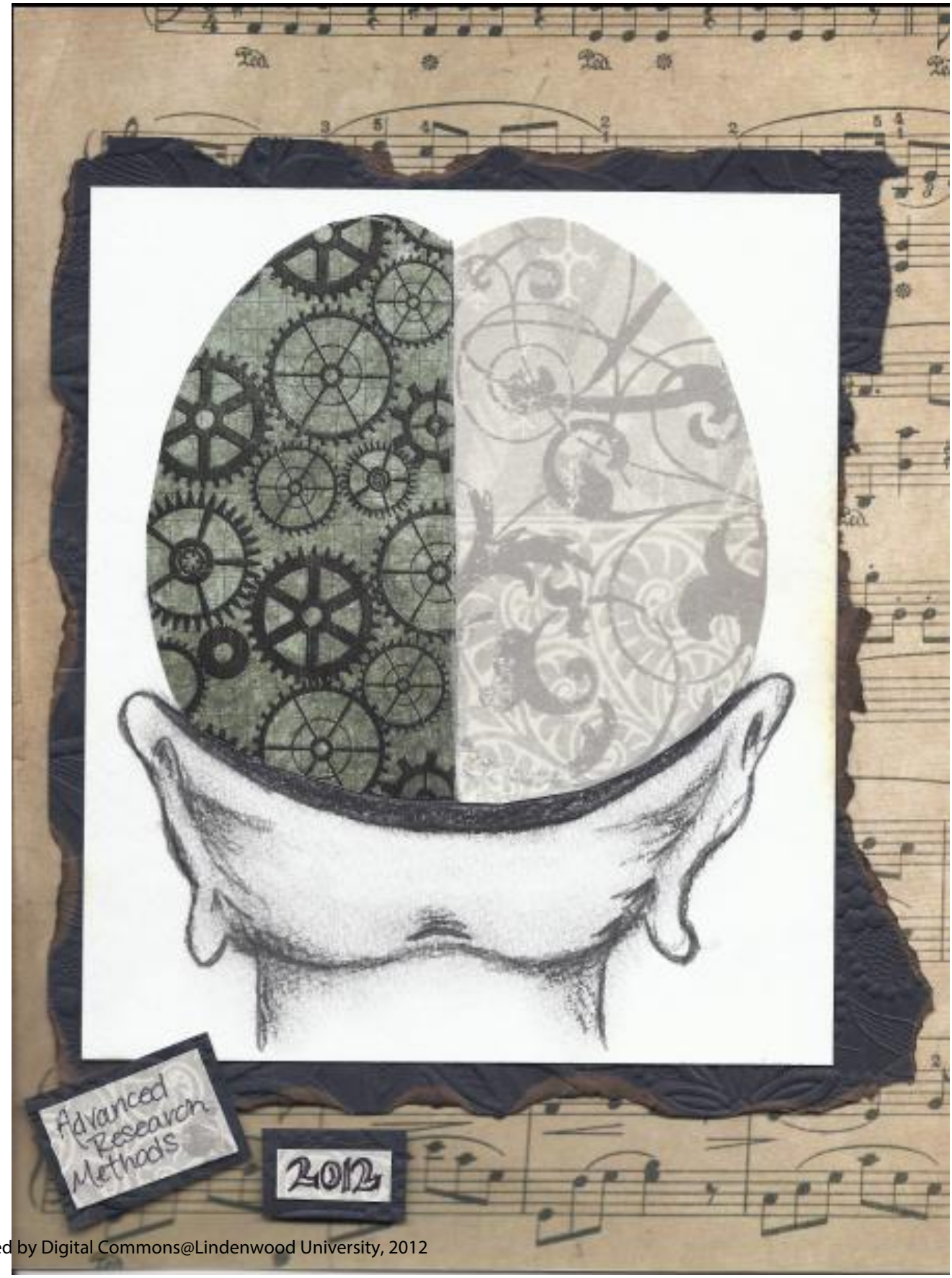

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SENIOR THESIS PAPERS

Prologue

I am very excited to present the Undergraduate Student Research Journal for Spring semester of 2012. Many of the students in the Advanced Research Methods class this semester were probably some of the hardest working I have ever encountered. With only 11 students, we still had 15 journal cover designs turned in, and the competition was fiercer than ever before. The ultimate winner of the cover design was Sam Ollie. But there were two second place winners and three third place winners; we have never had such a close race! In addition, every semester, I provide students with feedback on their final paper draft, inviting them to make edits or revisions before I publish their paper in our online journal. Each semester, there has been at best, one student who would take me up on my offer. This semester, an unprecedented four students (more than a third of the class) elected to take the time to make final edits based on my feedback.

I am very proud of my students' accomplishments, and I know that you will enjoy the fruits of their hard work.

Enjoy!

Michiko Nohara-LeClair

Course Instructor

The Universality of Emotional Facial Expressions across Culture

And Implications for Survival

Lindsay Trefney[1]

Emotion is one of the greatest links for human interaction. Emotion allows people from culture to culture to relate to and communicate with one another when language barriers exist. Emotional facial expressions were once thought to be culture specific, much like the emotions attached to those expressions. Research exists suggesting facial expressions across culture must be universal based on Darwin's theories of evolution and survival (Ekman & Friesen, 1971; Hansen & Hansen, 1988; Hock, 2009; Pinkham, Griffin, Baron, Sasson, & Gur, 2010; Rosenberg & Ekman, 1993), and without some universal agreement about emotional facial expressions and their attached emotions, humans would not be able to make necessary communications for survival. Ekman and Friesen (1971) traveled the globe to find strong support for their theory of universal agreement while Hansen and Hansen (1988) and Pinkham et al. (2010) studied emotional links to survival by looking at the anger superiority effect. Ekman's present research with TSA involves lie detection through recognition of micro-expressions of the face that are being concealed by a deceptive emotion (Seidman, 2011). Without research supporting the theory that universal facial expressions exist across culture, such applications would be useless. The present study looked for support of this theory within Lindenwood University's diverse student population, as well as inherent survival instincts. An emotional facial expressions recognition test, anger superiority effect test, and demographic questionnaire were administered. The results indicated a universal agreement, inherent survival skills, and did not signify strong cross cultural influences.

Without a doubt, emotion is the greatest link humans have for interacting with each other. Much of human communication hinders on emotion – how people feel and react based on an emotion sways interaction between people all the time. The expression of emotion becomes very important, and much research looks at how facial expressions aid communication. Ekman (1997) explored the notion that facial expressions voluntarily or not transmit information about how a person is feeling, and what they might do. Other research looks at the ability of people from various cultures to interpret emotional facial expressions the same way (Ekman & Friesen 1971).

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Why is it important, though, that people across culture can effectively communicate with emotion, therefore requiring emotional facial expression to be universal? The answer was initially proposed by Charles Darwin, who believed survival answered "why" (as cited in Ekman & Friesen, 1971; as cited in Hansen & Hansen, 1988; as cited in Hock, 2009; as cited in Pinkham, Griffin, Baron, Sasson, & Gur, 2010; as cited in Rosenberg & Ekman, 1993). Darwin believed that emotional facial expression served adaptive purposes that aided survival, therefore these behaviors would help some species survive better than others over time. In order to have a better chance at survival, human emotional facial expressions would need to be universal across culture. After Darwin's controversial theories on evolution were tabled, people began to accept the idea that facial expressions were culture specific (as cited in Ekman & Friesen, 1971; as cited in Hock, 2009) because many other differences existed between cultures. Cultures talked, dressed, acted, valued, and worshipped differently from each other, so why would they not express emotion differently, too (Hock, 2009).

Ekman and Friesen (1971) decided to support Darwin's theory about universal emotional facial expressions. They conducted various studies to support, support, and support again that emotional expression was not culturally biased. One of their original studies asked college-educated participants from five countries on three different continents to identify which emotion was being expressed in still photographs of human faces. Participants were from Brazil, Chile, Argentina, the United States, and Japan. Ekman and Friesen (1971) found participants evaluated the still photographs both similarly and correctly. They did not feel this research was enough to conclude universal agreement across culture due to access and exposure to the same mass media; participants would be able to view each others' facial behaviors and learn how to interpret them via mass media exposure. The researchers decided to take their research on the road once again.

Ekman and Friesen (1971) chose to study the Fore tribe from Papua New Guinea. The Fore tribe offered the researchers a population of pre-literate people with limited to no exposure to the Western and Eastern worlds, and mass media. Their participant pool included men, women, and children. They studied emotional evaluations on the six basic emotions: happiness, anger, sadness, disgust, surprise, and fear. In order to test members of the Fore tribe, Ekman and Friesen (1971) had to employ different techniques for administering tests and gathering data because most of their participants could not read; it was also difficult for participants to remember an answer bank of six emotions. Instead of showing participants one still photograph and asking them to choose one of the six emotions that best represent the photograph, participants were shown two to three photographs and told a story representative of one of the emotions. After hearing the story, participants were to point at the photograph that best represented the emotion from the story. Photographs were of men, women, and children belonging to literate Western and Eastern cultures.

Ekman and Friesen (1971) found that participants were able to identify the correct facial expressions significantly better than chance for all photo sets *except* when fear expressions were shown with surprise expressions in the same set of photos. They decided fear and surprise elicited very similar feelings, and are more likely to be expressed together than any other combination of the six basic emotions; furthermore, their stories for fear and surprise were also hard to distinguish. The final portion of Ekman and Friesen's (1971) visit with the Fore tribe concluded with video recordings of Fore members posing expressions of the six basic emotions. The researchers used these videos to test U.S. college students and again supported their theory: emotional facial expressions are universal across culture.

While researchers like Ekman and Friesen (1971) were able to support Darwin's theory about universal emotional facial expressions, they were not able to link their research to survival yet. Research that explored the survival value of emotional transmission and interpretation studied the anger superiority effect (sometimes referred to as the face in the crowd effect). The anger superiority effect states that an angry face in a crowd of happy faces would be discovered quicker than a happy face in a crowd of angry faces (Hansen & Hansen, 1988; Pinkham et al., 2010). The anger superiority effect is strong; in fact, that infants are able to discriminate between angry and non-angry expressions; for infants early in development, anger is so distracting and attention grabbing (Hansen & Hansen, 1988).

Several researchers tested the anger superiority effect by showing participants various photographs of crowds (Hansen & Hansen, 1988) or 3×3 matrices (Pinkham et al., 2010). Combinations and compositions of all photographs in both studies included neutral, happy, and angry faces; some photos depicted "crowds" with no target faces. These crowds were either filled with neutral, happy, or angry faces. Other photographs required participants to find discrepant happy or angry faces in neutral crowds. Last, the most important photos were comprised of discrepant happy or angry faces in crowds of angry and happy faces respectively. Participants had to study each photograph and respond when they discovered a discrepant face; their response times were recorded. Participants were given several photographs to evaluate. The results revealed participants were significantly quicker at identifying angry discrepant faces in all conditions than happy discrepant faces (Hansen & Hansen, 1988; Pinkham et al., 2010). Discovering happy discrepant faces among angry crowds was particularly more difficult because it's hard to remove focus and attention from all the distracting, angry faces in order to locate that one happy face (Hansen & Hansen, 1988).

A strong interaction between the brain and body exists to express emotions through facial features; signals are sent to many different facial muscles that are told to pull in this direction or that, producing unique combinations that produce each specific emotion (Ekman & Friesen, 1971; Pinkham, et al., 2010; Rosenberg & Ekman, 1993). For an expression to be recognized as anger, for example, it does not need to utilize all possible muscle responses; a minimum combination can be used (Pinkham et al., 2010). Ekman coined the muscle responses under the term "Facial Action Coding System," and his extensive research with facial muscles and expressions is being applied today in criminal justice and security settings (Hock, 2009). Ekman's research about emotional facial expressions evolved into other theories about lie detection and deception. Facial micro-expressions are a person's true emotions being expressed within 1/25th of a second, but quickly fade to be concealed by a deceptive expression. Micro-expressions pull on the same muscles that full expressions do, therefore their detection could aid survival. Airport security at Boston's Logan Airport is being trained in Ekman's SPOT program in order to detect concealed emotions from airport guests. Rather than scan crowds, these TSA agents are being instructed to engage guests in small conversation as they go through security checkpoints. These conversations are intended to draw lies out of dishonest, potentially dangerous and criminal passengers (Seidman, 2011).

Research like Hansen and Hansen's (1988), Pinkham et al.'s (2010), and Ekman's recent applications for emotional expression (Seidman, 2011) would be useless if facial expressions were not universal across culture. Such danger detection methods like those angry faces in the crowd or other's concealed emotions could only be applied to members of that culture, and research would have to be conducted and established for every culture that wished to employ these survival techniques. Ekman's applied research to detect terrorists, especially, would be

nonexistent if the threat was foreign rather than domestic. Therefore, Ekman and Friesen's (1971) research opened the doors to explore emotional facial expression alongside survival based on interpretation and evaluation of another's emotion.

The purpose of the present study was to determine if Lindenwood University's diverse student population as represented by the Lindenwood Participant Pool could agree about which emotional facial expressions represented the six basic emotions: happiness, anger, sadness, disgust, surprise, and fear. The study also aimed to determine if these same students had the survival instinct to discover an angry discrepant face more quickly than a happy discrepant face. The researcher predicts participants will both agree and find angry discrepant faces faster. The present study tested these hypotheses by giving participants an emotional facial expressions recognition test, an anger superiority effect test, and a demographic questionnaire to determine cross cultural diversity and exposure.

Method

Participants

Members of Lindenwood University's Lindenwood Participant Pool (LPP) volunteered to participate in this study. The LPP is a program that allows students in LPP approved courses the opportunity to earn extra credit by participating in research projects. Classes that belong to the LPP include introductory behavioral science courses as well as a few more advanced courses. The LPP aids student researchers in learning how to conduct ethical research with human participants, as well as provide researchers with readily available samples for study. In order to recruit participants, a description of the study was posted on the LPP board along with a sign-up sheet. The study description included an experiment title, brief description of the study, and the

time commitment. Sign-up sheets had specific times and dates for participants to choose the most convenient time to participate. The LPP is a convenience sample.

The present study included 54 participants, 17 men and 37 women. These men and women were between the ages of 18 and 47, with a mean age of 20.07 (*SD* = 3.91). Twenty two freshman, 16 sophomores, 14 juniors, and 2 seniors participated in the study. Participants were seeking various degrees, the mode being exercise science majors (14 participants, 26%). The majority of participants were from the United States (41, 76%). Other participants came from Brazil (2), England (1), Germany (2), Japan (2), Mongolia (1), New Zealand (1), Panama (1), Paraguay (1), Turkey (1), and Venezuela (1).

Materials

Participants viewed 20 photographs (see Appendices A and B) for the study, 18 for an emotional facial expression recognition test, and two for an anger superiority effect test. Each of the 18 images represented one of the six basic emotions (happiness, anger, sadness, disgust, surprise and fear), each emotion being represented three times during the tests. Each image showed only one person in the photograph, and all 18 photos represented men and women of various ages and ethnicities. Images for this test were viewed on a computer using Microsoft PowerPoint. The researcher also created three versions of this test; each version included all 18 images, but showed them in three different orders. These images were retrieved from the internet. The last two images were used for an anger superiority effect test. Each image depicted 16 faces in a 4×4 matrix. Fifteen faces expressed the same emotion, happiness or anger, while one face expressed the opposite emotion, anger or happiness. The image consisting of 15-Happy/1-Angry became known as Image 2A while the image consisting of 15-Angry/1-Happy became known as Image 2B. Each image was printed on paper for participants to mark with pen

or marker which image/expression did not match the others, and placed inside separate manila file folders to hide the photo's contents until testing time. These images were retrieved from Pinkham, et al. (2010) and edited from their original 3×3 matrix.

The testing materials included an 18-item answer sheet (see Appendix C) that allowed participants to indicate which emotion they thought was being expressed, and to rate their confidence in their answer on a six-anchor Likert Scale. Another answer sheet was used to record the time it took for participants to complete each search task for the anger superiority effect test. A cell phone was used as a stopwatch to measure time. Participants also completed a demographic questionnaire (see Appendix D). Participants were asked questions like which country they were born in and how much time they've spent away from their birth country. Questions like those were asked to give a rough illustration about how much cross-cultural exposure participants had experienced. The researcher created all three forms.

In order to ensure anonymity, participants were assigned a participant ID number by the researcher. Identification numbers were drawn at random from a jar, and were numbered ES001 to ES100. ID numbers were assigned randomly, rather than in order, so that the numbers could not be matched up with the order participants signed up for the study. Participants' ID numbers were recorded at the top of both answer sheets, images 2A and 2B, and the demographic questionnaire.

Other general forms used during the study included informed consent forms, feedback letters, signup sheets, participant receipts, and a list of the experimenter's participants. The informed consent form outlined the basic tasks to be performed during the study, potential risks, the right to withdraw from the study, and the right to the final study results. The feedback letter described the purpose of the study and thanked participants for participating. Both participant

receipts and experimenter's list of participants are forms required by the LPP office in order award extra credit for participation. The receipts required information like participant's name, student ID number, the name of the professor of the course they're receiving credit for, and when that course meets. Receipts were given to participants and supposed to be turned in to the LPP office. The experimenter's list of participants required the same information. This list was a sign-in sheet kept by the researcher to be turned in to the LPP office.

The study took place at Lindenwood University's psychology lab. The lab is located in the basement of Young Hall and is divided into separate lab "rooms" with tables, desks, chairs, and in two rooms, computers. The computers provided by the labs were not used in the study because the researcher preferred to use her own.

Procedure

Experiment preparation and procedure. The researcher initially created three versions of the emotional facial expression recognition test. Three versions were created to counterbalance the order in which images appeared, but because there were 18 images consisting of 3 of each emotion, counterbalancing all potential orders would have been too time consuming and confusing to keep organized. Therefore the researcher used a TI-83 Plus calculator to randomly assign three separate image orders. The images were coded 1-18 and appear in that order in the Appendices. The researcher used the calculator's random integer function to select one image at a time based on its number. Images were chosen as soon as their number appeared in the list. Repeats were ignored, and the procedure was repeated until all 18 images had appeared. This entire process was repeated two more times to create the second and third versions of the test. Versions were named A, B, and C. The researcher also initially edited the anger superiority effect test images from their source material. The original images were

arranged on a 3×3 matrix. The computer program, Paint, was used to edit the photos. Faces from the image were copied and pasted into a new position on an outside edge and then transformed into a reflection of the original face it was copied from. This was repeated until two outer edges of the matrix were filled in order to create the final 4×4. None of the faces were repeated more than once, and were reflected to disguise the fact that they were repeats. Also, the face with the opposing expression was not repeated. The fill-color function was used for final touch ups to create a more fluid looking image very similar to the original. The researcher also decided version A for the anger superiority effect test would show image 2A first, and version B would show image 2B first.

Prior to arrival, the researcher randomly selected a participant ID number and recorded this number in the allotted space on both answer sheets, images 2A and 2B, and the demographic questionnaire. The researcher also prepared image 2A and 2B's folders with their respective test images and recorded the test version for each test at the top of their respective answer sheets. Test versions were assigned based on the order participants came in. The first participant received version A of the emotional facial expression test, and version A of the anger superiority effect test. The next would be given versions B and B, then C and A, and so on. All tests were respectively counterbalanced to control for order, practice, and fatigue effects.

Upon arrival, participants filled out the experimenter's list of participants and the participant receipt. Participants also read and signed two copies of the informed consent form. Both the participant and experimenter retained a copy for their records.

The researcher then administered the emotional facial expression recognition test first. Verbal and written instructions were provided to each participant. Participants viewed the test on the computer as the researcher scrolled through images one at a time. The images were viewed

long enough for participants to choose an emotion from the list given and rate their confidence on the scale provided. The researcher controlled scrolling through the images to prevent participants from returning to previous images to compare.

The anger superiority effect test was conducted next. Participants were given the folders/images one at a time and instructed not to open them. The researcher provided written and verbal instructions to each participant; however the researcher relied on verbal instruction more because the written ones were not clear. The researcher started recording participants' times once they opened the folder and began their search. Once it was clear the participant had discovered the opposing face, time was stopped and recorded on both the image and the answer sheet to control for recording mistakes. The researcher interpreted participants' movements to mark their answer as an indication the face had been discovered.

Last, participants were asked to complete a short demographic questionnaire. They were then verbally debriefed, given a feedback letter, and thanked for their time.

Procedures for coding tests and questionnaires. After all data was collected from participants, the emotional facial expression recognition answer sheets had to be carefully coded and recorded. Because the images were arranged in random orders, the researcher had to code each item by their true image number. For example, version A question 1 could have been image 7. This number was written directly left of the question in the margin. Under this number, the researcher recorded which emotion was picked using its letter code. Happiness=H, Anger=A, Sadness=SD, Disgust=D, Surprise=SP, and Fear=F. The researcher recorded the confidence score next to this. The information was now ready to be transferred to a data table.

Information collected from the anger superiority effect test could be directly transferred to a data table without any additional coding data transformations.

Responses to questions 7, 8, and 9 on the demographic questionnaire had to be evaluated and converted. Question 7 asked participants who had been born in the United States if they had traveled outside the country. Only two responses were allowed: YES and NOT APPLICABLE. However, it came to the researcher's attention too late that participants from the United States should answer NO rather than NOT APPLICABLE if they had not been outside the country. NOT APPLICABLE was actually meant for participants not from the United States since the question did not pertain to them. The researcher evaluated NOT APPLICABLE responses from United States' participants as NO and recorded them as such on the data table. Information from questions 8 and 9 had to be converted to a uniform measurement of time. Question 8 asked participants how long they had been in the United States. The response asked for participants to list how many years and months they have been here, and also included a checkbox for those who have been there since birth. Question 9 asked participants how much total time they've been away from their country of origin. Again, participants could answer in years and months. It was this information that had to be converted into a uniform measurement of time because statistical software programs will not be able to mathematically evaluate these responses. The researcher chose to convert these measurements to days. One year equaled 365 days while 1 month equaled 30 days. The researcher calculated participants who had been in the U.S. since birth by multiplying their age by the number of days in a year. While this information did not provide an exact measurement of age by birthday, it generated an estimated number of days in the United States. United States citizens who had been in the U.S. since birth but also travelled out of the country had this number calculated differently. In order to calculate their number of days spent in the United States, the researcher multiplied their age by 365, and then subtracted the total number of days spent outside the United States.

Results

The researcher hypothesized participants would agree more often than not about which expressions represented the six basic emotions: happiness, anger, sadness, disgust, surprise, and anger. Agreement was measured with a Pearson *r* correlation to determine if a significant relationship existed between response accuracy on the emotional facial expressions recognition test, and cross cultural exposure based on days spent within the United States and abroad from participants' originating country. Independent *t* tests were also conducted to determine if significant differences existed between students born in or outside the United States; and to determine if significant differences existed between students born in the United States who had or had not traveled outside the United States.

A Pearson *r* reporting on the relationship between days spent in the United States and accuracy did not reveal a significant relationship, $r(52) = .16$, $p > .05$. Another Pearson *r* reporting on the relationship between days spent traveling or living in a country other than where the participant was born did not reveal a significant relationship, $r(52) = -.07$, $p > .05$, as well. An independent *t* test evaluating differences between participants born in or outside the United States did not reveal any significant differences, $t(52) = .61$, $p > .05$. A second independent *t* test evaluating differences between only the participants born in the United States who had or had not traveled abroad also did not reveal significant differences, $t(39) = .81$, $p > .05$. These results lead the researcher to conclude Lindenwood University students represented by the LPP were able to agree about which expressions are represented by the six basic emotions, without being significantly impacted by cross cultural exposure. Participants also revealed a mean accuracy of 15.44 correct ($SD = 1.97$); scores ranged between 9 and 18 correct out of 18 total images.

Pearson *r* correlations also looked for significance between confidence and days spent in the United States, $r(52) = .20$, $p > .05$; and between confidence and days spent traveling or living in a country other than where the participant was born, $r(52) = .003$, $p > .05$. The previous independent *t* tests also replaced accuracy with confidence and revealed no significant differences between participants born in or out of the United states ($t(52) = .965$, $p > .05$), or between participants born in the United States who travelled out ($t(39) = .127$, $p > .05$). The results of a Pearson *r* correlation showed a weak, positive relationship existed between accuracy and confidence, $r(52) = .28$; and the relationship was statistically significant, $p < .05$.

The researcher hypothesized participants would be able to find an angry face among 15 happy faces more quickly than a happy face among 15 angry faces. As predicted, a two-tailed paired *t* test revealed participants were significantly more likely to find an angry discrepant face ($M = 5.18$, $SD = 3.93$) sooner than a happy one ($M = 7.45$, $SD = 4.59$), $t(53) = -2.84$, $p < .01$. The *t* statistic revealed a direction in favor of finding the angry discrepant face more quickly; *t* was calculated by subtracting Image 2B times from Image 2A times.

Discussion

The researcher was able to determine an agreement among Lindenwood University's diverse student population as represented by the LPP about which emotional facial expressions represent the six basic emotions. The researcher was also able to support the anger superiority effect hypothesis – participants were significantly faster at identifying an expression of anger in a crowd of happy faces than an expression of happiness in a crowd of angry faces.

These results are very positive. With a large proportion of students (41/54) from the United States, it was almost surprising to see this hypothesis supported. When comparing the amount of days students born in the United States vs. those who were not, the researcher worried

a significant relationship would exist. Such research aligns with Ekman and Friesen's (1971) study because results from the present study offer further support to their theory about universal facial expressions across culture. Due to the strengths of their research, it's also almost unsurprising that this hypothesis was supported.

The results of the anger superiority effect test were also positive and unsurprising. Much research already exists supporting the theory that anger commands more attention than happiness when evaluating images of crowds (Hansen & Hansen, 1988; Pinkham et al., 2010). Hansen & Hansen (1988) discussed several reasons about why anger is more commanding, such as the emotion itself does not have an effect, rather the intensity of an expression of anger commands the attention instead. If this is the case, future research could explore equally intense expressions compared to anger as well as less intense expressions like happiness. Results from this study in regards to the anger superiority effect cannot be generalized to non-contrived settings. Participants in my study were already primed to look for discrepant faces. In a real world setting, they will most likely not know someone within the crowd is angry and poses a threat, and therefore would not know to look for him. Future research should also find ways to study the anger superiority effect in more natural settings.

Future research should also explore the differences between children and adults about emotional facial expression recognition. A pilot study revealed interesting differences between adults and children about which expressions both groups are likely to get confused. Adults were more likely to confuse surprise and fear, while the child tested confused anger and disgust. The present study also revealed participants were far more likely to evaluate the three images of fear wrong than those of surprise. A two-tailed paired *t* test evaluating surprise image accuracy (M = 2.78, SD = .54) and fear image accuracy (M = 1.68, SD = 1.04) revealed significant differences

between them, $t(53) = 7.39$, $p < .01$. A result like this suggests researching differences between children and adults could yield more interesting results. It should, however, be noted that this result could have also been influenced by the response order on the answer sheet; surprise appeared before fear, therefore participants may have been more likely to pick surprise over fear because they saw it first on the answer sheet.

Future studies continuing the present study should recruit more participants, and possibly expand the population outside Lindenwood University. More international students should also be recruited to strengthen the results of this study. Last, future studies should find more accurate ways to measure response time for the anger superiority effect test. A computer program should be looked into to record response, and measure and record time. The results from this study, while, significant, could also have been affected by the researcher's expectancy bias: the researcher knew which image should take participants faster to complete and could bias when the researcher stopped recording time.

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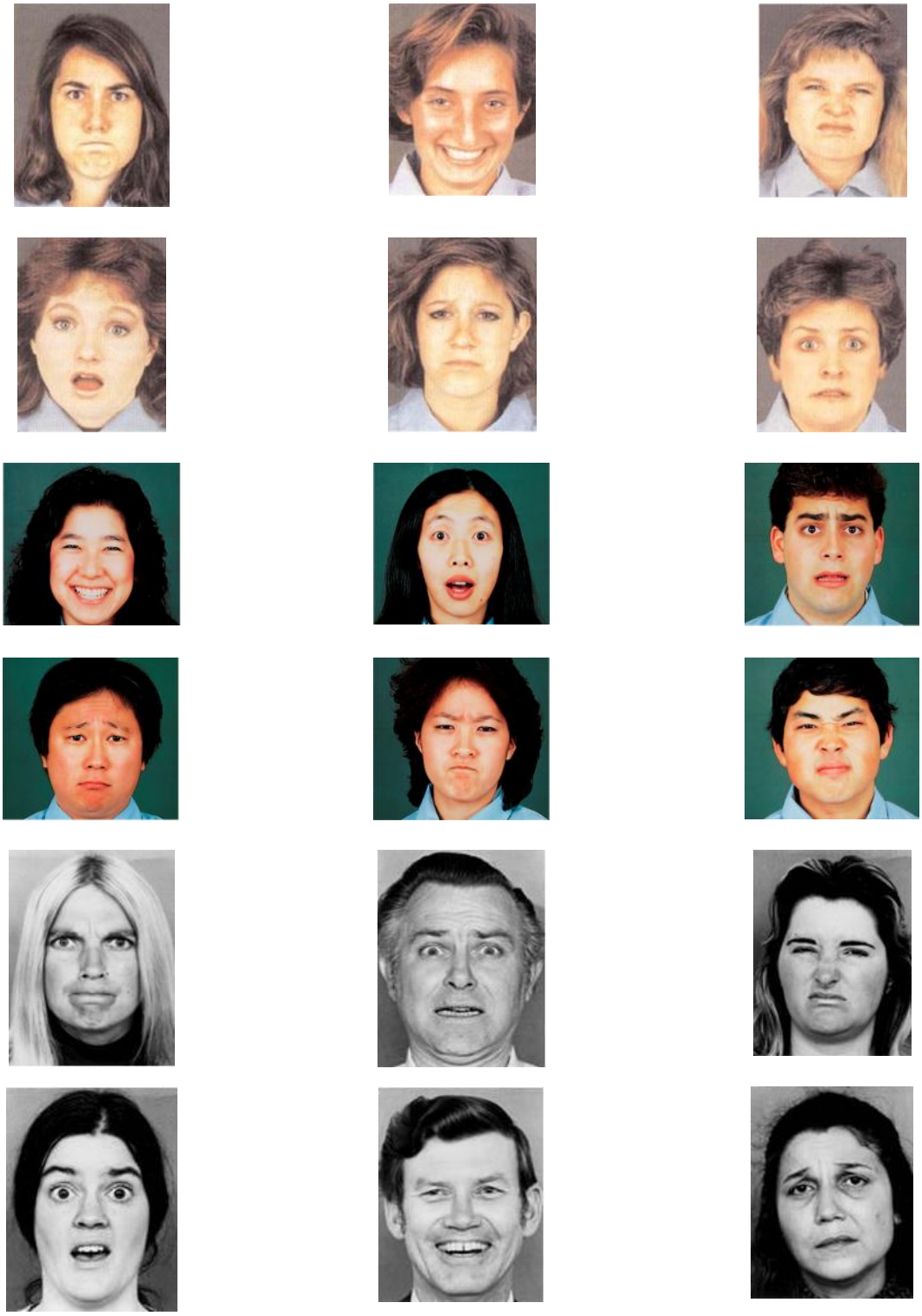
Appendix A

Emotional Facial Expression Test Images (Actual Sizes Vary)



Appendix B

Anger Superiority Effect Test Images

Image 2A

Image 2B

Appendix C

Sample Question from the Emotional Facial Expression Answer Sheet

Participant ID#:_____ Test Form: _____

TEST 1 ANSWER SHEET

For each image, please circle the emotion you think is being expressed.

1) Happiness Anger Sadness Disgust Surprise Fear

How confident are you that you chose correctly? (Please circle one).

1----------2----------3----------4----------5----------6

Not At All Confident	Not Very Confident	Somewhat Confident	Confident	Very Confident	Completely Confident

Appendix D

Demographic Questionnaire

Participant ID#:_____

DEMOGRAPHIC QUESTIONNAIRE

1) Sex (circle one): MALE FEMALE

2) Age: _____ years

3) Class Standing (circle one):

FRESHMAN SOPHOMORE JUNIOR SENIOR OTHER

5) What is your major? _____

6) Which country were you born in? _____

7) If you were born in the United states, have you traveled to another country before?

___YES

___NOT APPLICABLE

8) How long have you been in the United States?

☐ Since birth

☐ Other: _____ years, _____months

9) How much TOTAL time have you spent traveling or living in a country besides the one where you were born?

☐ _____ years, _____months

☐ NOT APPLICABLE

Mood and Advertising: A Follow-up Study to "The Power of Emotion"

Lisa Wiese[2]

Advertisements affect our lives even when we least expect it. We hear ads on the radio, read ads in magazines, and are even exposed to advertisements through billboards as we drive down the road. The effects on mood and advertisements began to be popularly researched in the early 1980s. This study conducting on mood and advertising was a follow up study to "The Power of Emotion" conducted by Wiese (2012). It was important to conduct more research into this topic to find statistical significance in support of the hypothesis. The present study used a positive group, a negative group, and a control group to rate pictures based on a manipulated mood. Participants were gathered using convenient sampling from the Lindenwood Participant Pool. Results showed that people in a positive mood rated subsequent advertisements more favorably than participants in a negative mood, therefore supporting the hypothesis that when people are exposed to a positive advertisement they will rate following advertisements more approvingly than people who initially view a negative advertisement.

Key words: *Advertising, advertisements, mood, manipulation, emotion.*

Advertisements are meant to be eye-catching in hopes that the campaign, service or product will be supported. Advertisements are in the daily lives of everyone through billboards, television commercials, and radio commercials, just to name a few. With daily contact, advertisements are bound to influence consumers. It is important to note that research on the subject of advertisements affecting mood has been conducted in numerous studies for numerous years. The present study was designed to test the hypothesis that when people are exposed to a positive advertisement they will rate following advertisements more approvingly than people who initially view a negative advertisement.

One study conducted by Sar, Xiaoli, and Myers (2010) had a sample size of 200 college students and used 10-min videos to attempt to stimulate a specific mood. After the film clips were shown, a questionnaire was distributed with "sad-happy" and "good-bad" rating scales.

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These researchers were able to support all of their hypotheses including their hypothesis that individuals in a positive mood will evaluate advertisements more positively than those in a negative mood when an ad is placed in a similar environment (Sar et al., 2010).

Aylesworth and MacKenzie (1998) found when a negative mood is induced by an ad then the person does not systematically process those ads as they do in a positive mood and they also found that mood did in fact influence attitudes towards assignments. Their study had a purpose similar to the study discussed in this paper, which included the importance of research involving mood and advertisements to advertising "practionioners" (Aylesworth & MacKenzie, 1998).

In addition to overall mood of an advertisement, research has been conducted into advertisements inducing mood with color. Lichtle (2007) was able to find a connection between the hue of the advertisement and the overall appreciation and attitude of the advertisement. Color is used to attract people and potentially influence them so it is interesting to find that there is little research conducted that investigates mood and color and the relationship with advertising.

There is one particular theory that can relate to the current study. The "affect-as-information" theory says that whenever someone looks a something they evaluate it with one question, "How do I feel about it?" which can lead to mood affecting evaluation of the advertisement (Pocheptsova & Novemsky, 2010). The article attempts to support that theory.

I conducted a similar study last semester entitled "The Power of Emotion." The same hypothesis was used. Wiese (2012) had a small sample of 46 undergraduate students from the Lindenwood Participant Pool (LPP, see Method Section) and 5 participants not involved in the LPP. Participants in the positive and negative groups were asked to look at and rate five pictures; the first picture in both groups was used in hopes of inducing a positive or negative

mood. A control group of 17 participants was used to rate the other four pictures in order to gage what mood the pictures might accurately represent. As anticipated Wiese (2012) found that the first picture was rated positively by the positive group and negatively by the negative group. However, no statistical significance was found between the ratings of the rest of the pictures and the first mood-inducing pictures (for a complete description, see Wiese, 2012). My previous research and the current collected data are relevant to the world of advertising because the way in which a person views an ad is important when considering ad placement.

I chose to continue my previous research for several reasons. One reason for conducting another study was because I had a relative small sample size with only 17 participants in each group. Another reason is because no statistically significant effect of mood manipulation was found. The current study attempts to test the original hypothesis using a larger sample size, longer viewing of images to instill a specific mood, and less pictures so the participants to avoid any order effects.

Method

Participants

The participants in this study consisted of 53 college students: 23 men and 30 women. Most participants were gathered using convenient sampling from the Lindenwood Participant Pool (LPP) using sign-up sheets on the bulletin board outside of the LPP office. Each LPP participant was given extra credit from his or her participating class with the approval of the professor. Some participants were gathered through consent of professors and their students in general classes. These participants did not receive any material compensation, but they did receive my gratitude. My participants included 17 Freshman, 14 Sophomores, 12 Juniors, and 10 Seniors. There was a wide range of majors, but the most predominant ones were Business

Administration, Exercise Science, and Psychology. Based on the rating scale for questions four and five of the questionnaire, 71.7% of participants said they were either Happy or Very Happy and 73.6% said they were either in a Good mood or a Great mood (see Appendix A). Only 24 participants chose to write a reason for why they were in the mood they were in. Most reasons had a theme of being stressed from school, work, etc.

Materials

The materials used in this study consisted of two consent forms, a demographic questionnaire, a picture-evaluation sheet, a computer to display the pictures with PowerPoint, a feedback letter, and an extra credit slip for LPP participants. Each participant was given two consent forms to sign: one for his or her records and the other for my records (see Appendix B). The consent form ensured that the participant was willing to proceed with the study and that he or she was 18 years or older. The form also let the participant know that they could end the survey at any time without any repercussions and still receive their extra credit if they are a part of the LPP. The demographic questionnaire consisted of five questions about gender, major, class standing, current happiness, and current mood (see Appendix A). There were four pictures used in the study and they were displayed to the participant using the PowerPoint program on a computer (see Appendices D-H). The pictures were gathered from the World Wildlife Foundation website and a pilot study was conducted to ensure the ambiguity of the pictures. Animal pictures were chosen in order to be consistent. Each of the four pictures was evaluated using a picture-evaluation sheet created by myself (see Appendix C). Each section asked two questions for one picture. The stopwatch application on my phone was used to monitor how long each participant viewed each picture.

The participants were given a feedback letter providing them with further information about the study as well as my contact information if they were interested in the results. If the students were a part of the LPP, they were given an extra credit slip to take to the LPP office on the fourth floor of Young Hall. Rooms used to conduct the study consisted of the Psychology Study Labs on the first floor and classrooms in Young Hall. The Psychology Lab room that was used for this study consisted of two computers, six chairs, and two tables. The two computers were side-by-side at the front of the room near the door.

Procedure

The process began when students signed up for a specific time on the LPP sign-up sheets outside of the LPP office. Each participant was pleasantly greeted when they walked into the room and asked to sit in front of the computer. Each participant was pre-assigned to either the positive, negative, or neutral group depending on the order of the participants. For example, if four students participated one day, the first would be assigned to the positive group, the second to the negative group, the third to the neutral group, and the fourth to the positive group; the next time the study was conducted the cycle would start with the negative group and so on. There were 18 participants in the positive group, 18 in the negative group, and 17 in the neutral group. He or she was given a pen to borrow if they did not have one. Participants were first given the consent forms and told that one was for their records and the other was for mine. After each sheet had been signed the participants were given picture-evaluation sheet and given instructions. If the participant was in the positive or negative group, they were asked to look at the first picture for up to a minute (see Appendices D-E). Each participant was then shown the last three pictures and told to look at each one for however long they desired. The computer kept time; the pictures were set to disappear about 30 sec. If the participants were in the neutral group they

were shown the same three pictures viewed by the other two groups, however, they were not given a previous stimuli to the three pictures. Each participant in the neutral group was told to view the pictures for any amount of time they pleased. Each picture was also rated on the picture-evaluation scale after the picture was viewed.

After the participants had observed and rated the pictures, they were debriefed and given information about the study. The participants were given my feedback letter and told to contact me if they had any further questions about the study. If they were a part of the LPP they were then given an extra credit slip and asked to fill it out before they left. Participants were also asked to sign my List of Participants sheet for the LPP records. Before each participant left the room they were shown gratitude and appreciation and wished a nice day.

Results

The study was designed to test the hypothesis that people who are exposed to a positive advertisement will rate following advertisements more approvingly than people who initially view a negative advertisement. As intended, the positive picture (M=4.72, SD=.46) was rated more favorably than the negative picture (M=1.28, SD=.58), according to the results of an independent t-test, $t(34) = 19.84$, $p<.001$. Also as intended, the positive picture (M=4.56, SD=.62) evoked a happier feeling than the negative picture (M=1.22, SD=.43). An independent t-test also shows the significance, $t(34) = 18.86$, $p<.001$. A one-way analysis of variance (ANOVA) compared overall ratings for the three groups: positive (M= 8.56, SD= 2.33, neutral (M= 7.53, SD= 2.53), and negative (M=6.28, SD= 1.274). The results revealed a significant main effect of the group, $F(2,50) = 5.27$, $p=.008$. Another one-way ANOVA compared the overall feelings for the three groups: positive (M= 8.61, SD= 2.45), neutral (M= 7.35, SD=

2.50), and negative (M= 6.89, SD= 1.71) revealed a significant main effect of group, F(2,50) = 2.83, p=.069.

Discussion

There are several reasons as to why the current study was able to support the hypothesis. One reason could be the changes made from the previous study (Wiese, 2012). Participants were asked to look at the first picture for 30 seconds, which could potentially mean that this did evoke a specific mood as I had planned. The use of different pictures could have also played a part. I found that a picture used in the previous study was much too sad and skewed the results. It is also possible that using fewer pictures (three instead of four) had an influence on any possible order effects that took place before. However, I do not think the sample size had anything to do with the results as I previously presumed. Due to time constraints once again, I only had two more participants that the previous study.

I noticed several things about the participants. I had several students not understand the directions even though the directions were given exactly the same as the previous study. Having to repeat the directions in a different manor to only certain participants could have potentially increased error. I am unsure of a way to get around this error, but an idea would be to type up the directions and let the participant read over it as many times as they wish until they understand.

If this study were to be replicated I recommend finding stronger emotion-inducing pictures. Another idea is that instead of leaving the first picture on the screen for 30 seconds, find strong emotionally positive or negative pictures and flash them on the screen. It is also important to have a computer program that will allow the study to be conducted without error.

In conclusion, people who are exposed to a positive advertisement did rate subsequent advertisements more approvingly than people who initially view a negative advertisement so the hypothesis was supported. In was important to conduct this study again in order to find more information on the topic of mood and advertising. More studies using videos like that of Sar, Xiaoli, and Myers (2010) should be conducted to see if the results are significantly stronger. Advertising will forever be a part of everyday life. The more that is known about the effects of advertising on mood, the more properly advertisements will be placed, which will in turn produce an increase in awareness and product sales.

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Appendix A

QUESTIONNAIRE

SUBJECT ID NUMBER: _____ (Assigned by Researcher)

Please circle your choice for each of the following:

1) Are you: MALE FEMALE

2) What is your major? _____

3) Class standing:

   Freshman Sophomore Junior Senior

4) On a scale of 1 to 5, please rate how happy you are feeling at this moment:
   Not Very Happy ☹ Neutral Very happy ☺

   1 2 3 4 5

5) How would you describe the current mood you are in? Please rate on the following scale and feel free to add details pertaining to your mood if you wish. (E.g., "I am in a great mood because I am finished with my classes for the day." Or, "I am stressed and in a bad mood because I have a lot of homework.")

   Awful Mood |-------|-------|-------|-------|-------|-------| Great Mood

   Neutral Mood

   Comments:

Appendix B

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to state my current mood and rate advertisements based on how much I like them. I understand that I should be able to complete this project within 5-10 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on any of the surveys. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

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Appendix C

PICTURE 1

How positive or negative would you rate this picture?

Very Negative	Negative	Neutral	Positive	Very Positive
1	2	3	4	5

How does this picture make you feel?

Very Sad	Sad	Neutral	Happy	Very Happy
1	2	3	4	5

PICTURE 2

How positive or negative would you rate this picture?

Very Negative	Negative	Neutral	Positive	Very Positive
1	2	3	4	5

How does this picture make you feel?

Very Sad	Sad	Neutral	Happy	Very Happy
1	2	3	4	5

PICTURE 3

How positive or negative would you rate this picture?

Very Negative	Negative	Neutral	Positive	Very Positive
1	2	3	4	5

How does this picture make you feel?

Very Sad	Sad	Neutral	Happy	Very Happy
1	2	3	4	5

PICTURE 4

How positive or negative would you rate this picture?

Very Negative	Negative	Neutral	Positive	Very Positive
1	2	3	4	5

How does this picture make you feel?

Very Sad	Sad	Neutral	Happy	Very Happy
1	2	3	4	5

Appendix D

Positive Stimulus

Appendix E

Negative Stimulus

Appendix F

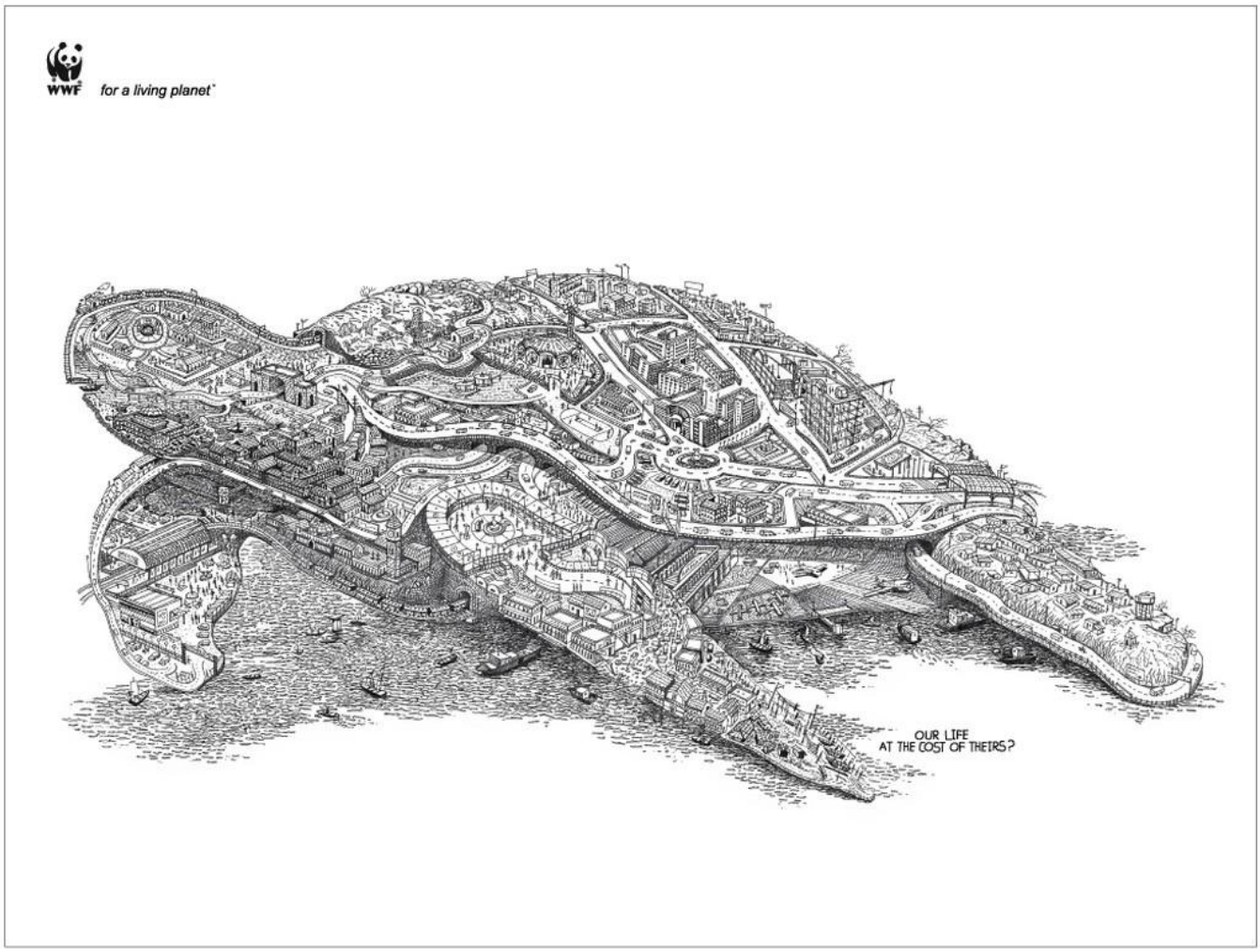
Picture 1

Appendix G

Picture 2

Appendix H

Picture 3



Pet-related Variables and Stress Levels of Undergraduate Students

Katrin Haller[3]

Pets have been and are an important part of humans' lives. There are many reasons for owning pets, including various physical and psychological benefits. The present study aimed to find out which pet-related variables, if any, were associated with stress levels of undergraduate students, and whether there is a relationship between certain pet-related variables and undergraduate students' stress levels. The study included 55 undergraduate students from Lindenwood University. Materials consisted of a self-made demographic survey, a self-made pet survey, and Cohen's and Williamson's Perceived Stress Scale (1988). A multiple regression and correlational analysis was conducted, entering the stress scale score as the dependent variable and the variables of class status, fondness of pets, pet ownership, weekly pet company, pet accessibility, importance of pets, and thought on whether pets and stress were related as the independent variables. Results revealed that there were no significant multiple regression weights (R^2 = .186, F (7, 44) = 1.433, p > .05) and that none of the variables were significantly correlated. However, there were four weak negative correlations between the stress scale scores and the variables of pet fondness (r = -.247), pet accessibility (r = -.235), want of more access (r = -.307), and pet importance (r = -.261). Limitations include a small convenience sample and the problems associated with using a self-made survey. Future research should consider using a professional or enhanced survey, avoid convenience sampling, and potentially include other populations as well.

Pets have been a part of the lives of humans for many years (Staats, Sears, & Pierfelice, 2006; Staats, Wallace, & Anderson, 2008) and they are still an important part of humans' lives today (Somervill, Kruglikova, Robertson, Hanson, & MacLin, 2008). Pets live in many households in the United States (Adamle, Riley, & Carlson, 2009) and across the world (Staats et al., 2006; Staats et al., 2008). Reasons for pet ownership have changed over the years from "need reasons" which were related to survival, such as for hunting and herding aid, physical warmth, and danger detection (Staats et al., 2006; Staats et al., 2008), to pets being considered a member of the family in many households (Adamle et al., 2009; Allen, 2003; Staats et al., 2006). One might wonder why people value pets as much, especially since owning a pet requires devoting

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time, money, and resources (Staats et al., 2006). There are various reasons pet owners give as to why they own pets. These include that animals provide comfort and love (Somervill et al., 2008), they create feelings of calmness and happiness (Allen, 2003), they provide help during stressful and hard times (Allen, 2003; Staats et al., 2008), they aid in staying active and meeting new people, and they prevent loneliness (Staats et al., 2008). Thus, pets often serve a practical function, such as to facilitate exercise, or a companionate function, such as to decrease loneliness and to provide help during hard times (Staats et al., 2006). They also meet the basic need of humans for companionship (Staats et al., 2008), because they are perceived as nonjudgmental and can therefore provide unconditional social support (Allen, 2003).

Aside from psychological benefits, there are also physical benefits associated with owning a pet (Staats et al., 2006). The physical benefits of pets have been looked at by a range of researchers. Results of various studies, as summarized by Allen (2003), have revealed that owning a pet can be a predictor to one-year survival after a heart attack, that there are lower cardiovascular responses when talking to a pet compared to when talking to people, and that blood pressure is reduced in children when reading aloud in the presence of pets. More generally, having a pet has been shown to be beneficial for cardiovascular activity and health (Allen, 2003; Somervill et al., 2008), and blood pressure can be reduced in some situations (Allen, 2003; Somervill et al., 2008). Allen (2003), however, also made clear that one cannot state that pets cause lower blood pressure or healthier cardiovascular activity as extraneous variables might also be influential and that research so far has mostly focused on short-term problems, not long-term ones. Additional criticism is mentioned by Somervill et al. (2008) who did not find supporting evidence for physiological benefits of pets after short exposure and only small effects during exposure. However, the researchers state, that these unsupportive findings may be due to the

discrepancy of short exposure to an unfamiliar pet and pet ownership (Somervill et al., 2008). People usually prefer to interact with their own pets and these interactions differ from those with unfamiliar pets (Somervill et al., 2008). They (2008) also concluded that the benefits may simply lie with the pleasurable experiences pets bring about in some people.

Even though research does not provide clear evidence for the positive physical and psychological benefits yet, many people believe in the positive benefits of pets and also report having experienced them. It is not surprising then, that pet therapy has been used, and has demonstrated to be successful with populations of diverse illnesses and disaster situations by helping to manage stress (Adamle et al., 2009). Adamle et al. (2009) evaluated whether pet therapy may also interest freshman college students and their results revealed that most students had pets at home and that they missed them now that they had left for college. Students also reported that during stressful times their pets provided them with support and comfort (Adamle et al., 2009). The transition to college can be very stressful (Adamle et al., 2009); just considering the change from living at home with family to living in a dorm and the increased work load and academic challenges. The majority of students asked in the study by Adamle et al. (2009) believed that pet therapy as a support program could help them during stressful times in college.

In conclusion one can say that programs like pet therapy or knowing about the potential physical and psychological benefits from pets, may be of importance for students, educators, schools, therapists and counselors, families and friends, and anyone else who might be interested in the topic. The present study was conducted in order to find out more about this topic because there is limited research available. The focus of the study was on undergraduate college students and their stress levels, as measured on a self-report stress scale, and on self-reported answers of a

pet survey, which asked questions about pet-related variables such as pet-ownership, pet-accessibility, and weekly pet-company. The study aimed to find out which pet-related variables, if any, were associated with stress levels of undergraduate students, and whether there is a relationship between certain pet-related variables and undergraduate students' stress levels.

Method

Participants

For this study the non-probability sampling type of convenience sampling was used. This form of sampling was justified as there was only limited time available for the completion of the study. Participants were recruited through the Lindenwood Participant Pool (LPP), which helps researchers with recruitment and provides students who are part of the LPP with opportunities to earn extra credit for certain entry-level classes. These classes are usually introductory courses in psychology, sociology, anthropology, exercise science, and athletic training, as well as some higher level social science classes whose professors approved of participation.

There were a total of 55 participants, all of whom were undergraduate students at Lindenwood University. The age range was between 17 and 25 years, with a mean of 19.76 years and a median of 19 years. Twenty-eight women and 27 men completed the study. There were 5 Seniors, 12 Juniors, 14 Sophomores, and 24 Freshmen who took the study. Eighty-three point six percent of the participants lived On Campus (Dorms), 3.6% lived Off-Campus (Housing), and 12.7% lived Off-Campus (Other). Thirty participants were from Missouri, 12 from other U.S. states, and 11 from countries other than the United States. One person did not provide an answer to where he or she was from, a second person answered that he or she was from the U.S. but did not provide from which state.

Materials and Procedure

For recruitment, a description sheet and sign-up sheets for the study were posted at the LPP bulletin board located on the fourth floor of Young Hall across from the LPP office. The description sheet explained the study and the approximate time it would take to complete the study; sign-up sheets offered various times to take the study and the participants were able to sign up for one on their own accord. At the time of the study the participants reported to the designated room which was either a study room in the library or a psychology lab room. The study room in the library was a large room which consisted of a large table with many chairs and the psychology lab rooms were small rooms which contained two or three desks and chairs.

Upon arrival, participants were greeted by the researcher. They were then asked to sign the experimenter's list of participants, which was used by the LPP for organization purposes. Next, the participants were given two informed consent forms, were asked to read it carefully, and then asked if they had any questions. The consent forms informed the participants about the nature of the study, the potential risks involved, and their rights in concern to the study. Each was signed by the researcher and the participant, one copy retained by the participant, one by the researcher. The participants were then given a demographic survey made by the researcher (see Appendix A), which asked for the participants' age, sex, class status, where the participant lives, and the country or state the participant is from; a pet survey made by the researcher (see Appendix B), which asked questions about pet-ownership, weekly pet-company, and pet-accessibility, which were either asked on a Likert-scale or as an open-ended question format; and the perceived stress scale created by Cohen and Williamson (1988), which asked the participants to rate certain events or feelings on how often they occurred in the past month. The surveys and the scale were given to the participants all at once, but the order of the materials varied in order to counterbalance.

At the end of the study, the researcher gave the participants a participant receipt to drop off at the LPP office in order to receive the extra credit, the compensation for taking the study. Feedback letters were also given to the participants, which thanked them for their participation and informed them about details of the study. The researcher thanked the participants personally, debriefed them, and reminded them to contact her if they had any questions.

The surveys and the corresponding stress scale of each participant were stapled together and stored securely. Data were entered into Microsoft Excel and SPSS spread sheets which were used for analysis purposes.

Results

Results from the pet survey were as follows. Fifty-eight point two percent of participants reported that they were very fond of pets, 14.5% were somewhat fond, 16.4% answered neutral, 7.3% were weakly fond, and 3.6% were not at all fond of pets (see Figure 1). Going along with being fond of pets the majority of participants indicated that being around a pet is either very or somewhat important to them (see Figure 2).

Reasons given for why it is important or unimportant (Reasons for Question 8) to the participant to be around pets were coded by whether they were positive (i.e., pets make me happy), negative (i.e., pets are a lot of work), or neutral (i.e., like pets but do not need them). As can be seen in Table 1, most participants reported positive reasons.

Forty of the participants owned a pet or pets and 15 participants did not own a pet or pets. Most people wrote that dogs were their favorite pet. Second most listed were cats. Other answers included fish, horses, cow, rabbit, snake, and hamster. The type of pet most participant owned were dogs, cats, fish, and horses. There was great variety in the number of how many pets in general a participant owned and how many of each type.

In Table 2 it can be seen that there was a wide range for how many times a person was around a pet during a regular semester week from 0 times to 14 times (M = 2.519). Three pieces of data were discarded from this analysis because two participants reported seven or more times and one participant answered less than once. For those participants who provided a range of how many times they were around a pet during a regular semester week (i.e., 2 to 3 times, instead of i.e. twice a week) the average score was used.

The distribution of access to pets varied, as 36.4% participants indicated that they very easily had access to a pet during a regular semester week, 21.8% indicated that they had access to pets somewhat easily, 18.2% answered the question with neutral, 3.6% said access was somewhat difficult for them, and 20% said that it was very difficult for them to have access to a pet during a regular semester week (see Figure 3).

Despite most participants having easy access to pets, as can be seen in Figure 4, most participants still indicated to either agreeing or somewhat agreeing to wanting to be around pets more during a regular semester week.

Whether there was a relation between pets and stress revealed mixed results, as 29.1% believed they were weakly related, 9.1% said they were somewhat weakly related, 29.1% were neutral, 27.3% found that they were somewhat strongly related, and 5.5% thought they were strongly related (see Figure 5). Reasons given for the answer about whether there was a relation between stress and pets (Reasons for Question 10) were coded either positive (i.e., pets decrease stress), negative (i.e., pets add to stress), or neutral (i.e., pets and stress do not affect each other). About an equal percentage of participants provided neutral or positive reasons, the frequency and percentage of each type of reason is shown in Table 3. Data from 11 participants were missing

either due to the question being added after the participant had taken the survey or because no answer was provided, and were thus excluded from the analysis.

The scores from Cohen's and Williamson's (1988) perceived stress scale had a mean of 17.87, and a standard deviation of 7.090.

Correlational and multiple regression analyses were conducted to find out which, if any, pet-related variable was associated with stress levels of undergraduate students as measured on Cohen's and Williamson's Perceived Stress Scale (1988). The stress scale score was entered as the dependent variable and the variables of class status, fondness of pets, pet ownership, weekly pet-company, weekly pet access, importance of pets, and thought on whether pets and stress were related were entered as the independent variables. For correlational purposes the variable of whether more access was wanted was entered as well. These variables were entered because of their quantitative nature, because they seemed most important in determining whether there was an association, and because the other most of the other questions referred to them (i.e., by asking to provide reason for the response in one of the questions).

The multiple regression analysis with the above mentioned variables entered, revealed that $R^2 = .186$, $F\ (7, 44) = 1.433$, $p > .05$. There were no significant regression weights, indicating that none of the pet-related variables entered were predictors to perceived stress scale scores of the participants.

There were no statistically significant correlations, however there were four weak negative correlations between the stress scale scores and the answers of participants regarding how fond they are of pets ($r = -.247$), how easily they can have access to pets during a regular semester week ($r = -.235$), whether they would like to be around pets more during a regular

semester week (r = -.307) and how important being around a pet is for them (r = -.261). An abbreviated table of the correlational analysis can be found in Table 4.

Discussion

The results of the multiple regression and correlational analysis did not yield any statistically significant results between certain pet-related variables and stress levels of undergraduate students. The reason for this may be due to the nature of the survey. Since the survey was self-made it likely had problems with reliability and validity. This is indicated by the wide range of answers as to whether people believed that their stress levels were related to pets. This question could be interpreted in two ways: positively or negatively, meaning that some participants may have interpreted it that pets decrease their stress because they make them happy (negative correlation), while others may have interpreted it that pets increase stress because of all the work (positive correlation), and depending on which interpretation answers differed. To figure out how participants interpreted the question, a following question asked the participants to clarify their answer, and then either coded as positive, negative, or neutral.

Reasons given as to why participants felt pets and stress were related a certain way, revealed that 40% of participants' answers were neutral, followed by 36.4% positive answers and only 3.6% negative answers. This indicates that most participants felt that their stress levels and pets were not related, which goes along with the results of the study. However, almost as many participants believed that pets had a positive effect on their stress levels, such as alleviating stress, which would go along with the idea that pets provide help during stressful and hard times (Allen, 2003; Staats et al., 2008) and the results of the study by Adamle et al. (2009) in which freshman college students indicated that they would be interested in pet-therapy as a support system to help during stressful times.

Another influence on the results may have been extraneous and confounding variables. An example would be that stress is influenced by many factors, including various factors which cause stress, as well as various causes which alleviate stress. It is not necessarily clear what exactly influences stress at a time, so students may not have been able to report on it correctly. An example would be that, despite the fact that most students answered that they had easy access to pets, it may be of importance to look into where those students come from, as depending on where the student lives he or she might be able to see pets more or less regular. If a student does see his or her pet regularly, because campus is close to home, there may also be other variables, such as being around family, which could influence the stress scores instead of pets alone.

Nevertheless, a majority of the participants indicated that they were fond of pets and that pets were important to them, as well as they would like to be around pets more during a regular semester week. This can be important knowledge as it shows that pets serve as an important part of students' lives, and thus this can be valuable to students, educators, schools, and other people who are interested.

There were several limitations to this study. First, the sample size was relatively small and convenience sampling was used due to time restraints. This influenced the variability within the participants, which can be seen as most participants were freshmen and lived in a dorm on campus. Second, due to lack of resources two of the surveys used were self-made by the researcher. This may cause problems with reliability and validity. Additionally, the researcher noticed after already having given out the pet survey five times that the question on whether the participants thought their pets and stress were related could be interpreted in two ways, so a question to clarify the answer was added; nonetheless, according to the responses from the participants the question was still not clear enough. This could be seen as some participants rated

that they believed that their stress and pets were not related, but then wrote that pets relieved their stress when asked to clarify their answer. This, obviously, is an issue. In hindsight, some of the other questions should have also been reworded and clarified, as well as some questions should have been added to the pet survey, as well as the demographic survey.

Another limitation was that unfortunately on some copies of the pet survey the Likert-scales were moved to the side, meaning that the sometimes part was moved under number five and the very part was moved past the five. The researcher did not notice this until after having given out three of the wrong surveys, however, it still seemed clear which belonged to which as participants did not ask for clarification when taking the survey. The subsequent surveys were fixed.

Future researchers should try and recruit more participants without using convenience sampling in order to add variability. Additionally, researchers should consider recruiting from other populations as well, such as graduate students and faculty. Researchers should also consider finding a professional survey on pet-ownership or another pet-related variable in order to avoid the limitations given by a self-made survey, such as reliability and validity issues. If this is not possible, future researchers should spend more time and detail into creating the survey and use a pilot-study in order to make sure that the questions are clear and yield to answers pertaining to the questions. It may also be helpful to focus on one specific variable and all its detail instead of looking at various variables at once, which may also be helpful in limiting extraneous and confounding variables. Researchers may want to focus on one of the four variables which have yielded a non-significant, but weak negative correlation with the perceived stress scale score in this study, such as pet-fondness, pet-access, and pet-importance. These do indicate that there may be an association between certain pet-related variables and stress levels of

undergraduate students which may be important to students, educators, and schools, and which future researchers could find out more about.

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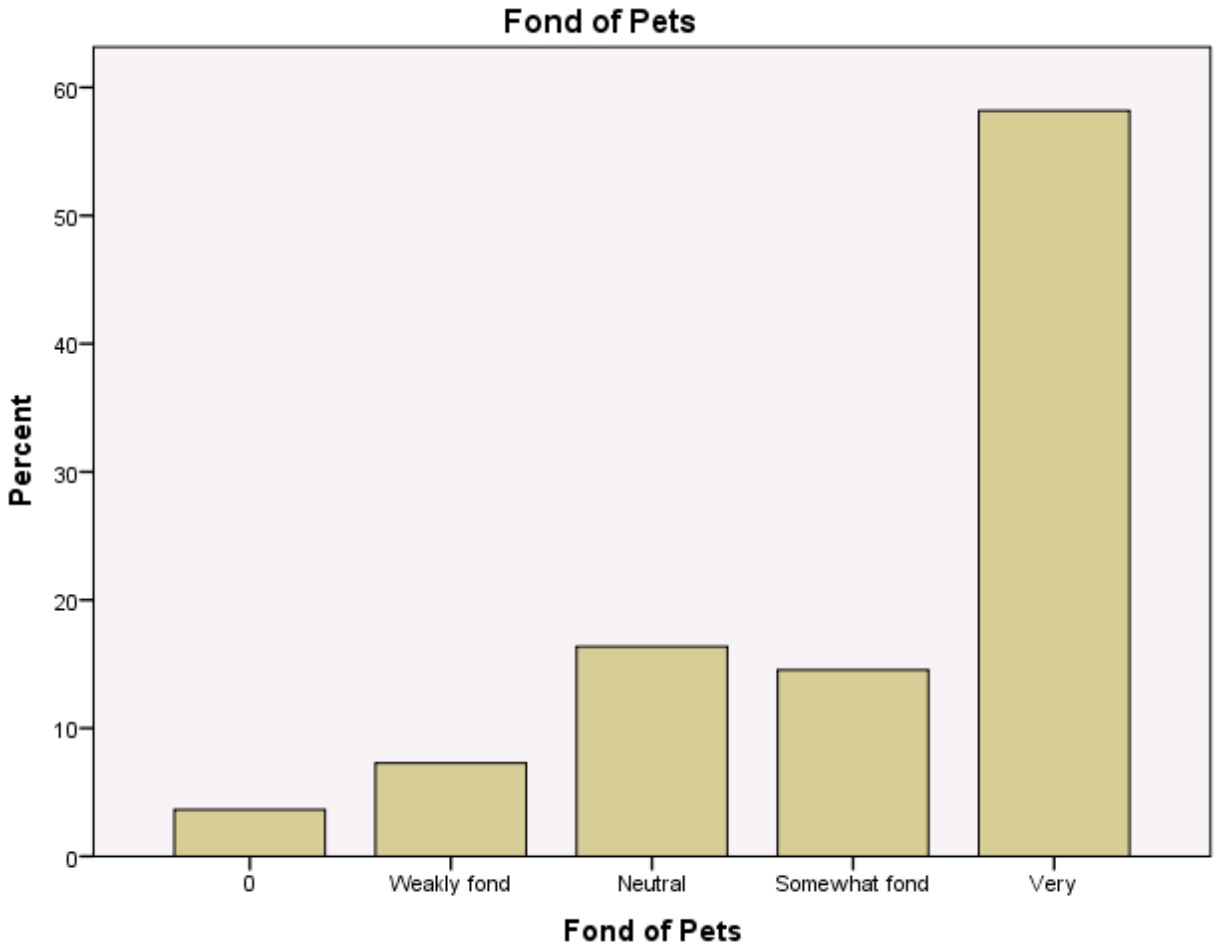

Figure 1. Percentages of the ratings given by the participants regarding the question on the pet survey on how fond they are of pets.

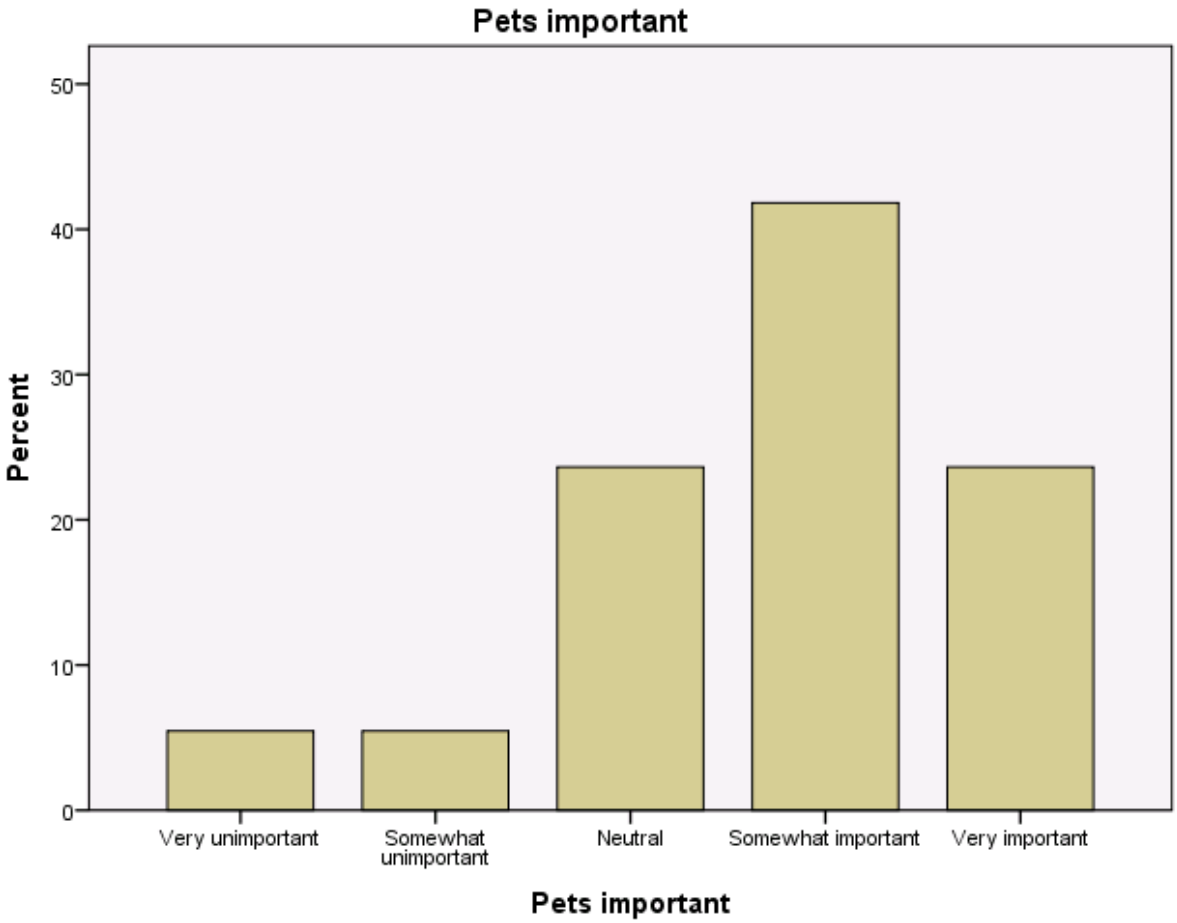

Figure 2. Percentages of the ratings given by the participants regarding the question on the pet survey asking about whether pets were important in their life,

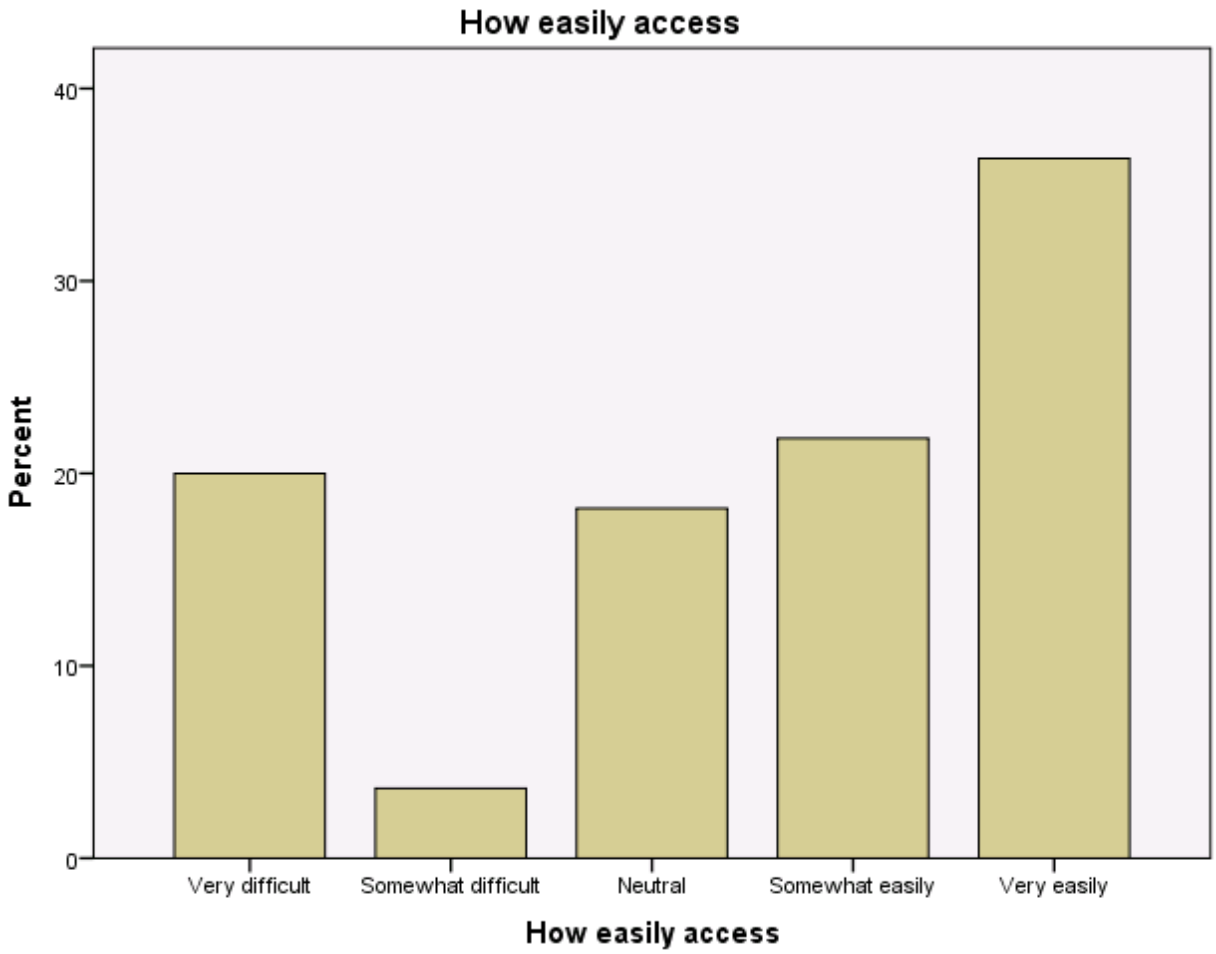

Figure 3. Percentages of the ratings given by participants regarding the question on the pet survey which asked how easily participants had access to any pet during a regular semester week.

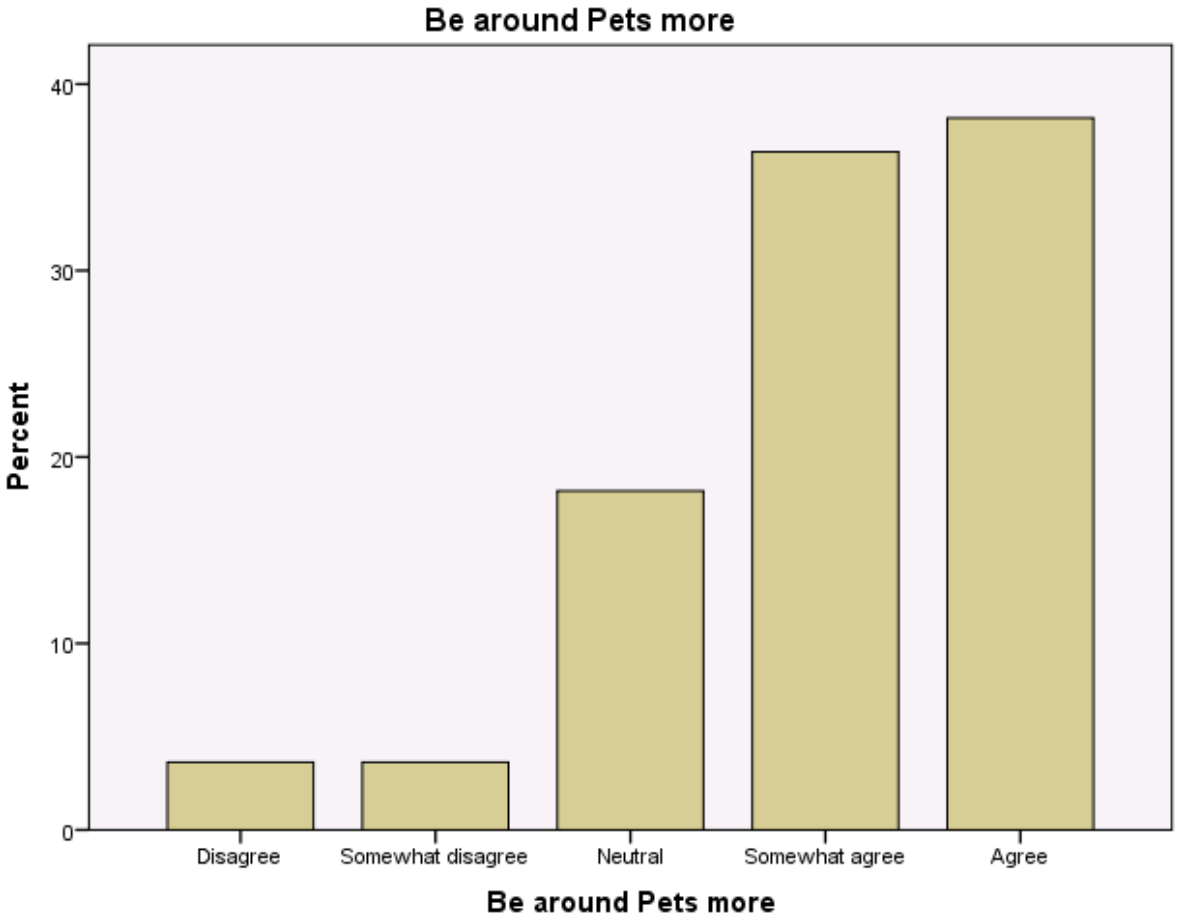

Figure 4. Percentages of the ratings given by participants regarding the question on the pet survey which asked whether participants would like to be around pets more during a regular semester week.

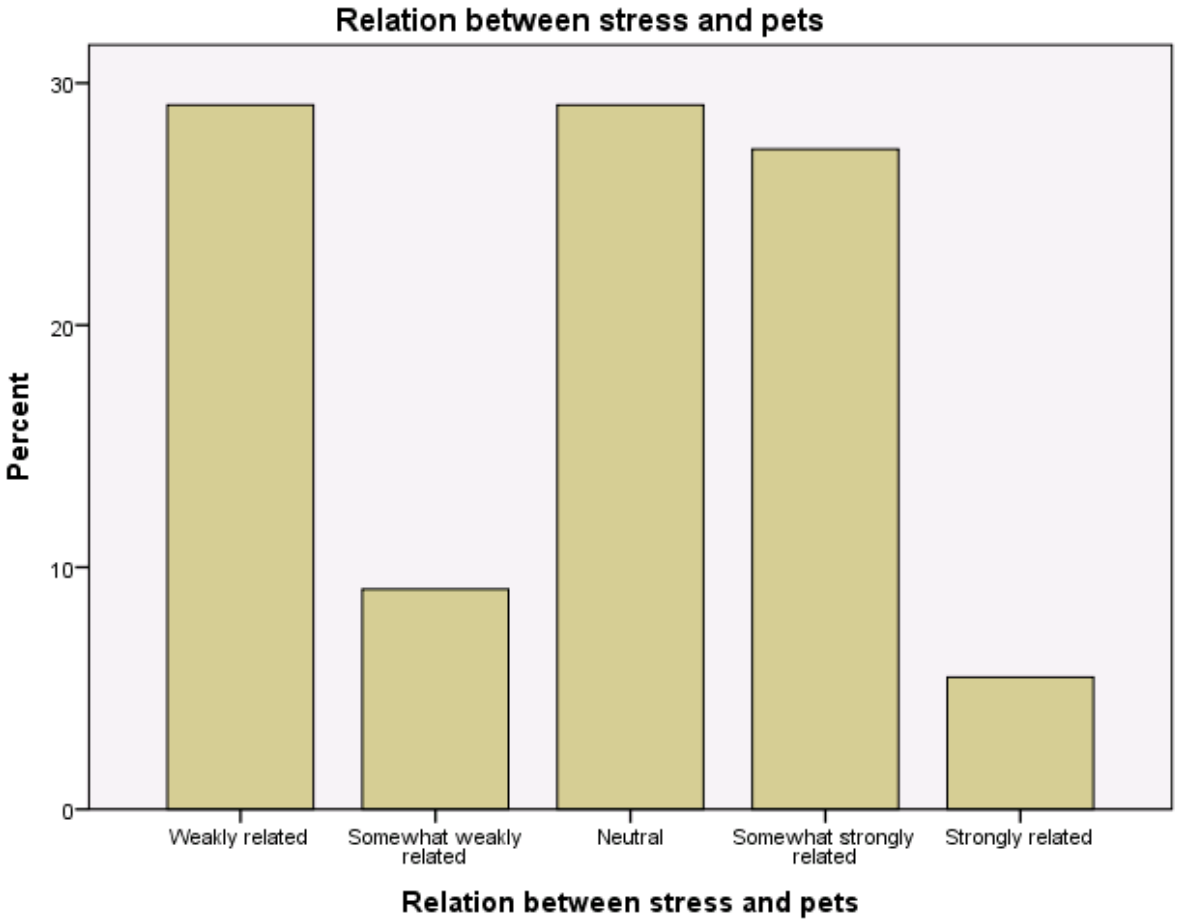

Figure 5. Percentages of the ratings given by participants regarding the question on the pet survey asking how strongly the participants think their weekly access to pets is related to their stress levels.

Table 1

Coded List of Answers Provided to the Question Which Asked the Participants to Clarify their Answer Given in Question 8 of the Pet Survey (Is Being Around a Pet Important to You).

Reason for Q8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	36	65.5	65.5	65.5
	Negative	4	7.3	7.3	72.7
	Neutral	15	27.3	27.3	100.0
	Total	55	100.0	100.0	

Note: Q8 = Question 8

Table 2

Numbers of Times and Percentages of How Many Times Participants Reported to Be around a Pet During a Regular Semester Week.

How many times around a pet/semester week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	11	20.0	21.2	21.2
	.5	1	1.8	1.9	23.1
	1.0	11	20.0	21.2	44.2
	1.5	3	5.5	5.8	50.0
	2.0	8	14.5	15.4	65.4
	2.5	1	1.8	1.9	67.3
	3.0	3	5.5	5.8	73.1
	3.5	2	3.6	3.8	76.9
	4.0	1	1.8	1.9	78.8
	5.0	3	5.5	5.8	84.6
	5.5	1	1.8	1.9	86.5
	7.0	6	10.9	11.5	98.1
	14.0	1	1.8	1.9	100.0
	Total	52	94.5	100.0	
Missing	System	3	5.5		
Total		55	100.0		

Table 3

Coded List of Answers Provided to the Question Which Asked the Participants to Clarify their Answer Given in Question 10 of the Pet Survey (How Strongly Do You Think Your Pet-Access and Stress Levels May Be Related).

Reason for Q10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	20	36.4	45.5	45.5
	Negative	2	3.6	4.5	50.0
	Neutral	22	40.0	50.0	100.0
	Total	44	80.0	100.0	
Missing	System	11	20.0		
Total		55	100.0		

Note: Q10 = Question 10

Table 4

Abbreviated Table of the Results of the Correlational Analysis between Stress Scale Scores and Various Variables of the Pet Survey and the Class Status.

Correlations

		Scores from the Stress Scale	Class Status of the Participant	Fond of Pets	Own a Pet	How many times around a pet/semester week	How easily access	Be around Pets more	Pets important	Relation between stress and pets
	Scores from the Stress Scale	1.000	.011	-.247	-.007	-.007	-.235	-.307	-.261	.052

Appendix A

Demographic Survey

Please fill out the following questions to the best of your ability by either filling in the blank or circling the applicable answer. If you are unable to answer a question or do not want to answer a question feel free to skip any item that you wish.

1) How old are you?

_____ years

2) What sex are you?

MALE FEMALE

3) What is your class status?

FRESHMAN SOPHOMORE JUNIOR SENIOR OTHER, please specify:

4) Where do you live?

ON CAMPUS (Dorms) OFF CAMPUS (Housing) OFF CAMPUS (Other)

5) Which country are you from?/If from the U.S., which state? _____

Appendix B

Pet Survey

Please fill out the following questions to the best of your ability by either filling in the blank or circling the applicable answer. If you are unable to answer a question or do not want to answer a question feel free to skip any item that you wish.

1) How fond are you of pets?

1	2	3	4	5
Not at all Fond	Weakly Fond	Neutral	Somewhat Fond	Very Fond

2) Of all possible pets which is your favorite? (you do not have to own it).

3) Do you own a pet or pets? If no, skip to question 5). YES NO

4) List the type of pets you own and how many of each of these types you own (e.g. 2 cats, 1 dog).

5) Approximately how many times are you around any pet (your own or somebody else's) during a regular semester week? _____times/week.

6) How easily can you have access to any pet (your own or somebody else's) during a regular semester week?

1	2	3	4	5
Very Difficult	Somewhat Difficult	Neutral	Somewhat Easily	Very Easily

7) Considering my answer in question 5) I would like to be around pets more during a regular semester week.

1	2	3	4	5
Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree

8) How important is being around a pet for you?

1	2	3	4	5
Very unimportant	Somewhat unimportant	Neutral	Somewhat important	Very important

9) Provide reason for your response in 8):

10) How strongly do you think your weekly access to pets may be related to your stress levels?

1	2	3	4	5
Weakly Related	Somewhat Weakly Related	Neutral	Somewhat Strongly Related	Strongly Related

11) Provide reason for your response in 10):

Appendix C

Perceived Stress Scale

PSS

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way.

	Never 0	Almost Never 1	Sometimes 2	Fairly Often 3	Very Often 4
1. In the last month, how often have you been upset because of something that happened unexpectedly?	O	O	O	O	O
2. In the last month, how often have you felt that you were unable to control the important things in your life?	O	O	O	O	O
3. In the last month, how often have you felt nervous and "stressed"?	O	O	O	O	O
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	O	O	O	O	O
5. In the last month, how often have you felt that things were going your way?	O	O	O	O	O
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	O	O	O	O	O
7. In the last month, how often have you been able to control irritations in your life?	O	O	O	O	O
8. In the last month, how often have you felt that you were on top of things?	O	O	O	O	O
9. In the last month, how often have you been angered because of things that were outside your control?	O	O	O	O	O
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	O	O	O	O	O

The Relationship between Self-esteem and School Performance

Trina M. Ward[4]

Self-esteem is what some may define as self-confidence. School performance is what society may define as participation in the classroom or how much effort you put forth into learning. This research was designed to see if a correlation between school performance and self-esteem exists. Participants were recruited at Lindenwood University and chose to take the study for extra credit in a particular class. Thirty-three participants were assigned to complete a single survey, with questions asking for their views about themselves, their participation in school activities, and demographic questions which included age and sex. Results showed that there was a weak positive correlation (r= .339) between positive self-esteem and school performance. There was also a weak positive correlation (r=.073) between positive self-esteem and G.P.A. However, there was a statistically significant correlation (r= .365) between G.P.A and overall school performance, showing that being an active school participant can better your grades. This research should be useful for further investigation into the benefits of studying and how it affects a student's grade point average.

Keywords: Self-esteem, performance, self-actualization

Self-esteem is defined as the ways in which people view themselves. Self-esteem is how about confidence and feeling like a person of worth. People who view themselves favorably have high self-esteem, whereas people who view themselves negatively have low self-esteem. Self-esteem affects a person's behavior dramatically (Walker, 2012). Kokenes (1974) stated that self-esteem became a household word; people were concerned about their self-esteem and strived to achieve high self-esteem. Teachers, parents, therapists, and others focused efforts on boosting self-esteem on the assumption that high self-esteem caused many positive outcomes and benefits, one being an affective and positive school performance. Kokenes (1974) conducted a study to investigate the role of self-esteem and how it affected the way teenagers viewed themselves. The students were in grades four through eight. Kokenes (1974) used the Coopersmith Self-Esteem Inventory, which was widely used at that time to measure self-esteem. One factor Kokenes

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(1974) found was that most of the grade levels generated a factor describing positive perceptions of school success, except in seventh graders. This negative factor may have had something to do with new school settings and a course schedule that students deemed much more challenging.

If self-esteem has affected pre-adolescence and adolescence, could self-esteem affect emerging adults (age range from18-25 years old), as well? Undergraduate school is a time where students start to experience the working world and build on their independence. There are many factors that contribute to stress during this period of life, schoolwork being one of the biggest factors. Could self-esteem play a role on school performance? Morrison, Thomas, and Weaver (1973) conducted research to see if they could support their hypothesis that college students with low self-esteem would predict getting lower grades on an exam or test than high self-esteem students. They used three different measures: Coopersmith Self-Esteem Inventory (CSEI), Ziller Social Self-Esteem scale, and Subscale of the Coopersmith inventory. Morrison et al. (1975) was able to support his hypothesis through the CSEI. Although they were unable to support their hypothesis through the other studies, they still found evidence that supported their hypothesis through one inventory. Morrison et al. (1975) were still unsure if college students with low self-esteem could predict getting lower test scores, but CSEI showed that low self-esteem does predict self-confidence

Another study Leib and Snyder (1967) tested the effects of group discussions on underachievement and self-actualization. Self actualization was defined as someone who is achieving his or her potential and underachievement had been defined as an individual not accomplishing what he or she aspired to do (Leib & Snyder, 1967). In this study, 28 underachieving college students withdrew from a class and participated in a discussion or lecture-based class. The results from changing classroom settings (typical classroom to

discussion group class) showed a rise in grade point averages. Leib and Snyder (1967) believed that special attention rewarded the students and gave them a better understanding of the research and a boost of confidence. This research led me to the hypothesis that students who participated in group lecture had higher self-esteem and earned better grades. This would have lead back to my school performance section of my survey when I asked about study groups and if he or she asked questions in class.

Crocker, Karpinski, Quinn, and Chase (2003) looked at the impact of grades on daily self-esteem and how it affected the participant and their confidence level. There were 122 participants in this study and they were all categorized in the major of psychology or engineering. There were three components to this study: self-esteem, affect, and major the participant identified with. All three of these components increased on days students received good grades and decreased on the days they received bad grades (Crocker et al, 2003). For example, if the student received an A on the test, then he or she would feel good about the grades and about themselves, they would feel confident for the next test, and they would feel confident about the major they are in. Perhaps self-esteem and academic competence moderated the effect of bad grades. The researchers of the study did not state that self-esteem affected good grades, but that good grades affected self-esteem. Could there be an opposite effect?

The study that I conducted had to do with finding out if having high self-esteem correlated with better grades. I hypothesized that there was a positive correlation between self-esteem and school performance among emerging adults. The intention of this study was to survey students at Lindenwood University (undergraduate students).

Method

Participants

For this research I recruited my participants through the Lindenwood Participant Pool (LPP) at Lindenwood University. All of the participants were undergraduate students. Students who wanted to receive extra credit for a class chose to participate in a study through LPP. The students knew what classes they could receive extra credit for because of the professor's approval or notification through the LPP. They would receive a receipt showing what study they participated in and what class the extra credit was going towards. The LPP had their own bulletin board on the fourth floor in Young Hall at Lindenwood University where all of the researchers post sign up sheets.

In this research, I had 33 participants (n=33: 19 women (57.6%) and 14 men (42.4%). The age of the participants ranged from 18-24. The participants were also asked to give their ethnical identity and the results showed 81.8% Caucasian, 9.1% Hispanic, and 9% Other). The participant's G.P.A was also asked to be used as a variable (18.2 % of the students had a 3.0 G.P.A).

Materials and Procedure

Prior to my study, I found the Rosenberg's (1965) self-esteem scale that was found appropriate and influential to my study. I created the demographic survey and the school performance section of the survey (see Appendix A). To keep the theme of the survey, I made the school performance questions into a scale like the Rosenberg's survey. Once I had all of my materials created and ready for research, I posted my sign up sheet on the bulletin board on the fourth floor in Young Hall. Attached to the sign up sheet was the recruitment description (see Appendix B) which gave a brief insight into what my study was about. On the day of my

research I meet with the participants in a classroom/lab that the LPP assigned for me. The lab/classroom had desks, chairs, and a professor's desk where I was able to keep all my materials organized. I supplied the pencils for the participants.

Once the first participant arrived, I offered him or her a desk and immediately had him/her read the informed consent (see Appendix C). The informed consent stated that the participant was 18 or over, if the participant felt uncomfortable at any time that he or she could leave the study and still receive the extra credit, and if the student had any emotional fall outs after the study that he or she should feel free to speak with one of the counselors on the Lindenwood University campus. I had the participant sign two copies. I had the participant keep one copy and I kept the other one with my files. Once they signed the informed consent, I had them fill out information on the Experimenter's List of Participants sheet.

Once the participant filled the experimenter's list of participants sheet I handed him/her the self-esteem survey (see Appendix A). There were three parts to the survey: the school performance section (which asked the student if they attended any study groups, etc.), the self-esteem section (an example of one of the questions was "I feel I am a person of worth"), and the demographic section (age, ethnicity, G.P.A, sex, and semester completed). Once they were done with the survey, I handed them the feedback later (see Appendix D) which informed the participant about what the study was trying to test and if they have any questions, they should feel free to contact me. The participant also received their participant receipt which they handed to the LPP for extra credit.

Results

Data were entered through a system called Statistical Package for the Social Sciences (SPSS). SPSS is a statistical analysis that I used to correlate my data. After scoring the positive

and negative self-esteem and the overall school performance, I used bivariate statistics and to find the Pearson correlation coefficient I also used SPSS to find the frequency of all demographic information. The purpose of this study was to find a correlation between positive self-esteem and G.P.A. The end result was weak positive correlation (r= .073).

The only significant correlation that I found in my study was between G.P.A (M= 3.15; SD=.484) and overall school performance (M=10.39; SD=1.89). The results showed the participants who attended study groups and asked questions during class obtained a higher G.P.A, (r=.365). This supports the belief that the more you put forth effort in you academic studies, the higher you G.P.A will be.

Discussion

Although there was a weak positive correlation between school performance and self-esteem, research still revealed some very informative material that should be used in later studies. Although there is no correlation between school performance and self-esteem, there is a correlation between school performance and G.P.A. As already stated earlier in this paper, these results showed that active participation in class room discussions and asking question can relate to your G.P.A in a positive way.

There are many things that I would have liked to do differently and perhaps in the future I will try to extend this research. I would have liked to collect more data. There were 33 participants, but that is a rather small number considering how many students there are at Lindenwood University. I would have liked to have had at least 60 participants so perhaps in the future I can try to collect much more data. Another preference that I may take into consideration is collecting my data from a younger demographic. Once you have reached a certain age, you have become a mature adult who is no longer affected by peer pressure or finding acceptance.

Sixth, seventh, and eight graders are going through a time in their life where they are affected greatly by acceptance, so perhaps I would be able to collect interesting results through the adolescent demographic. One last change I may take into consideration is not focusing so much on whether self-esteem is related to school performance, but if receiving a good grade is related to your self-esteem. There are contributions to self-esteem and perhaps being an amazing student related back to self-esteem. I believe I would find a correlation between those two categories if I just re-word the questions in the survey.

My research did not retrieve the results I expected, but there was still some correlation between certain data. More research needs to be conducted concerning this particular topic. I am sure anyone who is trying to find research concerning the self-esteem of college students or whether being an active student outside of the classroom would find this study very informative.

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APPENDIX A

Main Survey

Survey

Directions: Please circle the number for each question that best describes your agreement with each statement.

0: Strongly Disagree 1: Somewhat Disagree 2: Agree Somewhat 3: Strongly Agree

1. I am the type of student who attends class regularly.

   0 1 2 3

2. I am the type of student who asks questions in class.

   0 1 2 3

3. I am the type of student who attends study groups and try to gain as much from the experience as possible.

   0 1 2 3

4. While in a new class, I feel optimistic that I will pass the course.

   0 1 2 3

5. I usually feel confident that I have done well on a test.

   0 1 2 3

6. I feel that I'm a person of worth, at least on an equal par with others.

   0 1 2 3

7. I feel that I have a number of good qualities.

   0 1 2 3

8. All in all, I am inclined to feel that I'm a failure.

   0 1 2 3

9. I am able to do things as well as most other people.

   0 1 2 3

Directions: Please circle the number for each question that best describes your agreement with each statement.

0: Strongly Disagree 1: Somewhat Disagree 2: Agree Somewhat 3: Strongly Agree

10. I feel I do not have much to be proud of.

    0 1 2 3

11. I take a positive attitude toward myself.

    0 1 2 3

12. On the whole, I am satisfied with myself.

    0 1 2 3

13. I wish I could have more respect for myself.

    0 1 2 3

14. I certainly feel useless at times.

    0 1 2 3

15. At times I think that I am no good at all.

    0 1 2 3

Demographic Information

1. Are you: Male Female

2. What is your age?

3. What is your ethnicity?

4. What is your cumulative G.P.A?

5. How many semesters have you completed at Lindenwood?

APPENDIX B

Recruitment Description

Description:

In this study, you will be asked to complete a short questionnaires asking about your school performance, self-esteem, and simple demographic information about yourself. The entire procedure should take no more than 15 minutes of your time.

Sign-Up Schedule

APPENDIX C

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete a short questionnaires asking about my school performance, self-esteem, and simple demographic information about myself. I understand that I should be able to complete this project within 15 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on any of the surveys. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. In the unlikely event that I feel uncomfortable or concerned about the topic of the study, I understand that Lindenwood University offers counseling services that I can turn to. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

Student Researchers' Name and Number:

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APPENDIX D

Feedback Letter

Thank you for participating in my study. The questionnaire was used in order to find a correlation between self-esteem and school performance. Is it possible that people with higher self-esteem do better in school, or does self-esteem have nothing to do with person's academic studies? Those are some of the questions that will be addressed in this study.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of consumers, 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. In the unlikely event that you feel uncomfortable or concerned about the topic of the study, please understand that Lindenwood University offers counseling services that you can turn to. 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:

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The Relationship between Social Support and Self-esteem

Ashley Karraker[5]

Social relationships are an important element of everyday life. They are related to well-being, and can bring happiness and fulfillment to our lives. Self-esteem is extremely important to our health, physical and psychological. It is so important that we go to great lengths to preserve it and build it up. There are many factors that go into the formation of self-esteem, and this paper looks at the relationship between self-esteem and social support. The research hypothesis was that there would be a positive relationship between social support and self-esteem. The hypothesis was supported, but the correlation was not strong. This could be because there are many factors that are involved with the development of self-esteem, and social relationships and involvement is just one aspect. A multi-faceted approach is probably the best way to view self-esteem. It is different for everybody, and no one thing is the sole determinant of self-esteem.

This study was designed to explore the relationship between social support and self-esteem. Social relationships have a large impact on our lives, and self-esteem is intertwined with our social relationships, as well as mental and physical health. It is important to know what factors are involved with self-esteem in order to learn how to improve it.

Strong social relationships have been positively linked to mental and physical health and well-being (Dewall, Twenge, Koole, Baumeister, Marquez, & Reid, 2011). Interpersonal conflict, especially with family members and close friends, has been found to have a significant impact on emotional stability and self-esteem (Sturaro, Denissen, Van Aken, & Asendorpf, 2008). Social support is defined by number of social relationships and levels of involvement and responsiveness in those relationships (Lemay, Clark, & Feeney, 2007).

Self-esteem is defined as the way we perceive ourselves, and is partially based on how others view our traits (Anthony, Holmes, & Wood, 2007). Anthony et al. (2007) named two

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categories of traits, social commodities and communal qualities; social commodities are traits that are easily and quickly observed. These can include things like physical attractiveness and sense of humor. These traits are important in the formation of social relationships. Communal qualities are less easily observable. These refer to how someone fits into a social role, such as the extent to which they express their gender identity (Anthony et al., 2007). Communal qualities are more internal, and are the base of longer lasting relationships instead of just a first impression. Social esteem has been found to be more attuned to others' views of our social commodities than our communal qualities (Anthony et al., 2007). This is perhaps due to the fact that these traits are more easily perceived by others, and thus commented on more often. The way others view us has a major influence on how we view ourselves. This is called reflexive self-perception and May (2001) found that the way we view ourselves and the way others perceive us are highly correlated.

Self-esteem has been found to have an influence on our health as well (Stinson et al., 2008). Poor self-esteem was linked to illness and even predicted mortality up to 10 years later in patients with cardiovascular problems and Stinson et al. (2008) also found that poor self-esteem predicted low quality social relationships.

Self-esteem is important to us, and we do many things to enhance and protect it. Self-handicapping is when a person subconsciously puts an obstacle in the way of achieving a goal so that failure is inevitable (McCrea, 2008). McCrea (2008) found that self-handicapping opens the door for counterfactual thinking. Counterfactual thinking is when someone thinks back on an event and thinks about how it could have been different. Upward counterfactual thinking involves thinking about how that past event could have been better, usually if it were not for the

self-handicap. McCrea (2008) found that this particular type of counterfactual thinking preserves self-esteem.

Low levels of self-esteem and low perception of social support can have serious consequences. Chioqueta and Stiles (2007) found that low levels of self-esteem were an independent predictor of feelings of hopelessness and depression. They also found that suicide ideation was predicted by perception of social support (Chioqueta & Stiles, 2007). Low levels of self-esteem have also been related to deviant behavior (Ferris, Brown, Lian, & Keeping, 2009). This is because low self-esteem predicts reaction to role stressors, such as having a job. Low self-esteem can negatively affect performance in the workplace because it can make a person react negatively to stressful situations, such as stress that can be encountered in the workplace (Ferris et al., 2009).

Self-esteem can be tied to relationships in a dysfunctional way. Relationship-contingent self-esteem is when a person places all of their self-worth based on their relationships (Knee, Canevello, Bush, & Cook, 2008). This is dysfunctional because self-esteem is multi-faceted. Relationship quality is one aspect, but it is also related to how a person feels about him or herself based on self-evaluation of personal characteristics (May, 2001).

My hypothesis was that higher perception of social support is positively related to higher levels of self-esteem. The reasoning behind this is because more social support indicates more positive relationships, which can increase feelings of belonging and being included. Both of these things are contributing factors to self-esteem (Anthony et al., 2007). Feelings of being excluded and disconnected with family and friends predict feelings of hopelessness (Chioqueta & Stiles, 2007). This study surveyed participants on self-esteem and social support, and the data was correlated in order to determine the strength of the relationship.

Method

Participants

Participants were recruited from the Lindenwood Participant Pool (LPP) by posting a short description of my study and letting them sign up for the time that they wanted. I posted my study description of the bulletin board across from the LPP office, on the top level of Young Hall at the Lindenwood campus. The LPP is a method of convenience sampling for experimenters. Certain introductory level classes offer up to five points extra credit to their students for participating in experiments. I had 32 participants. They were all college students, 15 male participants and 17 female participants. The ages ranged from 18-33. I used a convenience sampling because it was more available and time efficient to recruit students from the LPP. The students received extra credit as compensation for participating in my study.

Materials and Procedures

I held my study in the Psychology Labs in the basement of Young Hall. These labs are small rooms that include a long table with a few chairs for the participants and the experimenter to sit. When my participants first came into my study, I gave them an Informed Consent Form, which outlined their rights to confidentiality and explained that their participation was voluntary. After that was finished, I gave them a measure of social support (see Appendix A) to measure the participants' levels of involvement in social activities and relationships (Insel & Roth, 1985). I then gave them a self-esteem questionnaire (see Appendix B) for participants to self-report their levels of self-esteem. This questionnaire was designed by the researcher to measure how strongly the people felt about their positive and negative qualities, as well as overall satisfaction with certain aspects of themselves. Both of these surveys were given out on paper. The surveys were separate and the researcher counterbalanced the order in which they were given in order to

overcome any order effects. Each participant was assigned an ID number based on the order in which they arrived to keep track of which survey was theirs during the statistical analysis portion of the study and to ensure anonymity.

When the participants were finished with the surveys, I gave them a short demographic questionnaire, and I gave them a participant receipt for them turn it to the LPP office in order to earn the extra credit. The self-esteem questionnaire was a short survey in which the participant was given various statements relating to both positive and negative self-esteem. The participant rated how much the statements matched them on a scale from one to five. These surveys were scored by adding up the numbers from the questions relating to positive self-esteem and the numbers that related to negative self-esteem were reversed (five was converted to one, four was converted to two, and so on) and also added. The social support survey was based on Paul Insel and Walton Roth's (1985) social support scale, but was edited by the researcher to make the questions more clear and up to date.

Results

There was a slight positive correlation between social support and self-esteem, with r=0.196. This supports my hypothesis that there would be a positive correlation between social support and self-esteem. Male (M=33.53, SD=6.88) and female participants (M=33.76, SD=8.24) had an almost equal mean of social support. Male (M=33.53) Women (M=33.76) However, male participants had a significantly higher self-esteem mean (M=57.20, SD=4.09) than female participants (M=53.00, SD=6.55) $t(30)= 2.14$, $p<.05$.

Discussion

My hypothesis that there would be a positive correlation between social support and self-esteem was supported. However, the correlation was not strong. This shows that having more

social support and social involvement has the potential to benefit self-esteem slightly, but there are many other factors that contribute to self-esteem development. It is possible only when a person has relationship-contingent self-esteem that social support may drastically affect self-esteem, because relationship-contingent self-esteem is when self-esteem is based solely on relationship satisfaction (Knee et al., 2008). This implies that healthy self-esteem comes from within the person, as opposed to external sources. Other factors are likely involved as well, such as academic or athletic success. Self-esteem involves whatever is important to the person, and therefore is different for everybody.

Men and women, while having similar social support levels, were found to have differing levels of self-esteem. Women had lower self-esteem than men, despite having the same level of social support. This shows that women are possibly more socially oriented, and therefore need more social support in order to increase their self-esteem. This also implies that men may have more sources from which they derive their self-esteem besides from social support. Overall, this study found that there is only a small relationship between self-esteem and social support, which shows that there are many other factors that go into the formation of self-esteem.

There were some limitations to the study. There were only 32 participants, and more would be needed to determine significant results. Other contributing factors to self-esteem were not looked at, so a future study should look for other factors besides social support that contribute to self-esteem. There was little ethnic diversity in the study, so it was not possible to see if there were any cultural differences in self-esteem. A measure to see what sorts of things are important to the person would also be helpful to see if the results would change, based on how important social support is to that person.

In conclusion, self-esteem is not derived from just one thing, but from many. It depends on what is important to the person, and therefore varies from person to person. More research is needed to determine the factors that are involved in the formation of self-esteem.

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Appendix A

Participant ID:

Social Support Scale

To which of these groups do you belong, and what is your level of participation?

Circle yes or no next to each group saying if you belong, and, if yes, indicate level of participation 1-3, one being the lowest amount of participation and 3 being the highest amount.

Group	**Do you belong?**		**Level of participation**		
A social or recreational group	yes	no	1	2	3
A labor union, commercial group, or professional association	yes	no	1	2	3
A political party group or club	yes	no	1	2	3
A group concerned with children (such as PTA or Boy Scouts)	yes	no	1	2	3
A church-connected group	yes	no	1	2	3
A group concerned with a public issue, such as civil liberties, property rights, etc.	yes	no	1	2	3
A group concerned with the environment, pollution, etc	yes	no	1	2	3
A group concerned with self-improvement that meets regularly	yes	no	1	2	3

Any other groups yes no 1 2 3

If yes, describe:

How many close friends (people you feel at ease with, can talk about private matters, and can call on for help) do you have?

Circle: none 1-3 4-7 8-11 more than 11

How many of these friends do you see at least once a month?

Circle: none 1-3 4-7 8-11 more than 11

About how often do you see any close friends?

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

How often are you on the telephone with any close friends?

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

How often do you communicate electronically with any close friends (via text messaging, web chat, email, etc)

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

How many relatives do you have that you feel close to?

Circle:none 1-3 4-7 8-11 more than 11

How many of these relatives do you see at least once a month?

Circle:none 1-3 4-7 8-11 more than 11

About how often do you see any close relatives?

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

How often are you on the telephone with any close relatives?

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

How often do you communicate electronically with any close relatives (via text messaging, web chat, email, etc)

Circle:

Not applicable

More than once a week

Once a week

A few times a month

Once a month

Less than once a month

Appendix B

Participant ID:

Self-Esteem Questionnaire:

1-Not at all like me

2-Not very much like me

3-Sometimes like me

4-Often like me

5-Always like me

_____I tend to get along with people I meet

_____I am generally reliable

_____I easily lose my temper

_____I am fun to be around

_____People generally like me

_____I feel self-conscious in social situations

_____I tend to be optimistic, even when things don't go my way

_____I tend to take my stress out on other people

_____I am generally satisfied with my appearance

_____I tend to be overly critical of myself

_____I feel comfortable with the person that I am

_____I feel as if others around me have more fulfilling lives than I do

_____Criticism from others is very difficult to handle

_____I feel confident in my ability to accomplish my goals

_____People tell me that I am too hard on myself

How helpful are Academic Advisors for College Students?

Andréa Conver[6]

"Advising is an essential element of student success," (Sayles & Shelton, 2005, p. 99). There seems to be a correlation between quality academic advising and student retention among schools that purposely pursue high quality in advising their students (Bahr, P. R., 2008; Fields & Barrett, 1996; Sayles & Shields, 2005). Though there are existing forms of academic advising within colleges and universities, the structures and goals for each strategy seem to differ. For example, local nursing schools were seeking to improve the quality of nursing education and retention through their advisory programs (Sayles & Shelton, 2005). In this article, the schools are advised to access individuals' learning styles prior to setting any form of advisory per student. Once the student is placed into the advisory program, he or she is encouraged to get to know his or her advisor and participate in the Learner Academic Action Plan, a devised plan which encourages students to spend at least three hours studying per week. The action plan also assesses the student's life using two components: FRED (Fun, Rest, Exercise, and Diet) and PAL (Praise, Advice, and Listening). Component FRED (2005) encourages students to pursue fun and pleasure at least four hours out of the week, which seems rather shocking to the experimenter because she hadn't read any material accessing the importance of leisure time in regards to academic advising or academic success prior to reading this article.

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The author would like to recognize Dr. Nohara-LeClair from the Psychology Department at Lindenwood University, the Institutional Review Board at Lindenwood University, and the Student Life and Leadership Department at Lindenwood University for all of their contributions to this study.

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In addition to gathering research on various forms of academic advising, the experimenter thought it best to research Lindenwood University's (LU) academic advising in the past and compare it to what is occurring throughout the academic advising process in the year 2012. From 1951 to about 1962, LU, then known as Lindenwood College, had both professional counselors and student counselors to assist in advising. Like the other sources, Lindenwood College placed great value upon the freshman class (LU, 1959-1960). Each freshman had at least 15 advisors in regards to registration. They were also encouraged to seek other forms of assistance if they deemed necessary. The purpose of this study is to evaluate the effectiveness of academic advising with undergraduate students at Lindenwood University.

Method

Participants

___ Lindenwood University undergraduate participants were selected, by convenience sampling, through the Lindenwood Participant Pool (LPP). There were __ male participants and __ female participants. ___ Lindenwood University undergraduate participants were selected by convenience sampling upon the experimenter's personal request. These participants are considered non-LPP participants and partook in this study upon free will.

Materials

The materials for this study included a recruitment letter, signup sheets, an experimenter's list, extra-credit receipts, a 24-question survey (See Appendix D), a consent form (See Appendix C), a feedback letter (See Appendix E), and reserved rooms. The recruitment letter informs the participants of the content within the 24 question survey and the expected amount of time the study will require (See Appendix A). The survey contained questions assessing participants' personal experience with their academic advisors, their college

background, as well as their extra-curricular activities. The signup sheets were provided by the LPP office. Signup Sheet B was chosen in order to recruit and survey multiple participants at one time. The experimenter's list contained a list of LPP participants who partook in the study, their student ID number, and the instructor's name for which class they'd receive the extra credit for participating in the study. The experimenter's list is given in order to help the LPP office accurately distribute the extra credit points

Procedure

___ participants signed up for the study on the LPP Board located on the fourth floor in Young Hall. After signing up on the signup sheets, which properly informs them of the date, time and location of the study, the participants arrived to the study, prior to receiving an Informed Consent form (See Appendix C). Once the participants agreed to proceed with the study by signing the consent form, they were given a 24-question survey (See Appendix D), assessing their experiences with their academic advisors, as well as some demographic questions (for the purpose of evaluating any potential correlations). After taking the survey, the participants were then given a feedback letter (See Appendix E), discussing the purpose of the study, as well as their rights to accessing the results of the study. Following the Feedback letter, the participants were given a participation receipt, showing that they had partook in the study. The experimenter made sure each participant thoroughly filled out the slip, signing and printing his or her name, recording his or her student identification (ID) number, the date in which he or she partook in the study, and the name of his or her instructor for whose class he or she will receive the extra credit points. Lastly, the experimenter told each participant to give the participation receipt to the LPP office in Young Hall, room number 407. Throughout the entire

process, all participants were fully aware of their right to withdraw from the study at any point of the process, as stated in the Informed Consent Form.

___ participants volunteered outside of the LPP process. These non-LPP participants were informed by the experimenter that she was in the process of conducting a study about academic advising. She further asked each participant if he or she was interested in partaking in the study by taking the experimenter's advising survey. She further explained that she was solely interested in the participants' personal experiences with their advisors, and that the survey was 24 questions long, taking no more than 10 to 15 minutes of their time. They were first given an Informed Consent form (See Appendix C). They were then given the 24-question survey, assessing their experiences with their academic advisors, as well as some demographic questions (See Appendix D). After taking the survey, the participants were then given a feedback letter (See Appendix E), discussing the purpose of the study, as well as their rights to accessing the results of the study. Throughout the entire process, all participants were fully aware of their right to withdraw from the study at any point of the process, as stated in the Informed Consent Form. The participants were then asked by the experimenter if they had qualified for the opportunity to receive extra credit points through the LPP. The participants who did qualify were given a participation receipt, showing that they had partaken in the study. The experimenter made sure each participant thoroughly filled out the slip, signing and printing his or her name, recording his or her student identification (ID) number, the date in which he or she partook in the study, and the name of his or her instructor for whose class he or she will receive the extra credit points. Lastly, the experimenter told each participant to give the participation receipt to the LPP office in Young Hall, room number 407. The participants who did not qualify weren't given a participation receipt, but were shown gratitude for partaking in the study.

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Appendix A

Recruitment Description:

In this study, you will be asked to complete one task. You will take a survey of 24 questions, assessing your personal experience with your academic advisor, your college background, and your extra-curricular activities. The entire procedure should take no more than 5 minutes of your time.

Sign-Up Schedule

Appendix C

Informed Consent Form

(This Consent form is for both LPP and non-LPP participants)

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete one questionnaire. This questionnaire requires me to answer questions about my personal experiences with my academic advisor, and provide simple college-related information about myself. I understand that I should be able to complete this project within 15 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on any of the surveys. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____
(Signature of participant)

_____ Date: _____
(Signature of researcher obtaining consent)

Student Researcher's Name and Number:

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Appendix D

Academic Advising Questionnaire

1. How often do you seek assistance from your academic advisor?

___ times a semester

2. How often has your advisor missed an appointment with you in the past year?

___ times

3. Have you ever mentioned issues with time management to your advisor?

Yes No Other (please specify)

4. Has your advisor ever given you advice on time management?

Yes No Can't Remember

5. Has he or she ever recommended that you see a mentor for your academic success?

Yes No Can't Recall Didn't Need One

6. What is your current college status? (If you are not a senior, skip the three questions.)

Freshman Sophomore Junior Senior

7. Has your advisor ever reminded you of important deadlines and procedures for graduation?

Yes No Can't Remember Other (please specify)

8. How often does your advisor encourage you to seek to participate in practicums and internships?

Never Rarely Most of the time All of the time

9. Has he or she discussed the potential benefits or setbacks with choosing practicums or internships?

Yes No Can't Remember

10. How often does your advisor ever remind you of important deadlines in regards to scheduling classes?

Never Rarely Most of the time All of the time

11. How often has your advisor arrive late to any of your advising sessions within the past two semesters?

Never Rarely Most of the time All of the time

12. How often does your advisor seem busy with other things during your advising sessions?

Never Sometimes Most of the time All of the time

13. How often does your advisor forget about scheduled appointments with you?

Never Sometimes Most of the time All of the time

14. Does your advisor post signup sheets for advising sessions?

Yes No Not Sure

15. Does your advisor tend to give you inaccurate information in regards to your major and/ minor requirements?

Yes No Can't Remember Other (please specify)

16. How often has your advisor forgotten to open your portal?

Never Rarely Most of the time All the time Not Applicable

17. Has your advisor ever asked you questions about your grades in any of your classes?

Yes No Not Applicable

18. Does your advisor help you choose your classes?

Yes No Never needed help

19. Have you ever changed advisors? (If you haven't, skip the next question)

Yes No

20. Why did you change your advisor?

21. What is your sex? Male Female Other

22. How old are you (in years)?

23. What is your major?

24. Are you currently active in any of these areas?

A job (out side of the LU Work and Learn program): Yes No

An LU club/organization: Yes No

An LU sport: Yes No

Appendix E

Feedback Letter

(This Feedback letter is for both LPP and non-LPP participants)

Thank you for participating in my study. The questionnaire was used in order to determine whether or not people believe their academic advisors are helpful. The style in which the questions where given were to help you evaluate the quality of your own interactions with your academic advisor.

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. 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,

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Supervisor:

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The Possible Effects Silence and Music Listening have on Memory

Allisha Rounds[7]

College students often can be seen listening to music while studying in the library and around campus. Previous research indicates that some instrumental music can be beneficial to a person's ability to recall information such as words, while lyrical music can have the opposite effect. Further studies have shown students do poorly on reading comprehension tests when listening to popular music than if they were sitting in silence. The current research aimed to look at music listening compared to memorization abilities. Thirty participants from the Lindenwood Participant Pool were asked to memorize two short passages. One passage was given in silence and the other passage was read while listening to the participants' choice of music. They were then asked to write down as much of the passages they could remember word for word. While no significant results were found in this study, future research could be conducted with a larger sample size while also looking at a person's preference for studying with or without music.

Music has always been an aspect in the human experience. Young children learn nursery rhymes that aid their knowledge of the world. When they become a little older they may start to listen to popular music with their parents. Teenagers are often stereotyped by their love of music, often found listening to their favorite songs, and keeping up with their favorite bands. Many college students can be found studying in the library with ear buds in their ears, presumably listening to music. The question then can be asked, is listening to music conducive to learning or simply an unknown distraction for the parties involved?

Some research has concluded that music is not necessarily as distracting as other factors. Rowe, Philipchalk and Cake (1974) looked at two different distracters that may influence a person's ability to remember sounds and words. Their study asked participants to attempt to remember either a series of words or a series of familiar sounds such as a car horn. During the first memorization session, participants were made to listen to a distraction tape compiled with either music or poetry. After listening and attempting to remember words or sounds the

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participants wrote down what they could remember. The second trial was similar except there were no distractions for the participants. Rowe et al. (1974) found that words were much better remembered than sounds when the participant was listening to music but was worse if they had the poetry distraction. They believe this could prove that sounds and words may be controlled by different brain functions and therefore instrumental music may not be detrimental to verbal learning (Rowe et al., 1974).

Meudell (1972) seems to confirm the idea that memory for different things may in fact be coded and stored separately by the brain and therefore distractions may not be as distracting depending on their nature. This study looked at the memorization of letters and their positioning on a piece of paper. After the participants were given time to memorize the letters and their positioning, researchers either gave them a visual or auditory distraction. Meudell (1972) found that the auditory and visual distractions had negative implications for the memory of letter locations while they did not necessarily have the same effect on the actual recall of the letters.

While it may be unclear how distracting music truly is on memory, music has been shown to facilitate learning new information. Wallace (1994) showed that presenting information in a musical way aids the recall of information. Subjects in her study were asked to listen to the words in a ballad. Some portions were sung to them while others were simply spoken. Wallace's (1994) findings showed that word for word recall of the lyrics was greatest for those who heard the sung words. People also had more of a structural sense of the words and their placements when they were presented in a musical manner (Wallace, 1994). While this indicates that information presented musically may help retain information, it does not explain if today's popular music can be used in the same manner or if they are considered more of a distraction.

Schellenberg, Nakata, Hunter and Tamoto (2007) looked at mood as it is affected by music and subsequent scores on IQ tests. They asked their participants to listen to classical music before taking an IQ test. Their mood as well as their arousal were monitored during the study. Schellenberg et al. (2007) found that when mood and arousal were high participants did receive better scores on certain subsections of the IQ tests. The results seem to indicate that music that can increase arousal or mood can also affect cognitive performance.

While classical music may improve cognitive performance on some tasks, what effect does today's popular music have on reading and comprehension of material? While students may claim they can easily study with the radio on, it may not be the case. Anderson and Fuller (2010) asked junior high students to listen to popular music, as shown by the top hit songs of Billboard Magazine for the week of their study, while attempting to take a reading examination. The reading exam involved reading information and then being asked questions about the material. Their research showed that students exposed to music while reading did significantly worse than students in a quiet environment (Anderson & Fuller, 2010). Their demographic survey included a question about whether or not the participants preferred to listen to music while studying. Those who said they preferred to listen to music and often did so while studying had lower reading comprehension skills than their peers who preferred to study in silence (Anderson & Fuller, 2010). It is interesting to see how music can be detrimental to a person's ability to study and learn material.

The purpose of the current research was to look at the effect music may have on an undergraduate's ability to memorize and recall passages verbatim. While past studies have looked at the effects of classical music and IQ or popular music and reading comprehension, this study aimed to look at the effect music may have on memorization. It is true that many students

prefer to listen to music while studying and often they say they can do so without any negative consequences. The present hypothesis was that students would become distracted by listening to their favorite music and therefore do more poorly on the memorization task then when they are asked to memorize information in silence. This was the hypothesis because even though past research has found some music to be beneficial on other cognitive tasks, lyrical music was found to be a distraction in reading and comprehension. The research project was also created in order to look at the effect age, gender, year in school, GPA, and if a person prefers to study with music may have on the memorization task scores. This research aimed to test this hypothesis by requiring voluntary participants to read and memorize two different passages from a textbook. While reading one passage they were asked to listen to their favorite artist/song and then given the next passage in silence. Test and conditions were counterbalanced. Afterwards they were given a sheet to recall as much of the passage as they can verbatim.

Method

Participants

I recruited 30 participants for this study from the Lindenwood Participant Pool. The Lindenwood Participant Pool is a way for undergraduate students to receive extra credit in some of their social science general education courses such as Psychology, Sociology and Anthropology. There were 11 men and 19 women participated in this study. The participants' ages ranged from 18 to 25. More than half of the participants were 19 years old. Sixteen of the participants were freshman, six were sophomores, five were juniors, and three were seniors. There were a high percentage of history majors as well as education majors. Of the recruited participants, 9 preferred to study with music, 10 preferred to study without music, and 11 sometimes studied with music.

To recruit subjects, I posted sign-up sheets with a description form on the Lindenwood Participant Pool bulletin board where potential participants read about my study and signed up for a time they were available to participate.

Materials and Procedure

Once the participants arrived they were asked to verify that they are in the Lindenwood Participant Pool. I then asked them to read the informed consent form (see Appendix A) and sign if they felt comfortable continuing the study. The informed consent form explained to the participants what the study would ask of them and the potential risks involved. The researcher also asked if the participants had any hearing or visual disabilities that could hinder their performance on the surveys. This allowed researchers to disregard data collected from these particular individuals because one's hearing and visual abilities were necessary for the purpose of this study. It was explained that participants could terminate their involvement with the study at any time without any penalties towards them. The participants were then given two short passages to read and memorize separately in 3 minutes (see Appendices B and C). Each passage was similar in reading level and length as well as both being 41 words long with two sentences total. Both passages were retrieved from Erika Hoff's (2009) textbook "Language Development" (p. 148 and 215). Three minutes was the allotted time for memorization because that is roughly the length of one song and there are only two sentences to memorize.

The first passage was either presented in silence or while listening to the participants' choice of music with ear buds in at their choice of volume. Before each passage the researcher wrote down the participants ID numbers, which is a set of arbitrary numbers the researcher assigned to the participant to ensure anonymity. Example ID numbers are A100, A101 and so on. The researcher then recorded on the passage sheet if the participants would be listening to music

or sitting in silence while memorizing the passages. If the participants listened to music, the participants were asked to list the genre of music being listened to which allows the researcher to see if there could be a correlation between music genre and achievement on the memory test. This question is necessary because the researcher did not choose the music the participants listened to, rather the participants were allowed to listen to his or her favorite artist for the study. Genre did not have to be a constant in this study because the idea was to replicate a possible study situation for the participants. Internet radio from www.pandora.com was used for the music listening portion of the study. The explicit content on internet radio was turned off so participants can only listen to clean versions of songs (see http://help.pandora.com/customer/portal/articles/24645-enable-explicit-filter). Music was obtained through the use of the researcher's laptop and later the researcher's iPod touch due to the University's blocking of Pandora internet radio through the school's internet. While the device used for acquiring Pandora radio changed, this should not greatly affect results because Pandora was still used in both cases.

The participants were then given a passage worksheet to write down the passage word for word (see Appendix D). The worksheet asked the participant to write his or her assigned ID. The next passage was then read and memorized with the opposite condition (music or silence) with a time limit of 3 min as well. So if participants listened to music for the first passage they sat in silence for the second and vice versa for the next participants. This counterbalanced the test conditions and the tests to ensure there are no order effects contributing to the results of the study. After the second passage, participants were asked to write down on a new sheet the passage word for word. After both passages were read and written down the participants were given a short demographic survey (see Appendix E). This demographic survey was created by

the researcher and asks basic questions such as age, gender, year in school, GPA, and if they prefer to listen to music while studying. The participant was then given a feedback letter explaining the purpose of my study along with my contact information for any further questions they may have (see Appendix F). Participants were finally be given their slip of paper for bonus credit in their class to take to the Lindenwood Participant Pool office.

Scoring

After the collection of all data, the researcher then scored each passage worksheet. The original grading system was that every correct word in the correct position in each sentence received five points while every omission, misplaced word, and addition of new words in each sentence was a deduction of one point. Each sentence was graded individually and then totaled to find the score for each passage recall sheet. Spelling was not held against participants. This grading system proved to be inefficient at calculating a participant's achievement on the memory test because if one word were misplaced the entirety of that sentence was technically incorrect. This seemed unfair to the researcher because often times the participants were actually able to copy words in sequence, just not necessarily in the proper placement within the entire sentence. It resulted in many participants receiving 0 points for the tasks.

Therefore, the researcher created a new grading system that looked at word combinations. Under this new system each correct word that was placed next to another correct word, the participant would receive a point for each word in sequence. So for example, when a participant read the sentence "making discriminations among sounds in ambient language depends, of course, on being able to hear the speech others produce" and wrote "discriminations among sounds in language" they would receive 4 points. They would not receive 6 points because they missed the word "making" at the beginning of the sentence and the word

"ambient" that should have gone between "in" and "language". In the previous scoring system this particular participant would have received a 0 score because he or she technically misplaced all of the words in the sentence after omitting the word "making". The new scoring system seemed more logical at assessing a participant's memory for the written information and gave the researcher greater variability between participants' scores. Finally, the scores obtained from the new grading system on the two recall sheets were recorded and analyzed to determine if there was a significant difference between the two conditions. The answers on participants' demographic survey, such as age, gender, sex, year in school, major and whether they preferred to study with music or not were also analyzed for trends.

Results

The research hypothesis stated that participants would do more poorly on the memorization task when exposed to music than when they were in the silent condition. This hypothesis was based on research that lyrical music could be distracting and detrimental to reading comprehension skills. A paired *t*-test was conducted to determine if there was a significant difference between a participant's memory score when listening to music or when sitting in silence. The results revealed that there was no significant difference between the average scores obtained from the music condition (M=24.4667, SD=10.18699) and the silent condition (M=22.4000, SD=10.08789) $t(29)=1.368$, $p>.05$.

The results of another paired t-test revealed no statistically significant differences between the two passages in terms of how well they were recalled, thereby confirming that Passage A (M=22.8000, SD=10.37038) was comparable to Passage B (M=24.0667, SD=9.96869) in level of difficulty, $t(29)=-.822$, $p>.05$.

I was interested in seeing if there are any relations between gender, age, year in school, GPA, music genre, and whether the participant listens to music or not while studying and their achievement on the memory tests so I used a Pearson correlation. None of the subject variables examined were significantly correlated with performance.

An independent t-test was done on preference for studying with music and it suggests that participants who normally studied with music had higher scores in the music condition (M=27.800, SD=11.62755) than students who do not study with music (M=16.2500, SD=6.58461), although these findings were not statistically significant though due to a small sample size, $t(4)=2.027$, $p>.05$.

Discussion

The results of this present study of have indicated that my hypothesis was not supported; there is no significant difference between a person's achievement on the memory test in the music and silence conditions. There was no significant relationship between a participant's age, gender, year in school, GPA, genre of music and scores on the memory tests. While, I would have liked to analyze the relationship between genre of music listened to and achievement on the music condition there were not enough participants in each genre category to conclude anything. Given previous research on the topic, I assumed there would be a significant difference between scores in the music condition and scores in the silent condition. Some reasons as to why my hypothesis was not supported could be small sample size and giving the participant the option to choose what music they listened to and at what volume. My research is limited in the fact that the sample size is quite small. If I could have collected more data there may have been more variability and significant results. A convenience sample was chosen due to time restraints with the study. For this project, I only had one semester to conduct and analyze the research, therefore

my sample size and recruitment procedure needed to be limited to complete the research in time and could be partially responsible for my lack of significant results.

I believe the main difference between my study and previous research was the ability of the participant to choose what kind of music he or she wanted to listen to and at what volume. Seeing as my participants knew they would be involved in a memory test they may have chosen a genre of music that would aid them in said memory test. Since I gave them the option to adjust the volume for comfort purposes some may have decided to listen to the music at a lower volume which could be less distracting for them. These are some of the limitations and factors that may have contributed to my results not supporting my hypothesis.

Some other factors that may have contributed to my results were the task itself and the passages I chose. For instance, in past research such Anderson and Fuller's (2010) students were tested on reading comprehension whereas, I tested my participants on their ability to memorize information. Memorization can be a difficult task that not everyone is proficient at. I chose a memory task instead of a comprehension task because I felt it important that the participants were not forced to endure a long procedure that would include reading longer passages and then answering questions about the passages. In the future I may look at reading comprehension in this fashion but between participants so the participants do not become fatigued by the process. I chose a memorization task because I felt that when many students are studying for tests they may try to memorize facts and term definitions, however I realized many students may study in many different ways and memorization is not necessarily a factor in the amount of information being retained. I believe many of the participants were able to understand and remember the gist of the two passages but had a harder time producing this information word for word.

Overall, I still believe this research was important because it looks at the relationship between music and a person's ability to memorize written information. Future studies may look at comprehension rather than memorization, instrumental music and lyrical music, as well as possibly looking at the differences between individuals who are accustomed to listening to music while studying and those who choose not to study with music.

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Appendix A

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to look over and attempt to memorize two short passages. One while sitting in silence and the other passage will be attempted to be memorized while listening to my choice of music. Finally, I will complete a short demographic survey asking simple questions about myself. I understand that I should be able to complete this project in about 15 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on the demographic survey. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____

(Signature of participant)

_____ Date: _____

(Signature of Investigator receiving consent)
Student Researcher Name and Number:
Allisha Rounds (636) 373-0967

Supervisor: Dr. Michicko Nohara-LeClair
Course Instructor
(636) 949-4371
Mnohara-

Appendix B

Passage A

ID:_____

(Assigned by Researcher)

Music or Silence

Genre:_____

Please read and memorize the following passage from "Language Development" by Erika Hoff 4th Ed (p. 215). You will have 3 minutes to memorize as much of this passage as you can. You will be asked to write this passage word for word after the time has elapsed.

Words do not always map onto concepts in a one-to-one manner. One indication of this is that sometimes children have concepts for which there is no word in their language, and they invent words to fill these lexical gaps.

Appendix C

Passage B

ID:_____

(Assigned by Researcher)

Music or Silence

Genre:_____

Please read and memorize the following passage from "Language Development" by Erika Hoff 4th Ed (p. 148). You will have 3 minutes to memorize as much of this passage as you can. You will be asked to write this passage word for word after the time has elapsed.

Making discriminations among sounds in ambient language depends, of course, on being able to hear the speech others produce. At one time, it was thought that babies were blind and deaf at birth and that basic sensory abilities matured only later.

Appendix D

Passage Worksheet

ID:_____

(Assigned by Researcher)

Passage: A or B

Please copy down the passage you just read. Please try to write the passage verbatim (word for word). You will have five minutes to write down as much as you can in the correct order. Every correct word in the correct position is worth 5 points. While every omission, incorrect placement, and adding of new words will be a deduction of 1 point each. Spelling will not be held against you.

_____

_____

_____

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Appendix E

Demographic Survey

ID: _____

(Assigned by Researcher)

Please read the questions and answer accordingly.

1. How old are you? _____
2. Gender :

   Male Female

3. What year are you? (by credit, circle one)

   Freshman Sophomore Junior Senior Other_____

4. What is your major? _____

5. Do you normally read for your classes while listening to music? (Circle one)

   Yes No Sometimes

6. What is your cumulative G.P.A? _____

Appendix F

Feedback Letter

Thank you for participating in my study. The present study was conducted in order to determine whether people are more able to remember/memorize information in silence or with background music. I hypothesized that people would remember the passages better in silence because the music would be more of a distraction than they think.

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 us 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 us 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:
Allisha Rounds (636) 373-0967

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

Synesthesia Metaphor in Semantic Processing and Visual Perception

Ai Shinohara[8]

Synesthesia is a rare neurological ability whereby people can interpret one stimulus by using multiple perceptions or cognitions. Synesthesia metaphor, on the other hand, is a synesthesiac feeling which most people have toward a target stimulus. The current study was conducted to determine if there is a synesthesia metaphor between vision and semantic processing. Chinese characters were used as visual stimuli for those unfamiliar with the symbols, and the English words that served as a prompt for the task were used as cognitive or semantic stimuli in this study. Fifty-eight students recruited from the Lindenwood participant Pool (LPP) were presented with an English word prompt and asked to choose one of two Chinese characters, presented as one which they thought matched the meaning of each English word on the computer screen. A chi-squared analysis was used to determine if the participants were able to correctly match the visual stimuli with the English words. The findings revealed that people are more likely to choose the correct Chinese characters than not. Thus, it was concluded that people have a synesthesia metaphor in vision and semantic procession.

Synesthesia, or synaesthesia, is a condition in which people use multiple perceptual or cognitive processing towards the target stimulus (Rogoaska, 2011). Synesthesia is a rare condition, and many experts have been studying synesthesia. For example, people who have an ability of synesthesia can see colors when hearing sounds (Goller, Otten, & Ward, 2009). Although many people do not have an ability of synesthesia, some synesthetic conditions, called synesthesia metaphor, among non- synesthetic people were discovered (Peipei, 2007). "Booba and Kiki effect" is one of the most common examples of synesthesia metaphor (Wolfgang as cited in Jansen, 2007). Wolfgang, the primary researcher of Booba and Kiki effect, asked his participants to choose either "Kiki" or "Booba" as the name for the star-like shape or the rounded shape. He found that 98% of people said the star-like shape was a "Kiki,"and rounded shape was a "Booba," and he concluded that people use two different senses (vision and sound) to

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determine the name of each shape (Wolfgang as cited in Jansen, 2007). This is evidence of synesthesia metaphor in vision (shape) and sound (name).

One of the newest studies reported that babies also have a synesthetic ability in sound and physical property (Marcela, 2011). Most native English speakers instinctively guess that made up words which have the pair of vowel sounds "O" and "A", such as "boaw," as a "bigger" sounding object if it were to exist, whereas words which have "I" or "E", such as "like," as a "smaller" objects. However, Marcela (2011) discovered that individuals, like babies, who did not knew the relation between objects and their names can still recognize there is a relation to the names sound and object' size. It is also considered as one of the examples of the ability of synesthesia.

Shinohara (2012) conducted a study to determine if people showed their synesthetic ability in semantic processing and visual perception toward an unfamiliar stimulus. In the original study, the researcher used Chinese characters as unfamiliar visual stimuli, and the abstract meaning of the words involved semantic processing (cognitive stimuli). Two main surveys were used for the experiment: a Chinese characters survey and a demographic survey. In the previous study by Shinohara (2012), the Chinese characters survey was a paper form which included 10 matching items and 10 open-ended questions (see Appendix A). The first five items were positive words, which were "happy," "beautiful," "bright," "heaven" and "peace." The last five items were "depression," "crying," "bad," "crime" and "hate". Only abstract words were used in this experiment because most Chinese characters which are tangible words are came from drawings of the concept (pictograms). If the Chinese characters which are pictograms are appeared in the experiment, the participants would choose a Chinese character not by synesthesiac feeling; rather, by the participants' schema of the concept. Thus, only abstract

words which were came from logogram in Chinese characters were used in the study. There were two Chinese characters for each item, and participants were asked to choose one of the Chinese characters which they matched the meaning of the English word. Fifty-five undergraduate students at Lindenwood University were asked to choose one of two Chinese characters which matched the meaning provided. In each of the 10 trials, the paired Chinese characters had opposite meanings, whereby one of them matched the meaning of provided, and other was its antonym. Shinohara's (2012) main finding was that participants showed their synesthetic ability (synesthesia metaphor) in semantic processing and visual perception.

Through the experiment, Shinohara (2012) found that there was a time bias in the study. Since there was no time limit in answering the questions, duration to respond to items was significantly different among the individuals. However, because of the concept of synesthesia, which should be unconscious and automatic condition (Cytowic, 1998), participants should not have spent too much time choosing the Chinese characters. Thus, the imposed time limit was necessary for the current study to reduce time bias.

The current study was conducted in order to confirm the conclusion of the original study and to collect less unbiased data. In the present study, the visual stimuli (Chinese characters) were presented by a computer-based task. Each items appeared on the computer screen and participants were given limited time (5 sec) to respond to each item.

Based on the previous study, the hypothesis of this study was that people were more likely to choose a correct Chinese character for each question; people had an ability of synesthesia, or synesthesia metaphor in semantic processing and vision as well as different types of synesthesia.

Method

Participants

Fifty-eight Lindenwood University students (33 women, 25 men), with an age range from 18 to 24 years, participated in the study in exchange for extra course credits as compensation. To obtain participants, the Lindenwood Participant Pool (LPP) was used. The LPP is a convenience sampling technique; all students, who were enrolled in PSY100, PSY101, SOC102, SOC214, SOC318, AT295, EXS250, or ANT295 during the spring semester of 2012, had an opportunity to sign up voluntarily for the experiment on the LPP bulletin board. Forty-nine students spoke English as their first language, whereas nine students spoke different languages, including Spanish, Turkish, Japanese and Chinese. To avoid misleading the outcome of the result, three people were excluded from the data analysis because they were familiar with Chinese characters or took part in the previous study during the fall semester of 2011 (Shinohara, 2012). As per Institutional Review Board (IRB) regulations, although students who were under 18 years old could not participate in the experiment, they still could earn the extra credits for their class. There were no students who were under 18 years-old in the study.

Materials and Procedure

Reflecting on the result of the previous study, an alternative stimulus was created for this study. The same items from the previous survey were used in the present study. That is, the first five words were positive abstract meanings (happy, beautiful, bright, heaven, and peace), and the last five words were negative meanings (depression, crying, bad, crime, and hate). For the current study, the New Chinese characters task was administered through a Microsoft PowerPoint slideshow with a timer to eliminate the time bias. First, participants saw a word in English on the screen, for example, “Happy.” Two Chinese characters then appeared, such as, “嬉” or “悲,” and the participants were asked to choose one of two Chinese characters which

they felt represented the meaning of the English word presented. The timer was set on each of the PowerPoint slides. After 5 sec, the screen was automatically changed to a blank slide. The participants could see each item only for 5 sec, and they were asked to choose one Chinese character by saying "right" or "left" or point out the character on the screen during or right after the 5 sec exposure time (see Appendix B). The researcher recorded the participants' answers onto a response sheet each time they answered the items.

The demographic survey was constructed from five questions in order to obtain general information about the participants. Questions in the demographic survey included age, gender, and participants' first language. Participants were also asked if they were familiar with Chinese characters or not and if they took the previous study (Shinohara, 2012) during the fall semester of 2011or not (see Appendix C).

To obtain participants, a sign-up sheet was posted on the LPP bulletin board with the experiment description form to inform students what kind of research it was. Participants took part in the experiment individually at Young Hall in room 105 at Lindenwood University where there was a computer. After signing the informed consent form, participants were shown a sample question to understand how to answer each question before they started to take the Chinese characters survey. They were then asked to take the Chinese characters survey on the computer screen and to complete the demographic survey. After completing the computer-based task, they were told about the definition of synesthesia and the purpose of the study, and received a feedback letter including more details about the study. The participant received a receipt in order to get extra course credits through the LPP office.

Results

The scores of the computer based task were analyzed to determine if the synesthesia metaphor existed between vision and semantic processing. A chi-squared analysis was conducted in order to compare between the observed frequency and the expected frequency of correct answers. The observed frequency refers to obtained data from the experiment, and the expected frequency refers to a chance response rate (null hypothesis). In this study, I examined to see if the observed frequency, which was how many answers the participants got correct, was different from the expected frequency of 50 % correct. The result showed that the observed data were significantly above the expected frequency, χ^2_{10}= 61.60, p<.05, (observed frequency, M =6.05, SD = 1.43, d=.73).

A paired *t*-test was also used to see if there were any differences in the number of correct responses between word choices (positive words or negative words). The mean number of correct responses of the positive words was 3.16 (*SD*=1.13), and for negative words, it was 2.89 (*SD*=.98). There was no significant difference between the positive and negative words, $t(54) = 1.299$, p=.199.

Discussion

The hypothesis of the study was that people would be able to tell the correct Chinese characters even though they had never seen those Chinese characters, which would show people had an ability of synesthesia metaphor in vision and semantic processing. The results showed that people were more likely to choose the correct Chinese characters than not. Based on the theory of synesthesia, it could be concluded that there was a synesthesia metaphor between visual perception and semantic processing.

Although the current study resulted in the same conclusion as the previous study (Shinohara 2012), the result of the current study (χ^2_{10}= 61.6, p<.05, d=.73) was stronger than the

result of the original study (χ^2_{10}= 24.6, p<.05, d=.54). It could be explained that the material used for collecting data in the original study violated the theory of synesthesia. Because the paper-based Chinese characters survey was used in the previous study, many participants spent a lot of time answering the questions and tried to analyze each Chinese character and the meaning of the question word. Because synesthesia must be more intuitive using visual sensation and semantic processing, participants should not be analyzing their responses. A computer-based task in the current study eliminated the time bias completely, and it brought a more consistent conclusion. Eliminating the time bias could also explain the reason why there was no difference in the number of correct answers between positive and negative words in the current study, even though there was a significant difference among those two in the previous study. Since participants could go back to their answers anytime during the experiment, they may have compared questions to one another in the previous study. However, participants were not able to go back or forth between questions in the computer-based questionnaires. A computer-based task in the current study ensured that the participants could only view each item for 5 sec, and they could not see their responses once they answered the question.

To reduce more confound variables, the study could be further conducted with young children who do not know the alphabet. Through the experiment, I realized that college students may use alphabetic symbols or recognition when they chose a Chinese character. For example, many American students chose "良" as "bad" because they saw "x" in the Chinese character, and "x" symbolizes "bad" for English speakers. Thus, future studies can test children who do not have any preconceived knowledge of symbols for this study in the future. The future methodology of the study would be a little bit different from the current study because those young children will be not able to read English words. A computer-based task will be used again

to show Chinese characters. However, instead of seeing the English words on the screen, drawing task in which the children draw a picture of the abstract word after the experimenter tells the children the word will be added before the Chinese characters task. That is, the experimenter will know if the children really understand the meaning of the word or not.

Most of the publications of synesthesia are only focused on people who have a rare synesthesic condition consistently, such as the study of people who always see colors when they hear the sound. However, this study, synesthesia metaphor in vision and semantics, showed that there are many synesthesic conditions around us, and we all perceive and experience one stimulus by using multiple cognitive abilities.

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Appendix A

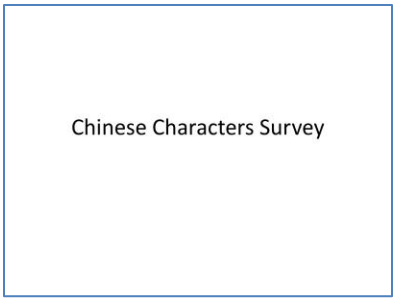
The Chinese Characters Survey Used in the Previous Study

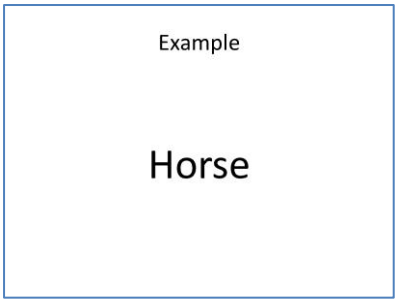
1	Happy	嬉	悲
	Why did you choose the character above?		
2	Beautiful	醜	美
	Why did you choose the character above?		
3	Bright	光	闇
	Why did you choose the character above?		
4	Heaven	獄	天
	Why did you choose the character above?		
5	Peace	和	争
	Why did you choose the character above?		

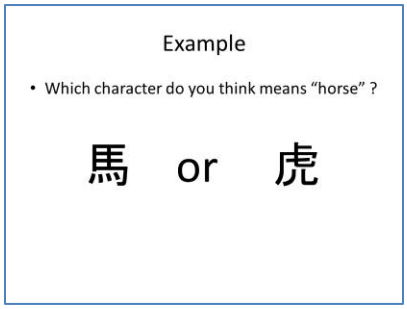
6	Depression	鬱	陽
	Why did you choose the character above?		
7	Crying	泣	笑
	Why did you choose the character above?		
8	Bad	悪	良
	Why did you choose the character above?		
9	Crime	善	罪
	Why did you choose the character above?		
10	Hate	愛	嫌
	Why did you choose the character above?		

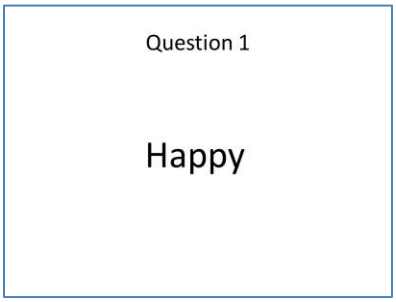
Appendix B

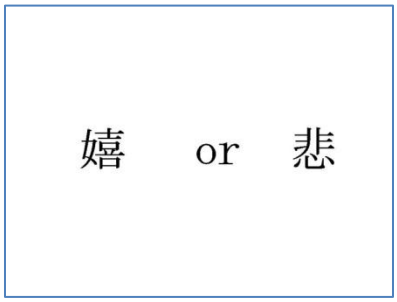
New Computer based Chinese characters questionnaires (PowerPoint Slides)

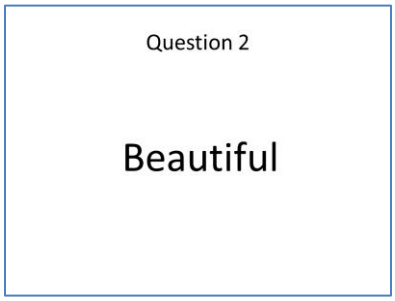


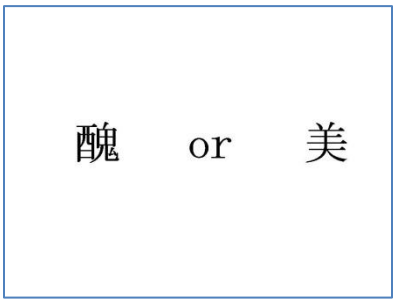


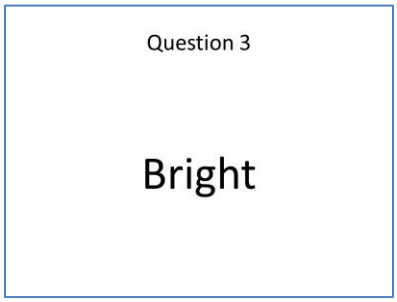


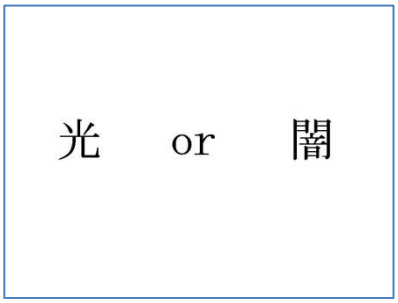


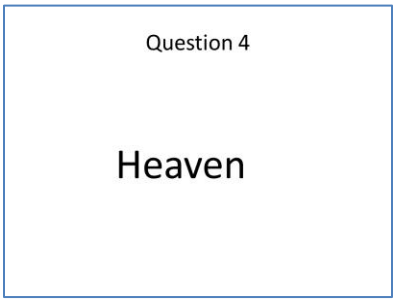


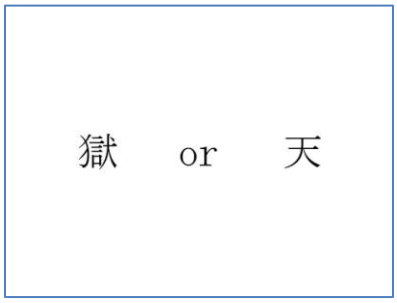


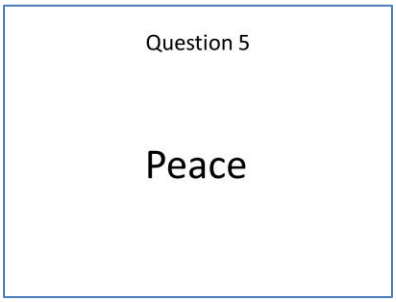


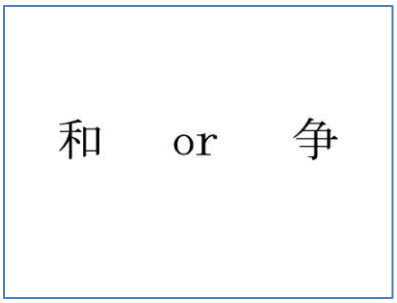


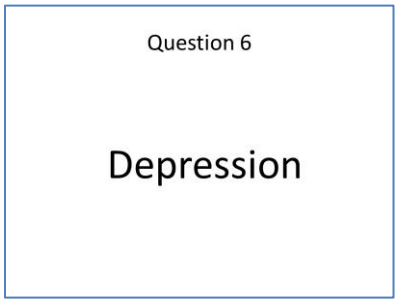


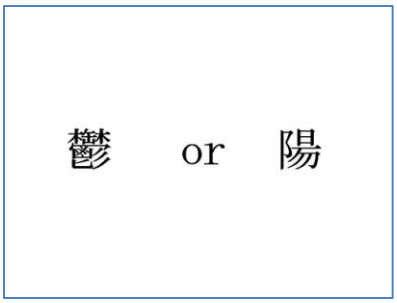


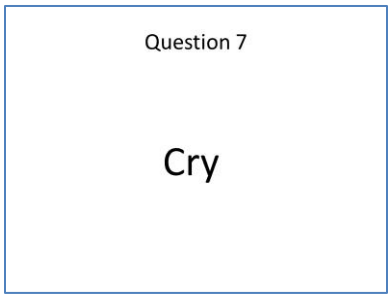








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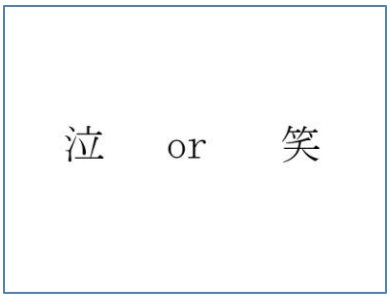
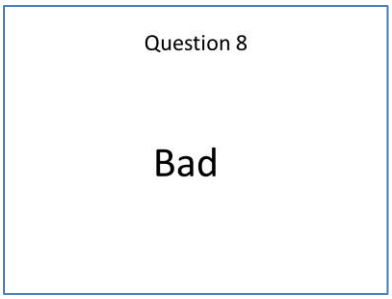
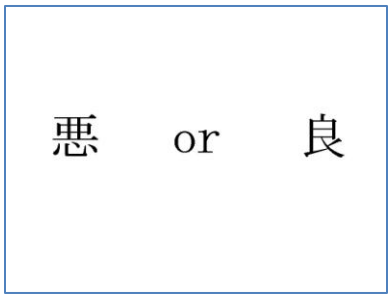
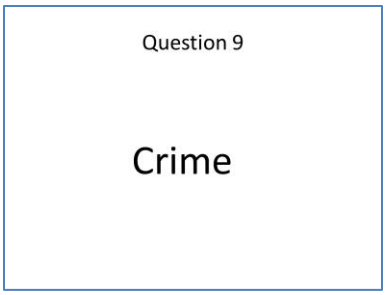
Cry


泣 or 笑


Question 8
Bad


悪 or 良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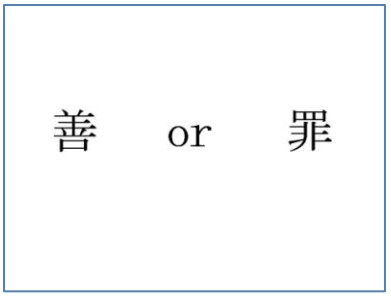
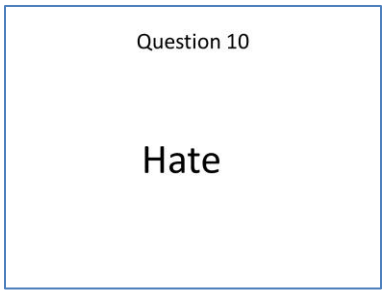
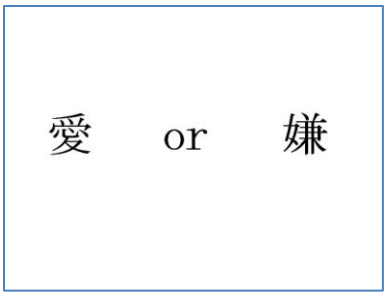
Crime


善 or 罪


Question 10
Hate


愛 or 嫌

Appendix C

Demographic Survey

6) Are you MALE FEMALE?

7) How old are you? ( )

8) What is your first language? ( )

9) Have you learned any Chinese characters at some point in your life?

YES NO

10) Did you participate in a similar study with Chinese characters survey during the previous semester?

YES NO

The Effects of a Relationship Status on Views of the Opposite Sex

Taylor L. Cathey[9]

It is human nature to notice those around us, and size them up by our own set of standards. This includes taking a measure of physical appearance and attractiveness. However, there are several factors that affect our perceptions of the world around us, and especially the people whom we see. Emotional states and a variety of emotions, play a strong role in dictating our behaviors and reactions (Most, Laurenceau, Graber, Belcher, & Smith, 2010). One factor that changes our human lives is the presence of romance. Intimacy, passion, and commitment are components associated with romance and relationships that take a toll on emotions and behaviors (Sternberg. 1986). The extent that these emotions alter our perceptions is essential to understanding the whole concept of love. When two people are committed to one another, do they start to view their environment differently? In the present study this question is investigated, and observed through self-report type measures. It was hypothesized that there would be a strong relation found between relationship status and ratings of the opposite sex. Individuals of different relationship statuses were given a questionnaire to disclose their relationship information and also given four photos of the opposite sex to rate on attractiveness. Their answers were then compared and analyzed in order to test the correlation a relationship status has on our visual perceptions of the opposite sex. Using an independent t-test for analysis the results showed no significance, but the descriptive data revealed interesting findings.

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The purpose of this study was to test whether or not a person's relationship status would affect how he or she views other people of the opposite sex. I thought it would be interesting to also see if there was a difference in gender, age, seriousness of the relationship, or even whether or not someone just wants to be in a relationship with another person. Physical attractiveness is important to our American society and plays a role in our everyday interactions with other people; especially interactions with those we are romantically interested in or involved with. In one study done by McNulty, Neff, and Karney (2008) found that in marital relationships where the husband is more attractive than his wife, the husband is less satisfied in his marriage. However, McNulty et al. (2008) also found in that study that there is more than one noticeable correlation between marital satisfaction, marital behavior, and physical attractiveness of the couple. These results support my thoughts in that there is a measurable relationship between social relationships and physical attractiveness because the above study has data that shows marital satisfaction is correlated with the couple's view of attractiveness of their partner.

In another study on infidelity, DeWall, Maner, Deckman, and Rouby (2011) found interesting results about observing the opposite sex when in a relationship. They found that when people in a relationship consciously limit their attention given to individuals of the opposite sex that they are not dating, then these people want those other individuals more despite having a partner. These results are different than what would be expected, but shows that relationship quality is better when both partners are still aware and attentive to others of the opposite sex (DeWall et al., 2011). Since research shows that being attentive to the opposite sex strengthens the relationship, then it is questionable as to why this is. Based on the above results, I believe that individuals that observe other people of the opposite sex while in a relationship are allowing themselves freedom, but with this freedom these individuals that observe people other

than their partners will not view the others they observe as attractive as their relationship partner. If the individuals do view them as more attractive or equally attractive to their partner, then it would not make sense that their relationship satisfaction would either go up or remain at a high level.

Another group of researchers made some intriguing discoveries about the effects of a relationship on males. McIntyre, et al. (2006) tested the testosterone levels of males in a relationship and males not in a relationship. They found that men in a relationship tend to have lower levels of testosterone, and men not in a relationship had higher levels of testosterone. The interesting finding in their study was that men in a relationship that were still looking at other women as potential mates still had higher testosterone levels than those men who were satisfied in their relationships. The researchers accredited the drop in testosterone levels for men in a relationship to the fact that they were no longer in competition for a mate (McIntyre et al., 2006). These results support the idea that being in a relationship does affect how men view the opposite sex, and that there is even a bodily change in the men to reflect the effect.

In addition, Most et al. (2010) made findings dealing with emotional effects on visual perception. The study they done consisted of having females rate landscape pictures, and then had them rate more landscapes after being told that their male counterparts were rating pictures of other females. The women in this study rated the first set of landscapes much higher than the second set of landscapes. These results show that emotions play a part in visual perception, and particularly that jealously has a strong effect on visual perception (Most et al, 2010). The findings these researchers made support the idea that human emotions effect our visual perceptions, and that the stronger emotions such as jealously or love could have stronger effects.

One insightful study that I reviewed considers three components to a relationship that in different combinations make up different types of relationships (Sternberg, 1986). Sternberg's idea of romantic love is the combination of the passion component (that is responsible for physical attractiveness and the participation in sexual activities) and the intimacy component (that is responsible for feelings of closeness and attachment), and it lacks the commitment component (that is responsible for making a decision to love the person and/or continuing to love that person) (Sternberg, 1986). Consummate love is the combination of all three components: intimacy, passion, and commitment (Sternberg, 1986). These two types of love are the basis of this study, and I used a combination of the two definitions to clarify my use of the phrase 'in a relationship', which is when two people are acknowledging their common interest for one another and acting upon that interest in a relationship

Based on the research I found and reviewed, I hypothesized that men and women who were romantically involved with someone would rate others of the opposite sex lower in attractiveness than men and women who were not romantically involved with anyone. To test my hypothesis I created a stimulus containing set photos of men and a stimulus containing set photos of women, and had each participant in my study rate the photos opposite of those of his or her own sex. Each participant was then given a demographic survey that gathered information from him/her concerning his/her relationship status so that it was possible to test for correlations between relationship status and views of the opposite sex.

Method

Participants

For my research I used a convenience sample by recruiting participants from the Lindenwood Participant Pool (LPP). The LPP is comprised of students that are currently taking

an introductory class in Behavioral Science, Exercise Science, or Athletic Training. I advertised my project by placing a description sheet (see Appendix A) and a sign-up sheet with a range of times for those who were interested on the LPP's board. Next to the time slots on the sign-up sheet is the room where the research will be held during that time so that participants knew where to go. Each participant received credit for his or her class through the LPP by partaking in my study. In my study there were 16 men, 35 women, and ranged from ages 18-44 years. Also in my study, 37.2% of my participants were in a category that stated they were in a relationship, 52.9% were single, and 11.7% were in a category stating the relationship was not clearly defined or was complicated.

Materials

The study began with creating a demographic questionnaire (see Appendix B) and two stimulus sheets (see Appendices C and D) that consisted of four men and four women. The questionnaire is made up of questions deemed important to understanding my research results, and most importantly questions that enable differentiation between single participants and participants who are in a relationship. A stimulus for male participants and a stimulus for female participants were then created. Four photos of each sex were carefully chosen for the stimuli. The photos are of actors/actresses, varying in looks, and from an assortment of media genres. Famous people were chosen so that participants would not feel guilty for their ratings and could feel comfortable that the people they are rating are not local. There is the realization that this may persuade them to rate higher or lower because of the characters these actors and actresses play, but the study is aiming to see if relationship status as an effect on how one sees others of the opposite sex. That includes their personality.

Next there was the creation of a sheet for participants to rate the photos on (see Appendix E). In order to have a setting to conduct research, rooms had to be booked through the LPP. These rooms were either classrooms or small rooms off a bigger room called the Psychology Lab. All the rooms were on campus and centrally located for all participants, and contained a couple chairs and a table for the participants to sit at while participating in the study. Next an informed consent (see Appendix F) form was created for each participant to sign before continuing with my research study. This consent form explained to the participant what the study was about, what they would be asked to do, and that if at any time they become uncomfortable then they could stop and still receive credit for their class.

After this, a feedback letter was created (see Appendix G) to be given to each participant after they completed the study that explains the purpose of my study, what would be done with their results, and that if they wish to know the results of the study as a whole (not their own personal results) they may contact me. The final step of my preparation was to print out sign in sheets and participant receipts and fill them out. All of the papers were also paired together (one stimuli and one questionnaire) with an ID number at the top of each set of papers. This was done to keep confidentiality while still being able to identify a subject with their results, and so that when participants came in the study was completely prepared.

Procedure

Each participant signed in as they came in to the room. Next, each participant was given two consent forms to read over and sign (one copy for him/her and one copy for my records). Then each participant was given the rating sheet and shown the stimuli containing photos opposite of his/her own sex. The sex of each participant was determined by physical judgment when he/she entered the room. There were no participants that showed ambiguity in sex,

therefore sex was easily observed. Then he/she was asked to fill out the rating sheet. At this point, each participant was given a demographic questionnaire to fill out. Lastly, each participant was given a feedback letter to debrief him/her and his/her participant receipt needed to receive extra credit for his/her class.

Results

It was predicted that participants in a relationship would rate the opposite sex lower than participants that were single. A dependent variable of ratings of the opposite sex was tested in relation to the independent variable of relationship status. The findings of this study did not produce significant results when an individual t-test analysis was ran using a two-tailed test with a significance level of .05, $t(44)=1.245$, $p > .05$. Only two groups were used in this analysis: all the single categories in one group and all the relationship categories in another group. The single categories included participants that answered that they were single, and the participants that answered that they were married, engaged, in a relationship, or just in a relationship were all categories included in the relationship category. Therefore, the results from the five participants involved in inconclusive relationships were not included in the above analysis. The categories were condensed in order to have more significant numbers in each category when running the t-test. However, it is important to mention that differences were found between the different relationship statuses. The mean rating of the photos done by the categories pertaining to being single was at or above 30 ($M>30$) with a standard deviation of 4.9, and the mean rating of the photos done by the categories pertaining to being in a relationship was below 30 ($M<30$) with a standard deviation of 6.4. It is evident that there is a divide in the two groups, but not a significant divide.

One extraordinary finding was that the mean rating for individuals that were engaged was 18, and the next lowest rating was the married group at a mean of 27. Although it does make sense that these two groups would have the lowest ratings of the photos because they are considered to be in the more committed relationships, it is peculiar that the engaged group was the lowest rating group and that it was 9 points below the next group. In conclusion, I reject my hypothesis due to the insignificant results of the independent t-test.

Discussion

The present study that relationship status does not have a significant effect on how individuals view the opposite sex. However, the notable gap between the ratings by people who are single and those who are not suggest that there is some aspect that plays a small role in this phenomenon. In a study done by Most et al. (2010), the researchers found that social emotions and especially emotions found within a romantic relationship have an effect on visual perception. Furthermore, they found that these emotions could go as far as altering visual perception. The results of my study both support and dispute their finding, depending on the analysis used. Descriptive statistics would show the sizable gaps between ratings of people who are single and those people who are in a variety of different types of relationships. However, other statistical analysis like the t-test would not show significance and would not give rise to the gaps that are present in other analysis.

Future studies done should consider a few details that would improve the study overall. In my study there was one instance when a couple came in to take the study together, and the two of them were sitting across a table from one another. Throughout the entire procedure, each one was looking at the other one's answers and making comments that could have swayed each of

them to not answer honestly. If this study were done again it would be beneficial to test each participant separately to avoid a bias in answers.

In addition, during my study there was one participant that felt guilty for rating a photo of a woman that looked similar to myself rather low, and apologized to me several times. To avoid this situation it would be useful to have two researchers, one of each gender, and have the male researcher conduct research with male participants and the female researcher conduct research with female participants. Another solution would be to have a computer-based test in order to avoid all researcher bias and social expectation bias.

A last thought to consider is that there could be other emotional factors involved with a person's relationship playing a role in these results, and it would be useful to test for these other factors with self-report type measure. For example, individuals that are secure in their relationship could have different results than those who are insecure in their own relationships. Jealousy is a strong emotion that effects our visual perceptions, and therefore these intense emotions have a big role in a study like mine (Most et al., 2010). It is not possible to separate these variables from a participant, but it is possible to test for these variables. Future studies should at minimum test to see if such variables are present.

There were limitations in my study that could have had an effect on my results. My participant recruitment was limited to a select group of college students that are in certain classes. These participants would not be considered a representative sample of the worldwide population, and therefore could have skewed the results. Every culture in our world has some concept of marriage and committed relationship, and therefore there is not an individual in the world that would not be considered as part of the target population. In addition, the group of participants involved in my study were all in a younger age category, and therefore only a few

were married. Marriage is considered to be the most significant form of commitment for a relationship in American culture, and at this stage the couple's relationship is most likely considered serious. Therefore my study does not include a notable amount of data from individuals at a serious stage in their relationship.

Lastly, my study was limited because of the number of photos I had each participant to rate. By only using four photos it was impossible to include all body types, ethnicities, and other features deemed as essential when evaluating physical appearance. Future studies would gain from using numerous pictures that represent the whole population. Overall, my study displayed valuable insight and a good starting point for future studies to build upon.

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Appendix A

Recruitment Description

In this study, you will be asked to complete two short tasks. First, you will be shown four photos of the opposite sex and asked to rate them based on an attractiveness scale. Second, you will be asked to reveal a few simple demographic pieces of information about yourself and your relationship status. The entire procedure should take no more than 15 minutes of your time.

Appendix B

Demographic Questionnaire

SUBJECT ID NUMBER: _____

1) Are you MALE FEMALE?

2) How old are you? ____ years

3) Are you currently committed to a romantically exclusive relationship? YES or NO

4) If you are currently in a relationship please rate how committed you believe your relationship to be. (1 is we just started dating, 2 is we are dating and I do not know where this will lead yet, 3 is we have discussed the future and possibilities, 4 is we have plans and ideas for our future, and 5 is we know there is no one else out there for us and have plans to spend a life together)

   1 2 3 4 5

5) If you are currently single, is there someone in your life that you are interested in starting relationship with?

   YES or NO

6) What would you consider your relationship status to be?

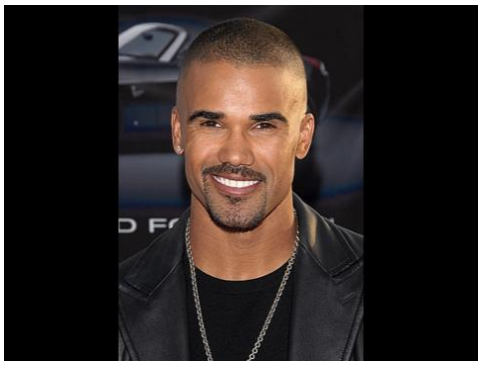
   ____Married
   ____Engaged
   ____In a relationship
   ____Just entered a relationship
   ____Not yet in a relationship, but could be soon
   ____On a break from a relationship
   ____Single
   ____Other

Appendix C

Female Stimuli

A 

B 

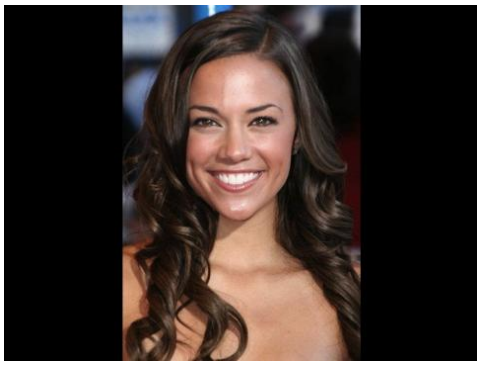
C 

D 

Appendix D

Male Stimuli

A 

B 

C 

D 

Appendix E

Rating Sheet

SUBJECT ID NUMBER:_____

Rate each person on a scale from 1 to 10; 1 being not attractive and 10 being very attractive. Please circle your answers neatly.

Person A-

1 2 3 4 5 6 7 8 9 10

Person B-

1 2 3 4 5 6 7 8 9 10

Person C-

1 2 3 4 5 6 7 8 9 10

Person D-

1 2 3 4 5 6 7 8 9 10

Appendix F

Informed Consent

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete one short task and one brief survey: 1) one which will require me to rate four pictures of the opposite sex based on attractiveness, and 2) one which requires me to provide simple demographic information about myself and my relationship status. I understand that I should be able to complete this project within 15 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on the demographic survey or become uncomfortable rating the four photos of the opposite sex. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I also understand that I will still receive my extra credit if I feel the need to withdraw from the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I also understand that the photos I will be rating are pictures of people off campus, and will not learn of my own personal ratings of their attractiveness. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

Student Researcher Name and Contact Info: **Supervisor:** Dr. Michiko Nohara-LeClair

Taylor Cathey tlc284@lionmail.lindenwood.edu Mnohara-leclair@lindenwood.edu

Appendix G

Feedback Letter

Feedback Letter

Thank you for participating in my study. The present study was conducted in order to determine whether relationship status affects how one views the opposite sex. I hypothesized that men and women in a relationship would rate the pictures shown of the opposite sex lower on attractiveness than men and women that are not in a relationship.

Please note that I am not interested in your individual results; rather, I am only interested in the overall findings based on aggregate data. I also want to ensure ALL participants that your participation was helpful no matter your current relationship status because I need participants of all kinds of relationship statuses for my study. 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:

Taylor Cathey tlc284@lionmail.lindenwood.edu

Supervisor:

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

Treatment of People with Different Sexual Orientation: Is It Still a Concern?

Jessica Preuschoff[10]

The following research paper deals with the feelings that undergraduate students on the Lindenwood University campus have about people that have a different sexual orientation than their own. It is hypothesized that Lindenwood University is a very open minded community. Lindenwood University has a campus with a very diverse student community, but the study came to the result that most students are very open minded about people that have a sexual orientation that differs from their own. This study was conducted with the help of convenient sampling through the Lindenwood Participant Pool (LPP).While the study does support the hypothesis one has to note that out of the 50 participants only one person was actually homosexual, which lead to the believe that the type of participant may have skewed the results. Therefore it is to be considered to redo the study at a different point in time with fixed groups on campus, like a sports team, instead of using a random assignment.

People have always had problems accepting people that are different from them. This can be due to skin color, body shape and weight, or sexual orientation. This research project focuses on the latter. Homosexuality is defined as "Erotic attraction to, and preference for, developing romantic relationships with, members of the same sex" (Rathus, Nevid, & Fichner-Rathus, 2011, p.280). Heterosexuality is defined as "Erotic attraction to, and preference for, developing romantic relationships with, members of the opposite sex" (Rathus,et al., 2011, p.280). These are the definitions that will be used in this research to refer to the two sexual orientations.

It has been found out that heterosexual people react differently to people of a different sexual orientation depending on the exposure that they had (Jefford, 1995). Past findings indicate

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that there are differences depending on if the exposed person is a man or a woman and it also depends on the knowledge that one has of homosexuality, and prejudice decreases over time in college students (Jefford, 1995). Jefford (1995) did a study to retest the stated information above by theorizing that there is a correlation between the levels of exposure and the decrease of anti-homosexual prejudice and used the scores on the Index of Attitudes toward Homosexuals (IAH) as his dependent variable and for his independent variables he used exposure, gender, and social class standing.

Evans (2009) found out in a related study that people's attitude towards women that are homosexual are more positive than towards men that are homosexual and that women also showed a more positive attitude towards people that are homosexual compared to men.

Jefford (1995) found out that people had more exposure to people that are homosexual as socioeconomic class standing increased. Furthermore, the more people were exposed to homosexuality the less homophobic they were and women were also found to be less homophobic than men (Jefford, 1995). He also found that most people that are heterosexual are exposed to people that are homosexual because they work together and less so because they were friends or related (Jefford, 1995). From his findings, Jefford (1995) has learned that that attitude change towards people that are homosexual is largely due to exposure.

This view is also supported by others. Heinze and Horn (2009) did a study that focused on the contact of groups with different sexual orientation and the treatment of each. The questionnaire which assessed adolescence was also about the acceptance of homosexuality, and acceptance of bullying of adolescents that are homosexual as well as their level of comfort around adolescents that are homosexual (Heinze & Horn, 2009). As found by Jefford (1995), Heinze and Horn (2009) also found that if the adolescent had a friend that was homosexual his or

her overall feeling about homosexuality was positive and these adolescent was also less tolerant towards bullying of adolescents that were homosexual.

It is not only the exposure that one has to people that are homosexual that influences the extent of prejudice people possess. It also depends on the people that have a big influence in a person's life. A child spends a lot of time in school. In fact a child spends at least 12 years in school. The young adult then goes on to college and throughout this whole time teachers and hence professors have a big influence on the child.

A study conducted in Barcelona tried to find out how teachers felt about homosexuality (Pérez-Testor, et al., 2010). They took a sample of 254 elementary and high school teachers and presented them with two scales, one that focuses on overt and subtle prejudice while the other focuses on perceived discrepancy of values (Pérez-Testor, et al., 2010). The results indicated that women seemed more likely to have inconsistencies between their likely behavior and their personal values compared to men and this inconsistency was also greater in people that are religious and go to a church regularly (Pérez-Testor, et al., 2010). Furthermore, the discrepancy was also found in people that have no contact with people who are homosexual (Pérez-Testor, et al., 2010). The overall results of the study was that 88% of the teachers did not have any prejudice against people that are homosexual, but that 22% of teachers that did have enough knowledge of the subject and thus, teacher education on this topic ought to be offered (Pérez-Testor, et al., 2010). This shows that depending on the knowledge of the teacher the children will be educated accordingly which may result in homophobic behavior.

The question is now where this negative view of homosexuality comes from.

Verweij, et al. (2008) tried to find out by having 4,688 twins fill out a survey that dealt with sexual behavior, and sexual attitudes towards homosexuality. The result of the survey

supported the notion that men have a more negative view on homosexuality than women (Verweij, et al., 2008). The researchers found that age has no effect on the views on homosexuality and that views on homosexuality are possibly inherited and that social environment has little to no effect (Verweij, et al., 2008).

The current research was conducted in order to determine if people that are more exposed to homosexuality are less prejudiced and more open-minded than the people that are not exposed. It also addressed if there is a difference in viewpoint between gender and overall age groups. As stated above college students seem to have decreased feeling of prejudice towards different sexual orientations so this study takes place on a college campus. As Lindenwood University is a very diverse campus the researcher hypothesizes that the campus consists of a community that is open-minded towards people of a different sexual orientation as their own.

Method

Participants

The participants in this study consisted of 50 undergraduate college students. Out of these 50 students, there were 22 men and 28 women that participated in the study. The students were recruited through the Lindenwood Participant Pool (LPP) by posting sign-up sheets on the LPP bulletin board across from the LPP office. Members of the LPP are able to receive extra credits in some of their college classes, for example introductory courses in social science classes as well as some higher level classes. Only certain classes and professors allow the participation in the LPP so that their students can receive extra credit. The age range of the participants was between 18 and 44 years. The participants' ethnicities were 78 % Caucasian, 8 % African-American, 6 % Hispanic, and 4% Asian, and 4% Mexican. The countries of origins were as follows: Azerbaijan, Brazil, Canada, China, Italy, Japan, Jamaica, Panama and U.S.A. Of all the

participants, 31 were single, 14 were in a relationship, 1 was engaged, 1 was married, 1 was dating, 1 was separated, and 1 answered it's complicated. Forty-nine of the participants identified themselves as heterosexual and one said she was homosexual.

Materials

The materials in this study consisted of two informed consent forms (see Appendix A), a demographic survey (see Appendix B), one main survey "How prejudiced are students at Lindenwood University?" (see Appendix C), a feedback letter (see Appendix D), and an extra credit slip for the participants. Also used for this study were a description sheet and a sign-up sheet which were attached to the bulletin board outside the LPP office. The researcher also used an experimenter's list of participants to verify which participants showed up for their appointment. The informed consent form ensured that the participant was informed on the type of survey that they took, that he or she was 18 years-old or older, and let him or her know that hi or she can end the survey at any time free of any penalties against them. The demographic survey asked about gender, age, ethnicity, country of origin, relationship status, as well as sexual orientation. The main survey had 10 questions, and asked the participants about their experience on the Lindenwood University campus regarding prejudice attitudes based on sexual orientation. Most of the questions for the surveys had been self made. The first two questions of the main survey (How prejudiced are students at Lindenwood University?) were created by researchers Huerta and Morrill, who were also students at Lindenwood University at the time (2009).

The feedback letter thanked participants for taking part in the study and provided them with the researcher's contact information in case they wanted to know the results of the study. The research took place on the campus of Lindenwood University. The research rooms that were used for this study were in the Psychology laboratories in Young Hall. The rooms that were used

were Loftus and Pavlov in the psychology laboratory and library rooms 1, 2 and, 4. The psychology laboratory rooms were rather small, had no windows, and consisted of two desks and two chairs. Some of the library rooms had windows but all of the library rooms had a big round table making them look like conference room.

Procedure

Each participant was surveyed individually. The participants were given two consent forms, one for their records and one for the records of the researcher upon entering the research laboratory. The researcher explained to the participants what was written on this form and the participants were then given some time to read the consent form themselves. After they had read the consent form they were asked if they had understood everything and only if they answered with a yes were they asked to sign the consent form. The researcher also signed the informed consent form. The participants were then given the demographic survey. They were told that they were not supposed to write down their name on this survey but to answer each question truthfully. If they did not feel comfortable answering some of the questions they were asked to skip ahead. They were also encouraged to ask questions if they did not know how to answer a question. After the participants filled out the demographic survey they were given the main survey.

They were again asked to not write their name on the survey to ensure anonymity. The participants were told that they could stop the survey at any time if they felt uncomfortable and also told that they could ask questions if something was unclear to them and that they could also skip a question if they were uncomfortable answering one or more of them. After the participants had finished the survey they were handed a feedback form and debriefed. They were asked if they had any questions and were reminded that the researcher's contact information could be

found on the feedback form if questions came up later on. The researcher filled out the experimenter's participant list as well as the extra credit slip for the participants. The researcher handed the extra credit slip to the participant and the research procedure was over.

Results

This research was intended to find out how open minded the Lindenwood student community is. It addressed if people that are more exposed to homosexuality are less prejudiced and more open-minded towards people of a different sexual orientation. It also addressed if there is a difference between gender and overall age groups. The first question on the main questionnaire dealt with the statement if someone was bothered by the fact that a teammate on a sports team might be homosexual. Out of the 50 participants, 19 said that they strongly disagreed with this statement and said they would not be bothered if a teammate was homosexual. Thirteen other participants disagreed with the statement. Only two people agreed with the statement and said that they would feel uncomfortable if one of their teammates was homoesxual. Three people had strong feelings against having a homosexual teammate (see figure 1).

Question number two stated that one would feel uncomfortable when confronted with a professor that is homosexual. Out of all the participants, 21 strongly disagreed with the statement and 14 disagreed. These students do not mind having a professor that is homosexual. Three people agreed with the statement that they would feel uncomfortable if they knew that one of their professors was homosexual and three more people strongly agreed with the statement (see figure 2).

Question number three stated that one would feel uncomfortable if seeing a homosexual couple being affectionate with each other. The majority of people, 12 participants, disagreed with this statement. Eight participants strongly disagreed with the statement, and ten participants

mildly disagreed with the statement. Seven people agreed with the statement that they would feel uncomfortable watching a homosexual couple being overly affectionate with each other. Another six people strongly agreed with the statement (see figure 3).

Question number four states that one does not feel comfortable with any couple being overly affectionate with each other. The majority of participants, 20 participants agreed with this statement. Fourteen participants mildly agreed with the statement, and 11 participants strongly agreed with the statement that they did not feel comfortable if any couple is overly affectionate in public (see figure 4).

Question number five dealt with the question if Lindenwood was a community in which all students are accepted. Twenty-two people strongly agreed with this statement. Fourteen participants only mildly agreed with the statement that Lindenwood is an accepting community. Nine participants were very confident that Lindenwood is an accepting community and answered with strongly agree (figure 5).

Question number six dealt with the statement that one would feel uncomfortable when living in the same dorm room as a person that is homosexual. The answers on this question were very diverse. Ten participants strongly disagreed with the statement, and 11 people disagreed with this statement. Nine participants mildly disagreed with the statement, while five participants mildly agreed with the statement. Eight participants agreed with the statement that they would feel uncomfortable when sharing a dorm room with a person that is homosexual. Seven people strongly agreed with the statement (see figure 6).

Question number seven dealt with the statement that one believes that minority groups on the campus of Lindenwood University should be supported. The majority of participants, 18 participants, said that they strongly agreed with this statement. Ten participants mildly disagreed

with the statement while nine participants mildly agreed with the statement. Eight participants strongly agreed with the statement that minority groups on campus should be supported (see figure 7).

Question number eight stated that one thinks themselves to be well educated about homosexuality. Eighteen participants agreed with the statement, and 17 mildly agreed with the statement. Eight participants strongly agreed with the statement, while six people disagreed with the statement that they were well educated about homosexuality (see figure 8).

Question number nine asked the participants if they had ever seen a person that is a homosexual person being harassed on the campus of Lindenwood University. Out of all the participants only six answered this question with a yes and 44 participants answered this question with a no. Question number ten asked the participants if they had a friend that was homosexual. The results were exactly even because 25 participants answered yes, while the other 25 participants answered no.

Discussion

The study shows that students at Lindenwood University feel very strongly about this subject. They either agree or disagree on the questions where they are asked about direct contact with people that are homosexual. They only mildly agree or mildly disagree when only asked about their opinions, like for example questions six through eight. A lot of the participants agreed with the statement that Lindenwood University is a very accepting community. This question could potentially be biased because they might think it would reflect badly on them if they would say this about their college, even though they had been told before they started the survey that their name would not be recorded with the data.

As the results are indicating this study does have a significant outcome. Lindenwood University is indeed a very open minded community. The current study did have some limitations. For one thing only one person who is homosexual took part in this research study. While a lot of the participants did say they have friends of a different sexual orientation or are well educated about homosexuality, they may not be able to totally identify with homosexual people and the way they really feel on campus. Therefore, one should consider using convenient sampling, like targeting specific groups on to fill out the survey. One of these groups could be the spectrum alliance as this is a group that supports the homosexual community on the campus of Lindenwood University or focus on a sport team instead to see how accepting these individuals are. The study was not designed to correlate questions from the actual survey with the demographic survey. The campus of Lindenwood University did not give a sample that had enough participants I each group. Group refers to for example gender, age, and ethnicity. Any results that would have been reached by comparing ethnicities with each other would not have given a significant result. So the study did give information about the open mindedness on campus as a whole but one cannot say that females are more open-minded than males or the other way around. If the study is redone in the future this should be taken into account.

In a future approach to this study some questions need to be reworded and definitions included. Some of the students taking the study were unfamiliar with the terms homosexuality, heterosexuality, and bisexuality. It would be a good idea to offer short definitions on the demographic survey sheet to clarify some of these terms. Also the term ethnicity needs to be explained as some people did not know what it meant and answered with “American” which is citizenship and does not say anything about their ethnicity. Some people had problems

understanding what relationship status meant. In future studies this question could be changed into something simpler, like giving them options that they have to checkmark.

The fourth question from the actual survey should be reworded as it talks about couples being "overly affectionate with each other" in contrast to question number three which only states homosexual couples being affectionate with each other. Since the word "overly" is thrown into the second question these two questions cannot be properly compared. Overall, it is to consider though why people do not like to see couples being affectionate with each other because this could affect the results. They could be jealous of the couple because they might just have broken up with a significant other, or just wanting a partner. It could also be that the term affectionate was misunderstood, as it was supposed to only mean holding hands or giving a loved one a tiny kiss on the lips. Some participants thought that that "overly affectionate" means that the couple would go as far as performing sexual acts in public. An explanation should be included if the study were to be redone.

Minority groups are not very well represented in this study and the next time a better random sample should be collected. Most people answering the survey were also from the U.S.A. It would be interesting to see if having more international students answer the questions would actually change the results.

Jefford (1995) said that exposure to homosexuality changes with class standing and that homophobic behavior decreases with exposure level. The current study relates to his findings because the study was done on a college campus and the participants taking this study seemed to be very open- minded about homosexuality. One can also assume that class standing is higher in people that are in college. This could imply that people that are heterosexual are more exposed to people that are homosexual in college.

Heinze and Horn (2009) said that if an adolescent is friends with a person that is homosexual they are more likely to have positive feelings towards homosexuality and they were also less tolerant against bullying. While in the research study conducted at Lindenwood University most answers indicated that people have a positive attitude towards people that are homosexual, only 25 out of 50 participants said that they had a friend that was homosexual so this statement cannot be reproved by this study.

This study was worth accomplishing because every member of society should be able to live in an environment without being afraid of being scapegoated or picked on because of race, gender, sexual orientation or disability. Students at Lindenwood University that are homosexual can know now that they are well supported and do not need to hide their true feelings. The student community accepts all professors no matter what their sexual orientation is. This shows that Lindenwood University is a community in which every member of society can thrive and grow to be whatever they want to be in life.

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Figure 1

Figure 1. Q1: If I were on a sports team, I would be bothered if one of my teammates was homosexual.

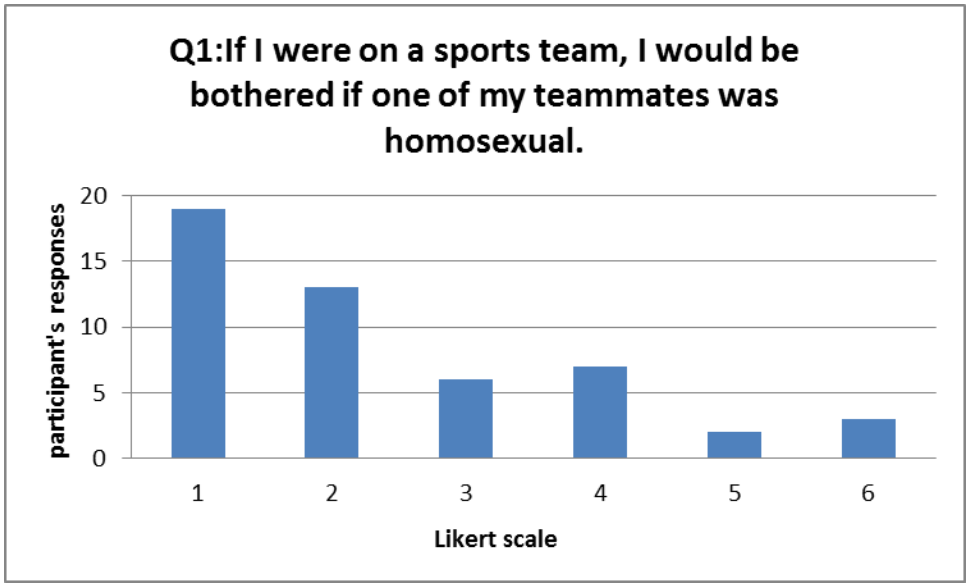


Figure 2

Figure 2. Q2: I would feel uncomfortable if one of my professors was homosexual.

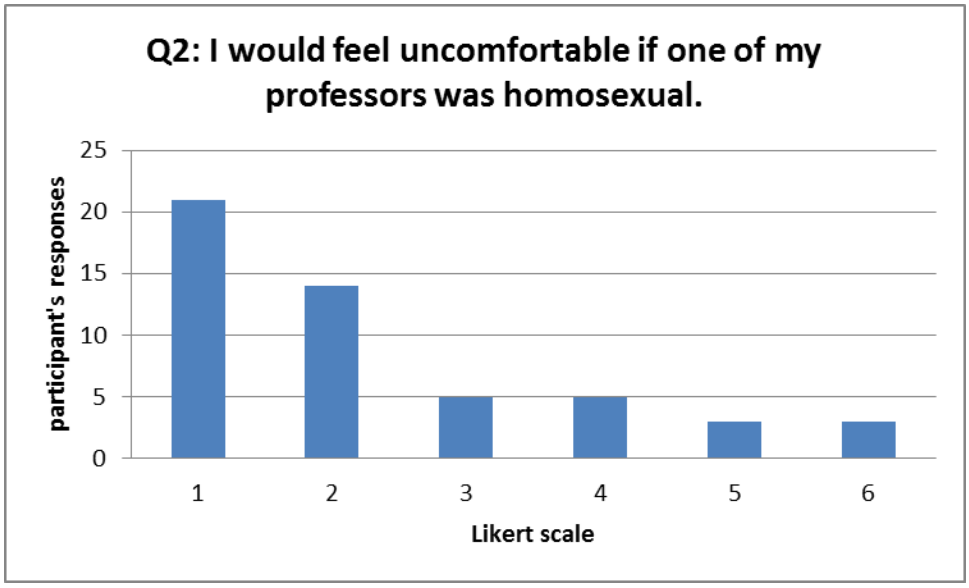


Figure 3

Figure 3. Q3: I feel uncomfortable if I see a homosexual couple being affectionate with each other.

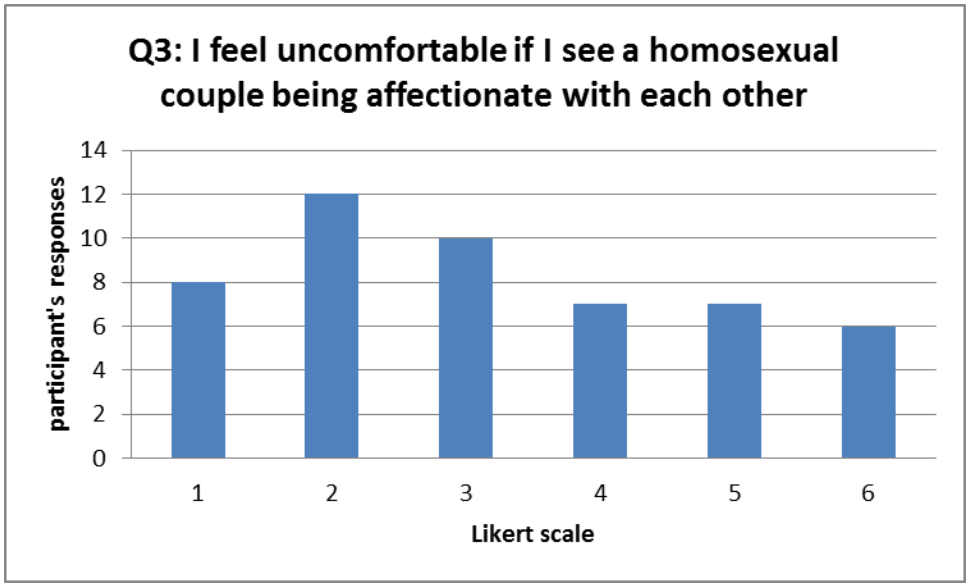


Figure 4

Figure 4. Q4: I don't think it is right for any couple to be overly affectionate in public.

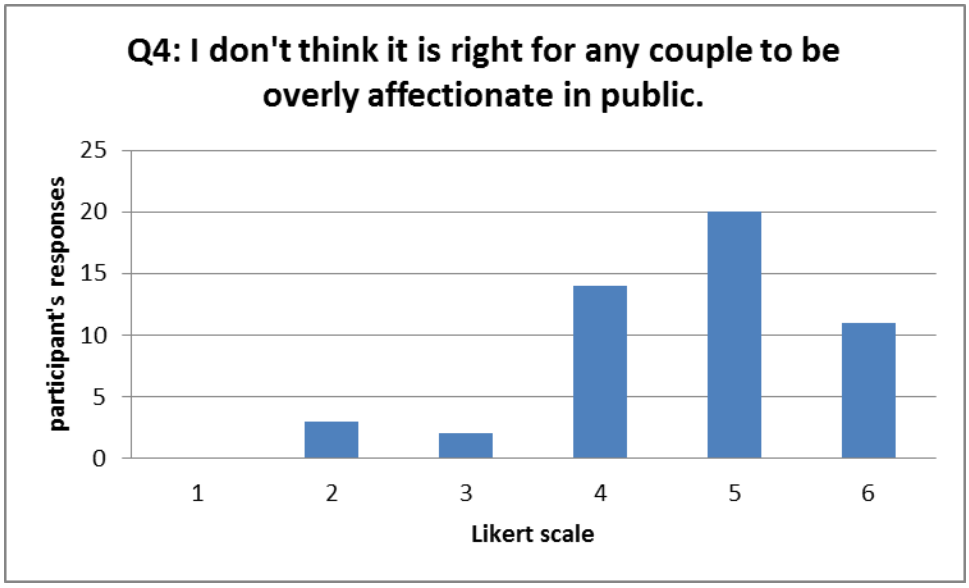


Figure 5

Figure 5. Q5: I think that Lindenwood is a community in which all students are accepted for who they are.

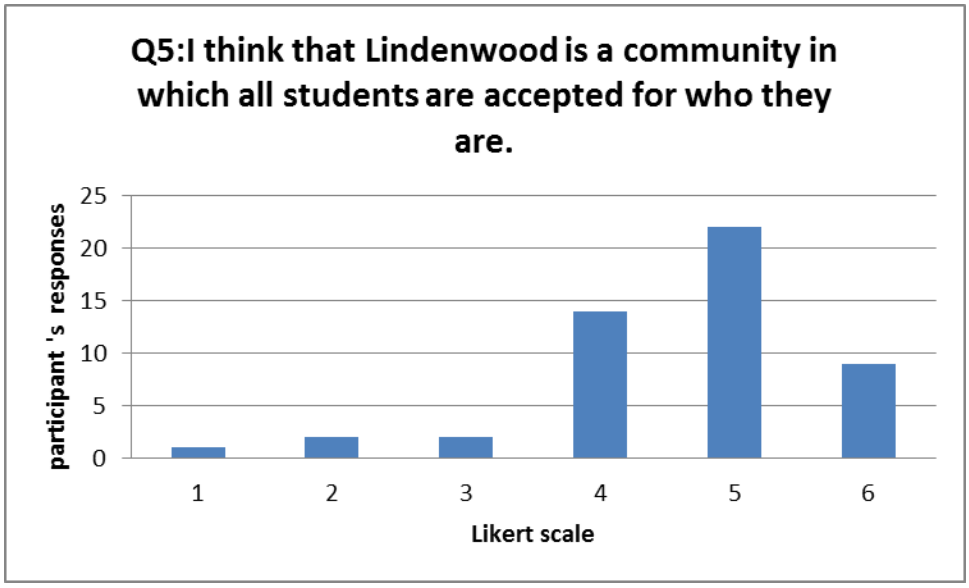


Figure 6

Figure 6. Q6: I would feel uncomfortable living in the same dorm room as a homosexual person.

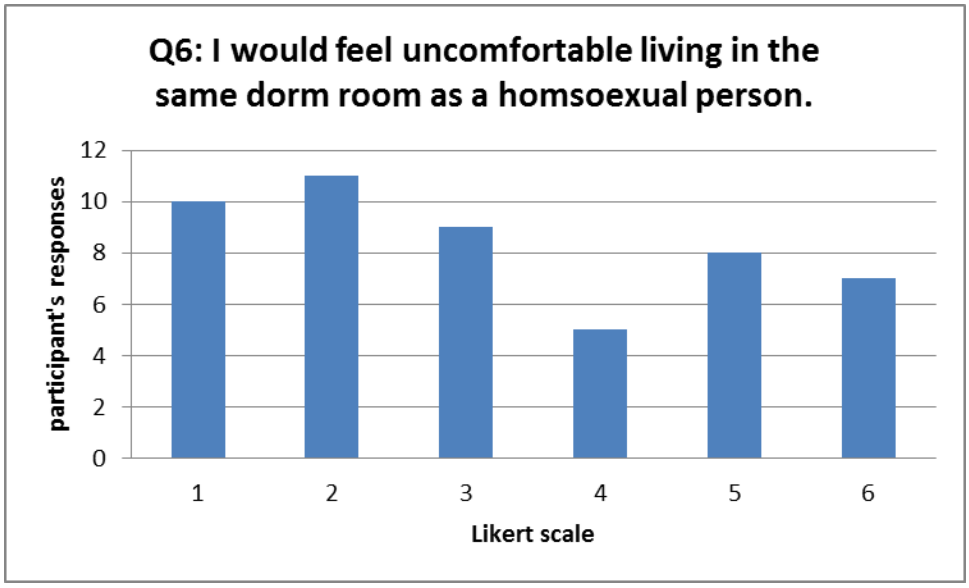


Figure 7

Figure 7. Q7: I believe that minority groups should be supported on campus.

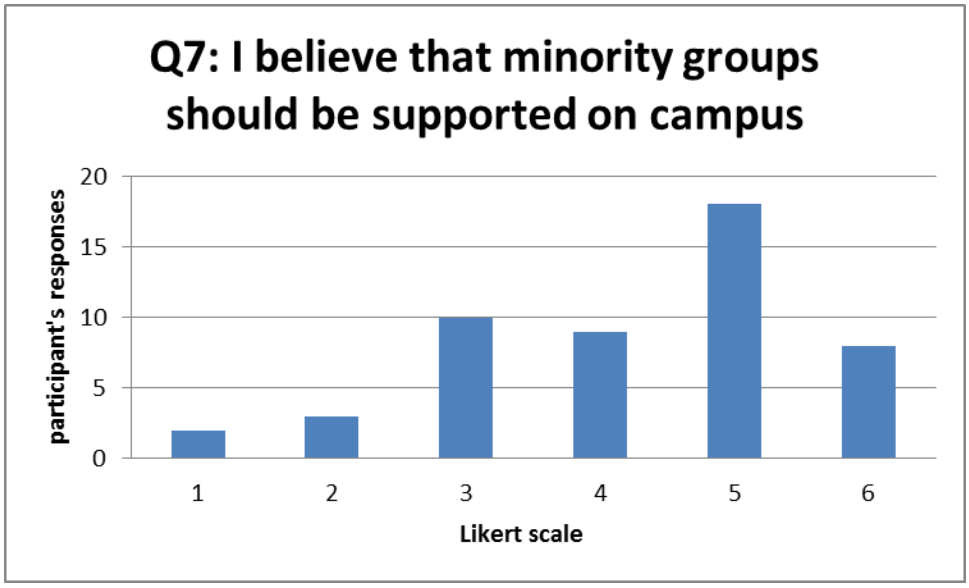
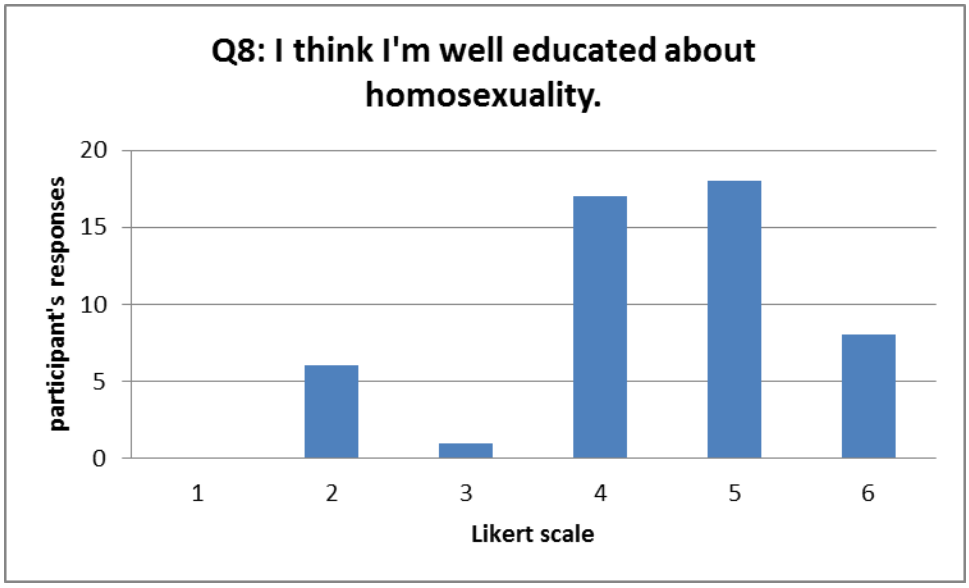


Figure 8

Figure 8. Q8: I think I'm well educated about homosexuality.



Appendix A

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete two short questionnaires: 1) one which requires me to provide simple demographic information about myself, 2) one which requires me to state my opinion on diverse people on campus. I understand that I should be able to complete this project within 15 minutes. I am aware that I am free to skip any questions in the unlikely event that I feel uncomfortable answering any of the items on any of the surveys. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

Student Researcher's Name and Number: Jessica Preuschoff , 636 345 1116

Supervisor:

Dr. Michiko Nohara-LeClair

Course Instructor

(636)-949-4371

mnohara-leclair@lindenwood.edu

Appendix B

Demographic survey

1) What is your age? _____

2) What is your gender? _____

3) What is your ethnicity/ your ethnic group? _____

4) What country are you from? _____

5) What is your relationship status (e.g. separated)?_____

6) What is your sexual orientation? (Please circle the answer that fits you best)

Heterosexual

Homosexual

Bisexual

Other

Appendix C

Questionnaire

1. If I were on a sports team, I would be bothered if one of my teammates was homosexual.

1----------2----------3----------4----------5----------6

Strongly Disagree Mildly Mildly Agree Strongly
Disagree Disagree Agree Agree

2. I would feel uncomfortable if one of my professors was homosexual.

1----------2----------3----------4----------5----------6

Strongly Disagree Mildly Mildly Agree Strongly
Disagree Disagree Agree Agree

3. I feel uncomfortable if I see a homosexual couple being affectionate with each other.

1----------2----------3----------4----------5----------6

Strongly Disagree Mildly Mildly Agree Strongly
Disagree Disagree Agree Agree

4. I don't think it is right for any couple to be overly affectionate in public.

1----------2----------3----------4----------5----------6

Strongly Disagree	Disagree	Mildly Disagree	Mildly Agree	Agree	Strongly Agree

5. I think that Lindenwood is a community in which all students are accepted for who they are.

1----------2----------3----------4----------5----------6

Strongly Disagree	Disagree	Mildly Disagree	Mildly Agree	Agree	Strongly Agree

6. I would feel uncomfortable living in the same dorm room as a homosexual student.

1----------2----------3----------4----------5----------6

Strongly Disagree	Disagree	Mildly Disagree	Mildly Agree	Agree	Strongly Agree

7. I believe that minority groups on campus like the GLBT community (Gay –Lesbian-Bisexual- Transgender community) should be supported.

1----------2----------3----------4----------5----------6

Strongly Disagree	Disagree	Mildly Disagree	Mildly Agree	Agree	Strongly Agree

8. I think I am well educated about homosexuality.

1----------2----------3----------4----------5----------6

Strongly Disagree Mildly Mildly Agree Strongly
Disagree Disagree Agree Agree

9. I have witnessed a homosexual person being harassed on campus.

Yes No

10. I have a close friend who is homosexual.

Yes No

Appendix D

Feedback Letter

Thank you for participating in my study. The present study was conducted in order to determine whether Lindenwood University is a prejudiced environment or not. The study focused on the acceptance of all kinds of relationships. My belief is that Lindenwood is a very diverse community and therefore little prejudiced if any will be found. If Lindenwood is indeed an accepting community more people are able to live their lives at Lindenwood without fear of being harassed because of their sexual orientation and therefore do not need to hide their true self.

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,

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Racial Profiling is Not Specifically Always Black or White

Samantha Ollie[11]

The following paper outlines different views of racial profiling. Racial profiling is painted in various lights due to the ambiguity and the magnitude that surrounds this concern. Accusations seem to be on every news headline, but how do we as a public know who was in the right and who was in the wrong and how can he or she prove the true intention of any given situation? Both pros and cons from each side, of an average citizen of the United States of America and also from the law enforcement personnel that live to serve and protect those citizens and the highest law of our land, The Constitution of the United States of America are stated and analyzed. A data analysis study is presented from the village of Caseyville, Illinois.

We have all heard expressions about first impressions, "Within five seconds one knows if one will be interested in what another has to say," and also including, "Within seven seconds, one can make 21 assumptions about someone else." Sadly for some, that first impression might not even take as long as five seconds. In today's society, should we really be allowed to assume anything about anyone? The existence of racial profiling has been an ongoing debate within the law enforcement defenses for centuries, and still remains a hot topic. Walker, Spohn, and Delone (2012) defined racial profiling as "the use of race as an indicator in a profile of criminal suspects, with the result that drivers are stopped entirely or in part because of their race or ethnicity and not because of any illegal activity."

Racial profiling has been an issue, because currently it is just that, an issue. Racial profiling is an issue that has no simple problem-solving technique or an answer that one could just possibly "Google." One should not be content with a simple answer and should not find

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comfort in the black and white letters that form words on any random internet page. An issue has sides, sometimes multiple sides, and every side is very opinionated and has a story to tell. Every side also believes that his or her side is the right side because of his or her own certain reasons. An issue of this magnitude has no simple fix or solution because it is not a simple concern and should not be treated as so.

Police personal are trained to judge any situation in its complete entirety. Even when making the initial decision to pull any offender over, it simply would be impractical to anticipate a good stop (warranted and reasonable) based solely on skin color. After the first contact has been made, researchers have noted "that a considerable amount of police officer discretion is exercised after the stop has taken place" (e.g., Brown, 1981; Davis, 1971; Goldstein, 1960). Then once again, the totality of the circumstances shifts so the officer can judge and even anticipate his and the offenders perception of the situation. Many other factors are now introduced. Engel and Calnon (2004) determined many factors go into an officer's decision to cite a driver, search the vehicle, arrest the individual or the degree of use of force reached, if necessary. But this conclusion is light on the very initial stop and why the officer chose this one particular individual over the next. Officers are trained to take in all factors and to judge what will happen next at this point in the stop. Race may or may not be included at this point in time. Attitude, age, overall quality of life, and overall neighborhood attitudes towards police all might play roles in how police initiate contact with a person of interest (Walker et al., 2012).

Racial profiling should not be approached or apprehended as a single question of existence or non-existence, because there is not a yes/no or black/white way of describing, analyzing, or proving what, how, and to what degree this phenomena may or may not be taking place. "The Supreme Court itself often adopts a contextual, or totality of the circumstances,

approach to analyze the reasonableness of an individual search under the Fourth Amendment, and the Court allows race to be used as one factor among many in order to pursue a compelling state interest under Equal Protection doctrine when a governmental policy has a disparate impact on minorities" (Pickerill, Mosher, & Pratt, 2009). The same can be said for traffic violations themselves, including initial stops made by the police. Police do not seem to be singling out minorities based on that one factor alone, but might play a role in the totality of the circumstances (Bursik & Grasmick, 1993). For example, if a particular city shows stopping a minority group would lead to a higher hit rate after considering many factors, a city police officer might choose one vehicle over the next to stop. Hit rates themselves have multiple levels for different stages of any police encounter depending on demographics of a particular area.

Ambiguity surrounds even the very definition of racial profiling. No two societies have the same understanding or operational definition of racial profiling because every region and even every community might or might not experience this phenomenon and even the familiarity in different variations in the degree it may or may not be addressed.

Method

Materials and Procedure

Demographic information, for example such as age, ethnicity, gender, and overall population was obtained through state and federal census information on the state of Illinois. Traffic records and race information was collected from www.dot.il.gov and paper reports held at Caseyville Police Department. In the Illinois Traffic Stop Study, police agencies report the demographic information of the year's total number of people dealt with, including traffic stops to the Illinois Department of Transportation. No identifying information was received such as names or social security numbers.

Data from the last few years was converted into a chi-squared analysis in such manor to include looking at the demographic information and comparing how the percentages of ethnic groups (driving population) has changed over the years and also ethnic groups were compared to each other to rationalize a majority and minority population within the village of Caseyville, Illinois. Effects form a chi-squared analysis showed no immediate relationship.

Results

When comparing the percentage stops, caucasian drivers were consecutively pulled over at a higher rate that all minority drivers combined. This analysis correlates with the population of Caseyville, indicating that police are not solely basing a first contact on race or ethnicity of the driver. Tables like the ones below (table 1, table 2 and table 3) were used to analyze and categorize data into pre-stop and post-stop data. Tables 1, 2, and 3 are a reprehensive example of all the tables prepared from the years of 2008 all the way up until the year of 2010.

Table 1: Caseyville Police, Illinois Traffic Stop Study, 2010

Stops (Overview)		
	Caucasian Drivers	Minority Drivers
Percentage Stops	53.6	46.4
Duration (Mean/Median)	19/8	23/10
Estimated Minority Driving Population	70.73	29.27
Ratio		1.59
Total Stops	1190	1030

Table 2 : Caseyville Police, Illinois Traffic Stop Study, 2010

Reason for Stop (Pre-Stop)				
	Caucasian Drivers		Minority Drivers	
Moving Violations	659	55.38%	515	50%
Equipment Violations	370	31.09%	298	28.93%
Licensing / Registration Violations	161	13.53%	217	21.07%
Total	1190		1030	

Table 3: Caseyville Police, Illinois Traffic Stop Study, 2010

Outcome of Stop (Post-Stop)				
	Caucasian Drivers		Minority Drivers	
Citation	595	50%	580	56.31%
Written Warning	137	11.51%	60	5.83%
Verbal Warning / Stop Card	458	38.49%	390	37.86%
Total	1190		1030	

Discussion

Even though, no significance was found, and based on driving population, instead of actual demographic information the numbers were nearly equal thought the board. So much time and money is spent going into these studies and takes many resources for police agencies just to

collect, transcribe, and report this data that one might question if it is worth the time and money spent. The answer is yes. By utilizing this collection of data, the state of Illinois can report that racial profiling should not be a subject of debate because it is not an issue.

Racial profiling will always be a hot topic among law enforcement and the general public. As long as good people, with the best intentions are hired as police personal and they are equipped with the high morals and the best training available, this issue will stay in within the confounds of Illinois law. This is the reason police personnel are evaluated and assessed so rigorously before getting hired at any agency. Pre-employment includes but is not limited to: multiple personality evaluations, multiple psychological tests, poloygraph assessment, various psychical and agility test, and also a background screening for use of good judgment and overall excellence of a moral standing. All of these criteria are assessed on a case by case basis and are screened by multiple individuals. This process helps ensure that police officers are becoming police officers for the right reasons.

Ideas for any future studies might include comparing two different cities with the dame actual demographic statistics and analyzing the driving population over a longer period of time.

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Perceived Competence, Autonomy, and Relatedness as Predictors of Academic Burnout in Undergraduate Students

Ben Maxwell[12]

Burnout is one of the most pervasive threats to students' psychological and physical well-being. The present study was conducted to examine the relationships among academic burnout in college students and self-perceived levels of autonomy, competence, and relatedness. The researcher postulated that scores of perceived competence, autonomy, and relatedness would be negatively correlated with levels of academic burnout. One hundred thirty participants—57 men and 73 women—were recruited from the Lindenwood Participant Pool. In order to collect data, participants were given a packet of surveys. The three surveys were a demographic questionnaire, the Basic Psychological Needs Survey (accessed from www.selfdeterminationtheory.org), and the Maslach Burnout Inventory – Student Survey (accessed from www.mindgarden.com). Results suggest competence and autonomy may predict levels of academic burnout, while relatedness bears a no association. This study offers a base on which future research designs can be constructed to examine burnout among Lindenwood University students from a student-context perspective. Because of its serious implications, burnout is a very important subject to study.

Keywords: burnout, undergraduate students, self-determination theory

Today's undergraduate students face many unique and demanding challenges as they strive to do what is required of them. Of great concern is the issue of burnout and difficulties maintaining optimal senses of autonomy, relatedness, and competence. Burnout negatively affects the learning and performance of students, as well as their physical and psychological health (Kao, 2009). Furthermore, burnout has been shown to be related to absenteeism, lower efficiency, social conflict, and the use of drugs and alcohol in the workplace (Cherniss, 1992;

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Gagn'e, 2003; Kahill, 1988; Maslach & Jackson, 1981). It is not a stretch to assume that undergraduate students could face the same consequences. These results alone make the study of the relationship between competence, autonomy, relatedness, and academic burnout especially important because of the potentially serious implications for students at Lindenwood.

The present study was conducted in order to find a relationship between levels of competence, autonomy, and relatedness to academic burnout. Results would offer a base for which future researchers can begin to explore burnout among college students from a person-context perspective. As more understanding of predictors of burnout is gained, greater prevention strategies can be created to address the issue.

Ever since the idea of burnout emerged, it has been the focus of a substantial body of research (Jacobs & Dodd, 2003). Such research is commonly focused on burnout in work settings—specifically on those who do "people-work," such as social workers (Maslach & Jackson, 1981; Cohen, 2003) and hospital nurses (Amoo & Fatoye, 2008; Robinson-Kurpius & Keim, 1994). However, very little research has been done in the university setting (Kao, 2009; Weckwerth & Flynn, 2006). Pisarik (2009) highlighted the need for future research on academic burnout in college students because, as he noted, burnout is a serious issue that afflicts many more students than people realize.

Burnout refers to three basic characteristics: physical and emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). All three factors do not typically manifest at the same time (one usually results from another) (Maslach, 1982). For example, elements of depersonalization might be a result of emotional exhaustion.

The characteristic, "emotional and physical exhaustion," refers to a state in which a person is depleted of physical and mental resources (Maslach & Jackson, 1981). Maslach (1982)

describes this as resulting from chronic senses or strain in one's workplace. It is usually the feeling of emotional and physical exhaustion that causes the other two components of burnout (Maslach, 1982).

Next, depersonalization is defined as a negative, cynical attitude toward one's occupation or those one works with (Maslach & Jackson, 1981). The cynical attitude is usually aimed at one's superiors (Kroon, Voorde, & Veldhoven, 2009), and is often a result of physical and emotional exhaustion (Maslach, Schaufeli, & Leiter, 2001). In the context of the present study, "superiors" would relate to students' professors.

Finally, reduced personal accomplishment refers to an inclination to negatively appraise one's production or accomplishments at work (Maslach & Jackson, 1981). This sense of reduced personal accomplishment in college students is often a result of too large of a workload and lack of resources to effectively meet one's requirements (Jacobs & Dodd, 2003).

Burnout is typically characterized by a sense of indifference and detachment from one's environment (Maslach, 1982), and normally arises when an individual perceives an imbalance between the strains of their work position and the amount and quality of resources at their disposal (Maslach, 1982). Researchers (e.g. Amoo & Fatoye, 2008; Maslach, 1982; Weckwerth & Flynn, 2006) have found that burnout most commonly comes about if this self-perceived imbalance lasts for a long period of time.

Self-determination theory (SDT), as proposed by Deci and Ryan (1985), posits human beings have innate propensities to develop senses of self that are unique and constantly evolving. People have tendencies to establish relationships among the different facets of their own personalities as well with individual groups (Baard, Deci & Ryan, 2004). Moreover, Deci and Ryan (1985) state that social environments (such as a university environment in the present

study) can facilitate or hinder these human tendencies, which can affect a person's psychological and physical well-being. Deci and Ryan (1985) hypothesized that individuals have three primary psychological needs: competence, autonomy, and relatedness.

The first basic human need is competence. Competence refers to the feeling of effectiveness when dealing with challenges experienced in one's environment (Ryan & Deci, 2000). Gagn'e (2003) reported that lower levels of competence are associated with feelings of disinterest and lethargy in the work setting. This suggests a relationship between burnout and competence, since such feelings are seen in individuals struggling with burnout.

Relatedness is the next basic human need. The term "relatedness" refers to the social relationships people form with those in their environments (Deci & Ryan, 2000). Relatedness was chosen to be studied because Kahill (1986) found that greater social support has been shown to be related to lower levels burnout (Kahill, 1986). Hill (2004) suggested that those who score low on relatedness often feel very isolated. Jacobs and Dodd (2003) found a relatively high percentage of people suffering from burnout report feeling isolated, which indicates a link between relatedness and burnout. Burnout often occurs due to lack of social and emotional support from one's superiors in a professional work setting (Hill, 2004), more so than from one's peers (Hill, 2004). The aforementioned research, although not conducted on students, suggests that there might be a relationship between burnout and relatedness in a university setting. The researcher found that little work has been done to examine the effect of relatedness on burnout between students' and their professors, and, especially, between students and their peers in an academic setting.

The final basic human need is the need for autonomy. Research has found that promotion of student autonomy has shown to lead to greater engagement and positive feelings about an

activity (Deci, Eghari, Leone, & Patrick, 1994). This greater engagement and positive feelings typically leads to greater competence and increased personal accomplishment (Deci, Eghari, Leone, & Patrick, 1994). As previously noted by Maslach and Jackson (1981), a key feature of burnout is reduced personal accomplishment. From this research, it can be extrapolated that autonomy is another key feature in predicting academic burnout.

The primary purpose of the present study was to examine whether or not the elements of SDT were correlated to levels of academic burnout. The researcher chose to study academic burnout because research in the field of academic burnout in college students is limited. The topic of the relationship between the components of SDT and academic burnout is especially important because the consequences of academic burnout have potentially serious implications for students at Lindenwood (such as the deterioration of physical and mental health). Thus, it is important to work to more fully understand burnout among the general college student population, and to apply effective interventions to reduce burnout.

Other issues investigated were the differences in levels of burnout, relatedness, competence, and autonomy in regards to a participants' sex, age, year at Lindenwood University (i.e. freshman, sophomore, junior, senior), involvement in varsity or junior varsity athletics, and involvement in Lindenwood's Work & Learn program.

Differences in class rank were studied because Nowack and Pentowski (1994) found that freshmen students are under more stress compared to upperclassmen. Since stress is directly related to burnout (Hill, 2004), it is important to see if the implications of burnout are unique to freshmen. Also, involvement in varsity or junior varsity athletics needs to be discussed. Frank (2008) researched burnout in college athletes, and came to the conclusion that they suffered from burnout more than non-athletes. It is important to study burnout in athletes because it might

affect their academic and athletic performance. Involvement in Lindenwood's Work & Learn program will also be studied. Additionally, Jacobs & Dodd (2003) suggest that burnout is often related to too heavy of a workload. The influence of workload is worth studying to find out if participating in the Work & Learn program is detrimental to students' academic success.

The researcher hypothesized that scores of perceived competence, autonomy, and relatedness would be negatively correlated with burnout in college students. The Basic Psychological Needs Survey was used to assess levels of competence, autonomy and burnout. The Maslach Burnout Inventory – Student Survey was used to assess levels of burnout in students.

It was also hypothesized that various demographic variables (e.g. sex, age, year at Lindenwood, involvement in Work & Learn etc.) would be correlated to burnout. A demographic questionnaire was created in order to properly assess these variables.

Method

Participants

Research for the present study was conducted on the main campus of Lindenwood University. Participants were gathered from the Lindenwood Participant Pool (LPP). The LPP is designed to allow researchers to access participants for research studies. A total of 130 undergraduate participants were recruited for the study. Participants were given compensation in the form of extra credit points toward their respective general education classes (e.g. PSY 100, SOC 102, and ANT 112). All participants in the study were 18 years of age or older.

Of the 130 students, 57 were males and 73 were females. Thirty-eight of the participants were freshmen, 37 were sophomores, 31 were juniors, and 24 were seniors. The average age was 20.44 years, with a minimum age of 18 and a maximum age of 44 (SD = 3.68). Ninety-three

participants were white, 8 were black, 7 were Hispanic, 11 were Asian/Pacific Islanders, and 4 were more than one ethnicity and 7 marked "other." Forty-nine participants played Lindenwood University varsity or junior varsity sports. Sixty-five had Lindenwood University Work & Learn assignments.

Materials

Research was conducted within the Psychology Lab at Lindenwood University. Materials used during the assessment were student desks and chairs. Pens, surveys, receipts, and other forms were provided by the researcher. Participants signed up to take part in the research study on a signup sheet placed on the LPP signup board. Signup sheet B was used to select specific times for participants to sign up. The signup sheet included the research description for the study (see Appendix A). Two informed consent forms (see Appendix B) were used per participant (one for the researcher to keep and one for the participant to keep as a personal record) to explain the basics of the study.

The Basic Psychological Needs Survey (BPNS) (www.selfdeterminationtheory.org) (see Appendix C) was used to record participants' levels of competence, autonomy, and relatedness. The researcher was allowed to use to questionnaire without charge as long as results were shared at the end of the study. With approval from administrators from the www.selfdetermination theory.org website (operated by professors at Rochester University), the researcher changed questions on the BPNS to be more relevant to a university setting (e.g. the question "I do not feel capable of doing work at my job" was altered to "I do not feel capable of doing my homework." The BPNS consisted of 21 questions using a 1 – 7 Likert Scale (a score of 1 indicating "not true at all" and a score of 7 indicating "very true"). It included questions such as: "When I work with my peers in a group, I feel like I can influence how school work gets done," and "I like working

with my peers in school." Scores were analyzed using a guide provided by www.selfdeterminationtheroy.com.

The Maslach Burnout Inventory - Student Survey (www.mindgarden.com) (see Appendix D) was used to assess levels of student burnout. The survey used a 0 – 7 Likert Scale (a score of 0 indicating "never" and a score of 7 indicating "always"). It included questions such as: "I feel emotionally drained by my studies," "I have become less interested in my education since my enrollment in school," and "I feel stimulated to achieve my goals." A testing manual purchased from www.mindgarden.com helped the researcher interpret scores.

The demographic questionnaire (see Appendix E) was used to record participants' personal information (i.e. sex, ethnicity, year at Lindenwood University, age, involvement in university athletics, and involvement in the university's Work & Learn program). Finally, a feedback letter (see Appendix F) was used to explain the importance of the study, its purpose, all hypotheses, and what will happen with information gathered.

Procedure

Participants were given surveys in groups of 2-5. They were given ample space so there would be no pressure while completing the surveys. Participants were asked to carefully read two informed consent forms and sign them if they agreed to participate. (If students did not agree to participate in the study, they were still given bonus points for their respective classes.) If the participants did agree, one form was kept by the researcher to record participation and the other was left to the participant. Participants were then given the Basic Psychological Needs Survey so the researcher could assess their levels of competence, autonomy, and relatedness. After the first survey, participants were given the Maslach Burnout Inventory - Student Survey to assess levels of burnout. Next, students were asked to fill out demographic questionnaires. Once

participants had filled out the questionnaires, they were given a feedback letter highlighting the importance of the study, the hypotheses, and what will happen with the results. After the feedback letter was given, the researcher made sure all parts of participants' bonus point receipts were filled out. The researcher then informed participants to take their receipts to the LPP office to receive bonus points, and were then told that they were free to leave the testing area. After data was collected, the researcher scored the surveys and recorded them onto a Microsoft Excel spreadsheet. Statistical analyses were conducted using SPSS software. On the Basic Psychological Needs Survey, scores for autonomy were gathered by adding the relevant scores and averaging them; six scores for competence were added together and divided by six; seven scores for autonomy were added together and divided by seven; eight scores for relatedness were added together and divided by eight. The 13 scores for the Maslach Burnout Inventory – Student Survey were averaged to get an overall score for academic burnout. Individual data from the demographic questionnaire was recorded onto the spreadsheet as well. From this process the researcher was able to gain a score for autonomy, relatedness, competence, and burnout from each participant.

Results

Primary analyses were focused on the relationship between the elements of Self-Determination Theory and academic burnout. The researcher hypothesized that scores of perceived competence, autonomy, and relatedness would be negatively correlated with burnout in college students. Different demographic variables were also analyzed and considered.

The current sample reported a moderate level of burnout ($M = 3.12$, $SD = 0.65$). (As will be later discussed, this result was expected given the time of year research was conducted.) Overall norms for the sample collected suggest moderate scores in autonomy ($M = 4.3$, $SD =$

0.70), moderate scores for competence (M= 4.8, SD = 0.71), and moderate scores for relatedness (M = 5.02, SD = 0.81).

The primary hypotheses stated that elements of SDT will be correlated academic burnout. However, a multiple regression analysis indicated that only competence and autonomy had an impact on burnout (adjusted $R^2 = 0.44$, $F(3,126) = 34.84$, $p < 0.001$). The regression is significant, which leads the researcher to accept the relationships in the regression test. Competence accounted for 47% of the variance, autonomy accounted for 32% of the variance, while relatedness only accounted for only 2% of the variance.

Scores of relatedness and burnout differed significantly from athletes and non-athletes. Athletes (N = 49) showed higher levels of burnout (M = 3.19, SD = 0.52) than non-athletes (N = 81) (M = 3.08, SD = 0.72). Moreover, athletes showed much higher levels of relatedness than non-athletes (M = 4.42, SD = 0.61) for athletes and (M = 3.95, SD = 0.74) for non-athletes. These findings strongly support the research of Frank (2008), who studied the social experiences and academic activities of athletes in relation to burnout.

Data on the ethnicities of participants was gathered to assess how representative of a sample was obtained during the research process. Since the vast majority of participants (71%) were white, and since incredibly extensive research has shown no major difference in burnout amongst ethnicities (Dyrbye et al., 2007), the researcher chose not to conduct statistical analyses because results would be inconsequential.

To understand differences the number of years at Lindenwood, seniors were contrasted with freshmen. Results showed freshmen have lower competence scores than seniors (M = 4.35, SD = 0.83 for freshmen as compared to M = 5.02, SD = 0.85 for seniors). Freshmen also scored higher on the burnout questionnaire than seniors (M = 3.21, SD = 0.91 for freshmen and M =

3.08, SD = 0.92 for seniors. Conversely, scores of autonomy and relatedness do not differ between freshmen and seniors.

The only difference between sexes was with the score of relatedness, with females averaging a score of 5.3 (SD = 0.81) and males averaging 4.9 (SD = 0.74).

Finally, there were no differences between students between students who were taking part in Lindenwood's Work & Learn program and those who were not. This finding was contrary to those of Jacobs & Dodd (2004). Possible reasons are outlined in the discussion.

Discussion

The purpose of this study was to examine the relationships among academic burnout in college students and perceived levels of autonomy, competence, and relatedness. Researchers have suggested there are negative relationships between low levels of perceived autonomy and competence and some symptoms of burnout, such as emotional exhaustion and reduced sense of personal accomplishment (e.g. Jacobs & Dodd, 2003; Pisarik, 2009). Although a huge body of research suggests a relationship between social support and burnout (e.g. Deci & Ryan, 2000; Gagn'e, 2003; Jacobs & Dodd, 2003), no significant relationship was found between relatedness and burnout in this study.

As abovementioned, results suggest that there is no significant relationship between relatedness and burnout. However, the researcher found an issue that needs to be addressed on the BNPS that might have affected relatedness scores. The researcher believes questions on the BPNS were too ambiguous. For instance, the word "people" in question 4 ("People tell me I am good at what I do") could refer to professors or students. The questionnaire does not offer a way to discriminate the two. Many studies of burnout have found that social support from supervisors (professors in the current study) contributes to significantly lower levels of burnout,

while support from friends or coworkers (students' peers in the present study) has little effect on burnout (Huebner, 1994; Ross, Altmaier, & Russell, 1989). Unfortunately, the survey questions did not allow the researcher to tell which group of people attributed to feelings of relatedness. A future study might use a questionnaire to measure different forms of social support (e.g. measuring social support from students' professors separate from students' peers).

Another topic that needs to be addressed is *subjective workload*, because it might affect scores on burnout questionnaires. Subjective workload, as can be expected, is not necessarily related to actual workload. Hence, future researchers should be careful asking questions such as "How many hours do you spend doing homework per week?" because some people can deal with a larger amount of homework better than others can. Future questions should focus on looking for more subjective answers. In short, interpersonal, internal, and external factors should be considered if future researchers intend to base a study of off the present one.

The researcher came up with other potential topics for future study. When considering burnout, one should look at other factors that affect self-determined motivation and burnout. Something that needs to be seriously considered is how professors' interactions with students influence the performance and development of students. Of great concern is burnout in professors. Sorcinelli (1999) noted that students can sometimes mirror the attitudes of burnt-out professors, thus becoming burnt-out themselves. It has been shown that receiving feedback from professors is very important for a person's development (Hill, 2004), and burnt-out professors often have little concern for students because of disinterest and lethargy caused by lack of competence and depersonalization (Gagn'e, 2003).

Building from the work of Frank (2008), it is apparent that more researchers need to look at the overall effects of burnout in college athletes. The reason this research is important is

because students on varsity or junior varsity teams might suffer academically and athletically due to burnout. Future research might also look at the roles coaches play in the prevalence of burnout. As previously mentioned, Sorcinelli (1999) noted that professors can bring about burnout in students, and it is not a stretch to assume the same might be true for coaches.

Future research could be conducted based on the results of my study that would address health risks among students. Nowack and Pentkowski (1994) found that higher levels of burnout in college students are related to an increased likelihood of substance abuse. In a recent study, Pashchall, Antin, Ringwalt, & Saltz (2011) found that college freshmen were more likely to engage in alcohol abuse than upperclassmen. Results of my study suggest that freshmen are more likely to experience burnout and have lower levels of competence than their older peers. Therefore, research could be conducted to find a relationship between scores of competence and alcohol use among college freshmen.

Future research might be conducted to analyze student workload (other than academic workload). For instance, a study might be conducted that looks at students' participation in the university's Work & Learn program and participation in jobs outside of school. As can be expected, jobs outside of school are often just as stressful if not more stressful than many Work & Learn assignments.

There are several limitations to the present study. For starters, all measures in the study were self-report. Therefore, there will always be the possibility of measurement error. Secondly, it cannot be assumed that the results of this study will be similar in different institutions due to different stressors and social structures. (Results from a similar study at a community college would probably not be the same as one conducted at Harvard.) Although this study did roughly

represent the racial makeup of Lindenwood University, it could have benefitted from a more diverse sample.

Another limitation would be the time of year in which the study was conducted (September-November). For instance, if a similar study were conducted at the end of a semester, the results would surely be different because students will be under the pressures of finals week. Also, the classic "senioritis" might not set in until weeks before seniors graduate. Also, freshmen might score higher on the burnout survey early in their first semester due to shock of the initial workload, as discussed by Jacobs and Dodd (2003). These factor needs to be taken into serious consideration in future research.

Curiously enough, as much can be learned from this research study by analyzing the results as by analyzing the mistakes and limitations. For instance, future researchers studying the topic of burnout and self-determined motivation would find the present study quite valuable by understanding that other factors besides internal (e.g. disposition) and interpersonal (e.g. social support) are taken into consideration. Future researchers using the above questionnaires would benefit from altering the BPNS's relatedness questions to be more professor or peer-specific. Another way would be to use a scale such as the Multidimensional Scale of Perceived Social Support to get a firmer measure of relatedness and avoid the ambiguousness of the relatedness section of the BPNS.

Above all, merely knowing that burnout is a genuine problem faced by undergraduate students at Lindenwood University may empower professionals in the school system to better understand the matter. This study was conducted in order to offer a groundwork for which further research can be conducted to examine burnout among Lindenwood University students from a student-context viewpoint. As greater understanding of the predictors of academic

burnout is gained, better prevention plans can be created and implemented by school officials to properly confront the issue.

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Appendix A

Recruitment Description

In this study, you will be asked to complete three short surveys. One will measure your levels of autonomy, relatedness, and competence. The next is intended to assess your emotional state in relation to school. Finally, you will be given a demographic questionnaire. The entire procedure should take no more than 20 minutes of your time.

Appendix B

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete two survey and a demographic questionnaire. The first survey will measure my levels of autonomy, relatedness, and competence. The second is intended to assess my emotional state in relation to school. The demographic questionnaire will ask me to provide my demographic information (i.e. age, ethnicity, GPA). I understand that I should be able to complete this process within 20 minutes. I am aware that I am free to skip any questions at any time. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not suffer any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of my overall data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent.

_____ Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

Student Researcher's Name and Number:

Ben Maxwell (573)-453-0097 gbm575@lionmail.lindenwood.edu

Superviser/Course Instructor

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

Appendix C

Basic Psychological Needs Survey

ID number: _____

The following questions concern your feelings in school this semester. Please indicate how true each following statement is for you, given your experiences in school. Remember that your professors will never know how you responded to the questions. Please use the following scale in responding to the items.

Please rate the truthfulness of each statement with a score of 1-7. Please write your answer in the blank following the question.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

1. When I work in a group, I feel like I can influence how work gets done. _____

2. I really like working with people at school. _____

3. I do not feel very competent when I do school work. _____

4. People tell me I am good at what I do. _____

5. I feel pressured while at school. _____

6. I get along with people in school. _____

7. I pretty much keep to myself when I am in school. _____

8. I am free to express my ideas and opinions in the classroom. _____

9. I consider the people I work with to be my friends. _____

10. I have been able to learn interesting new skills in school. _____

11. When I am in class, I have to do what I am told. _____

12. I feel a sense of accomplishment from working on school tasks. _____

13. My feelings are taken into consideration in school. _____

14. In class I do not get much of a chance to show how capable I am. _____

15. People at school care about me. _____

16. There are not many people in school that I am close to. _____

17. I feel like I can pretty much be myself in class. _____

18. The people I work with sometimes don't like to work with me. _____

19. I sometimes don't feel very capable of doing my homework. _____

20. There is not much opportunity for me to decide for myself how to go about my schoolwork. _____

21. People in school are friendly toward me. _____

Appendix D

Please indicate how true each of the following statements is given your experiences at Lindenwood University. *Remember that your professors will never know how you responded to the questions*. Please use the following scale in responding to the items.

Please rate the truthfulness of each statement with a score of 0 (Never) to 7 (Always). Write your response in the in blank to the side of the question.

0 1 2 3 4 5 6 7

Never Sometimes Always

1. I feel emotionally drained by my studies. _____
2. I feel used up at the end of a day at school. _____
3. I feel exhausted when I get up in the morning and have to face another day at school. _____
4. Studying or attending class is a strain for me. _____
5. I have become less interested in my education since my enrollment in school. _____
6. I have become less enthusiastic about my studies. _____
7. I have become more skeptical about the potential usefulness of my studies. _____
8. I doubt the significance of my studies. _____
9. I can effectively solve the problems that arise in my studies. _____

10. I believe that I make an effective contribution to the classes that I attend. _____

11. In my opinion, I am a good student. _____

12. I feel stimulated when I achieve my study goals. _____

13. During class I feel confident that I am effective in getting things done. _____

Appendix E

Demographic Questionnaire

ID Number: _____

You may choose to decline to answer any of the following questions.

1) Are you MALE FEMALE

2) How old are you? _____ years

3) What is your ethnicity?

   a. White
   b. Black
   c. African-American
   d. Hispanic
   e. Asian/Pacific Islander
   f. Native American
   g. More than one ethnicity
   h. Other _____

4) What year are you at Lindenwood University?

   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Other _____

5) Are you involved in activities outside of class listed below? If so, please indicate which one(s).
   a. Lindenwood University varsity or junior varsity sports
   b. Clubs, fraternities, sororities, or honor societies
   c. Job outside of school
   d. Lindenwood University Work & Learn assignment

Appendix F

Feedback Letter

Thank you for participating in my study. The purpose of my study was to investigate the relationships among the dimensions of academic burnout (i.e. emotional exhaustion, reduced sense of personal accomplishment) and self-determined motivation (i.e. perceived competence, autonomy, relatedness) in college undergraduates.

I hypothesized that scores of perceived competence, autonomy, and relatedness would be negatively correlated with burnout in college students.

Please note that I am not interested in your individual results; rather, I am only interested in the overall findings based on all data I collect. 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 my study based on overall 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:

Ben Maxwell (573)-453-0097 (gbm575@lionmail.lindenwood.edu)

Supervisor:

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

The Influence of Picture Border Color on Perceived Attractiveness

Melissa Luley[13]

The influence of color on attraction is a useful area of research, with many sociological and psychological application possibilities. Previous research has examined the relationship between clothing color and attraction, which lead to results finding that the color red influences a higher rating of attraction in the opposite sex. These results came from looking at color as a physical trait on the individual (ie. shirt color). This study examined this concept of color influence from a non-physical trait aspect. Would red have the same influence on attraction if it simply is an association trait rather than a physical trait? Participants were shown a slideshow of black and white pictures with either a red or blue border. Based on the results, it was found that there is a significant influence of the red border when rating members of the opposite sex.

Based on results from conducted studies, it can be concluded that there is a relationship between color and attraction. It is the association and placement of the color that bears further research.

Elliot and Niesta (2008), examined the relationship between the colors red and blue, and men's preference in women. In the study, men were shown two pictures side by side, of the same woman, once in a red shirt and once in a blue shirt (Elliot & Niesta, 2008). Elliot and Niesta(2008) then found that the men in the study preferred the woman in the red shirt. Elliot and Niesta(2008) claimed the men that participated in the study were not aware of the role color played in their attraction to the woman.

Elliot (2010) replicated the Elliot and Niesta (2008) study on men, with a similar study to examine the preferences of women. The design of the study was the same as the study on men,

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and the same results were shown. When women were presented with two pictures of the same man, results showed that a large majority of women reported being more attracted to the man in the red shirt (Elliot, 2010).

A study prior to these examined not only the relationship between color and attractiveness, but also the associations and connotations that are made about specific colors (Yener, 1982). Yener (1982) found that participants were able to articulate the personality traits that they associated to different colors, noting that the association between attraction and color preference may not be an unconscious phenomenon.

This preference of red in both men and women of the opposite sex is a topic that has been present in a number of research projects. However; an aspect of this phenomenon that has not been examined by notable research is the preference in same sex association. When men are asked to rate other men or women asked to rate other women, would they still show the same preference towards the color red? Would men report being more attracted to other men in red as well as women? When rating both men and women, it can be hypothesized that a non-physical association characteristic of color will cause the same attraction to the color red.

From this previous study's results, the design for this study can be formatted. I will explore the idea that this attraction to red could be a non-physical trait influence. Using the border color as the only association, the color effect can be better measured. Based on previous research, men and women will rate pictures of individuals with a red border higher that individuals with a blue border.

Method

Participants

Participants in this study were recruited using the Lindenwood University Participant Pool (LPP). The LPP is made up of undergraduate students enrolled in entry-level psychology and sociology courses, anthropology courses, and athletic training and exercise science courses. The researcher recruited 14 women and 22 men, for a total of 36 participants. These participants ranged in age from 18 years to 28 years old. Also noted during the study, 15 male participants displayed signs of discomfort with the request to rate member of the same sex on attractivness.

Materials and Procedures

In order to recruit participants, the researcher used an LPP issued sign-up sheet, and this was placed on the bulletin board across from room 407 in Young Hall. Participants then read a brief description of the study, explaining they would be asked to rate individuals on their attractiveness, and that the study would take 10 min maximum. Participants then signed up for individual time slots, and were reminded by the researcher about the appointment 24 hours prior to their allotted time.

In this study, research was conducted in the psychology lab on the lower level of Young Hall. These rooms were equipped with at least two desks, and quite low ceilings. Once the participant arrived to the research facility that was previously assigned, they were asked to sign in on the LPP issued sign-in sheet. They were then asked to sit at a desk and given two copies of an Informed Consent Form (see Appendix A) prepared by the researcher, one copy for the participant and a second for the researcher. After signing the form the researcher explained that the participant was free to remove themselves from the study at any time if they wish, without prejudice or penalty, and their data would not be used in the overall evaluation of data. Participants were then given a data collection sheet (see Appendix B), which asked for their sex

and their age in years. All participants in this study were asked to use a provided black pen in order to remove any identifying factor from their collection sheet.

The students were then shown a slide show of 28 pictures on an Apple iPad. These pictures were collected from individuals with no affiliation to Lindenwood University. The pictures were in black and white, so the border color was the only hue. The researcher explained to the participant that they were about to view a series of pictures and they were going to be rating each individual on a scale of 1 to 10, 1 being the least attractive and 10 being the most attractive. The participants were also made aware of the quickness of the slide show. They would not have time to scrutinize each picture, and then decide on a rating. The researcher explained that it is important to give their immediate impression of the photo when it is shown. The participants were to record their ratings on the Information Collection Sheet. Each photo was the same size, and each was shown to the participant for 3 sec. At the conclusion of the slide show the participants were debriefed about the study and given a Feedback Letter (see Appendix C) prepared by the researcher. It was then explained to the participant that there were two repeated pictures of men and two repeated pictures of women, each time with a different color border. The researcher then explained that it is the goal of this study to see if color has an effect on perceived attractiveness, and made the participants aware that only their ratings for those four repeated photos will actually be included in the overall data conclusion. An LPP issued Participant Receipt was given to the participant in order to ensure they receive their extra credit in their LPP eligible class. After the participant left, the researcher highlighted the corresponding picture numbers on the Information Collection Sheet and marked which was with a red border and which was with a blue. This is done for organizational purposes, in order to insure for proper data analysis.

After two months of allotted time for conducted research, the researcher took all Information Collection Sheets, and compiled all demographic information into a SPSS, along with the data.

Results

The data collected were first analyzed using a paired *t*-test to determine consistency of ratings for pictured individuals. A statistically significant finding was found for each pair of pictures, so for the remaining analysis the scores were combined into only four computed variables, Female-Red, Female-Blue, Male-Red, and Male-Blue.

Using a 2 Sex X 4 Rating mixed ANOVA, the data collected found there was enough significance that we are able to reject the null hypothesis, and found that men and women will rate pictures with a red border higher than pictures with a blue border. Men rated woman with the red border (m=13.2727, sd=2.097) higher than the woman with the blue border (m=11.3182, sd=1.862). Also, women rated men with a red border (m=14.2857, sd=2.301) higher than men with a blue border (m=12.5714, sd=1.828).

With a main effect of sex, I found a significance of $F(1,34) = 14.46$, $p<.05$ (See Table 1). The ratings of the pictured individuals were significantly different between female and male participants.

Since the data collected did not meet the characteristic qualifications for sphericity, the Greenhouse-Geisser factor was used to adjust the degree of freedom to determine the significance. Using the adjusted degrees of freedom, I found a significance of $F(1.32, 44.872) = 6.623$, $p<.05$ for the main effect of rating. The same adjusted degrees of freedom were used to find a significance level of $F(1.32, 44.872) = 17.713$, $p<.05$ for the interaction of sex and rating.

Discussion

The results of this study coincide with the findings of Elliot and Niesta (2008, 2010). There was a significant result to support the hypothesis that individuals would rate members of the opposite sex higher in the picture with a red border, than the picture with a blue border. Men significantly rated the red-bordered women higher than the blue-bordered women. Also, women significantly rated red-bordered men higher than the blue-bordered men (see Table 1). Based on the data, I can conclude that men rate women with a red association higher than women with a blue association. Also, women will rate men with a red association higher than men with a blue association. To build off of previous research, the color red does not have to be a physical trait (ie. shirt color) in order to have an influence on attraction.

Using data from post-hoc tests we were able to see tends that were not hypothesized at the beginning of this research. I found that men rated pictures of other men significantly lower than pictures of women, while women rated both pictures of men and women relatively similar (see Table 2).

Another trend that was found was during participation; male participants were much more notably uncomfortable with rating members of the same sex than female participants. Fifteen male participants of a total 22 male participants, made some sort of comment of discomfort hen presented with the male pictures to rate on attractiveness. What is interesting is that all participants were made aware that they were going to be asked to rate pictures of both sexes, and the uncomfortable behavior did not show until these men were actually presented with a male picture to rate.

The results of this study may lead to further investigation in the rating of the same sex. Based on the data from this study, there could be a trend of men rating other men with a blue association higher than men with a red association. This is an interesting phenomenon because of the significantly higher rating of women with a red association.

In further research it may be tested that the relationship between sex and comfort of rating individuals of the same sex, may have a relationship with scores in agreeableness and conscientiousness on the Big-5 trait analysis.

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Table 1

	Participant Sex	Mean	Std. Deviation	N
FemaleRed	Male	13.2727	2.097	22
	Female	12.6429	1.865	14
FemaleBlue	Male	11.3182	1.862	22
	Female	11.9286	1.639	14
MaleRed	Male	7.3636	4.170	22
	Female	14.2857	2.301	14
MaleBlue	Male	8.8636	4.400	22
	Female	12.5714	1.828	14

Table 2

Participant Sex	Picture	Mean	N	Std. Deviation
Male	FemaleRed	13.2727	22	2.09720
	FemaleBlue	11.3182	22	1.86155
	MaleRed	7.3636	22	4.16957
	MaleBlue	8.8636	22	4.40017
Female	FemaleRed	12.6429	14	1.86495
	FemaleBlue	11.9286	14	1.63915
	MaleRed	14.2857	14	2.30146
	MaleBlue	12.5714	14	1.82775

Appendix A

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to view a collection of pictures and rate their attractiveness on a Likert scale of 1-10, 10 being the most attractive and 1 being the least attractive. I also understand that I will only be asked to reveal two simple demographic information about myself, age and sex, and that no other identifying information about myself will be collected. I am aware that I am free to skip any questions asked on the collection sheet. I am also aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____Date: _____
(Signature of participant)

_____ Date: _____
(Signature of researcher obtaining consent)

Student Researcher:
Melissa Luley
314-852-5054 (mll542@lionmail.lindenwood.edu)

Supervisor:
Dr. Michiko Nohara-LeClair
Course Instructor
(636)-949-4371

Appendix B

INFORMATION COLLECTION SHEET

Set 1

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

11 _____

12 _____

13 _____

14 _____

15 _____

16 _____

17 _____

18 _____

19 _____

20 _____

21 _____

22 _____

23 _____

24 _____

25 _____

26 _____

27 _____

28 _____

Sex (Circle One): MALE FEMALE

Age:_____years

Appendix C

Feedback Letter

Thank you for participating in my study. The picture set used in this study was created to examine the effect of color on a person's attractiveness. In the set, two of the pictures were used twice, each with different color stimuli. These two pictures and your corresponding ratings are the only two that will be used in the data analysis. Through the analysis, I will be able to determine if there was a significant influence of the color stimuli on the rating of attractiveness.

The purpose of this study was to examine the data collected over all, not your individual responses. Your data contribution will be included in the final data presentation, along with all other participants. 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 can make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:
Melissa Luley 314-852-5054 (mll542@lionmail.lindenwood.edu)

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