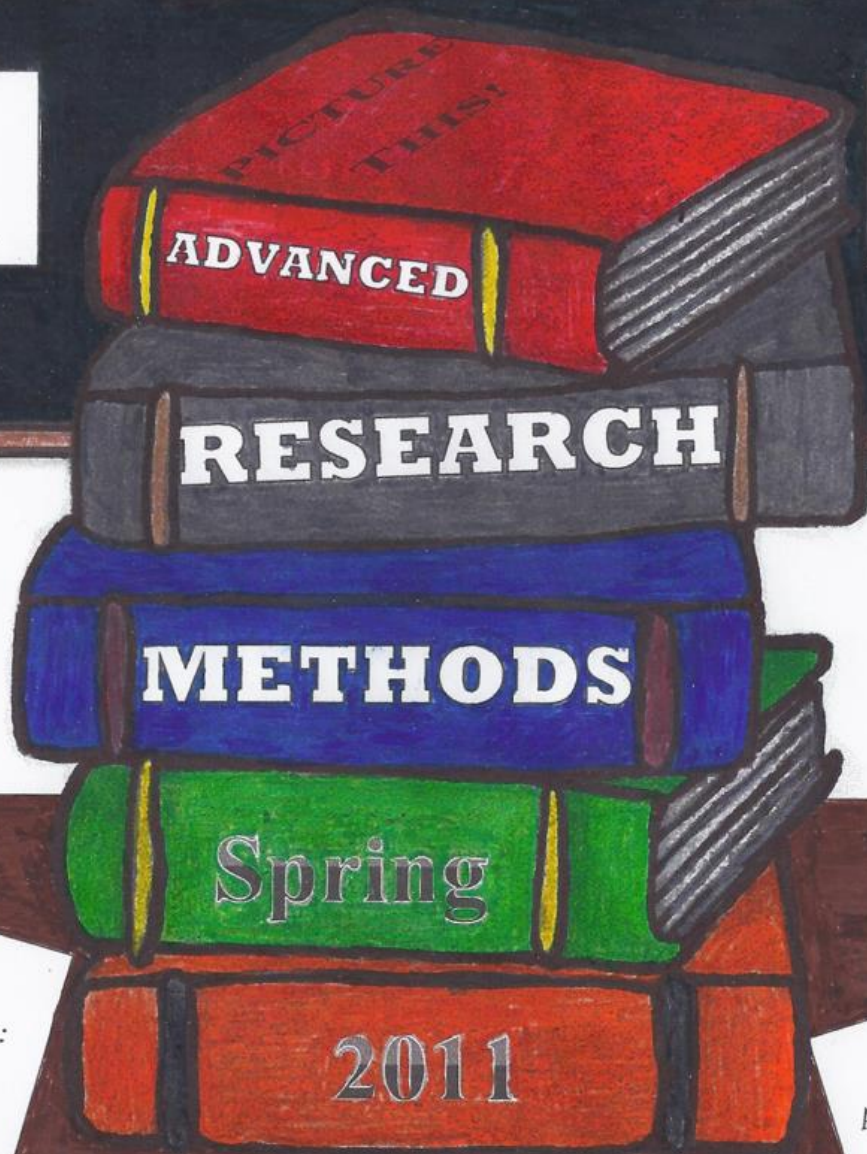


# LINDENWOOD PARTICIPANT POOL



...tialism vs. Circumstantialism:  
Ethnic Choices?  
Jon Holloway

Archival Study: How the Architect  
of a Room Can Affect a Person's  
Mood

Jordan McKay  
Lindenwood Univer

The Relationship between Visual  
Stimuli on Learning and Memory  
Jacob Glose  
Melissa Luley  
Lindenwood University

Under Pressure: The Effect of  
Competition on Performance  
Ben Maxwell  
Lindenwood Univer

Self-Esteem and Stress Perception  
among Athletes and Non-Athletes  
Federica Bertolini  
Lindenwood University

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### **Prologue**

Although the Advanced Research Methods class of Spring 2011 was smallest in size, the breadth of research topics was greater than most semesters. The students worked hard throughout the semester and we are proud to present the final papers to you in this journal. The cover of this journal was designed by Ben Maxwell.

Michiko Nohara-LeClair

Course Instructor

Under Pressure: The Effects of Competition on Performance

G. Ben Maxwell<sup>1</sup>

Lindenwood University

*The present study was conducted in order to assess sex differences in scores on word search puzzles in which participants are given information intended to incite competitive emotions. Forty participants—18 men and 22 women—were recruited from the Lindenwood Participant Pool. Participants were randomly assigned into four groups designed to prompt two different kinds of competitive emotions: one which put the participants against the other sex, and one which put them against all other participants. It was hypothesized that men would do better than women under all competitive conditions, and that the overall scores of participants would increase in all experimental conditions, regardless of sex. Results did not significantly support the hypotheses. There was a significant result that giving the participants time result information increased performance. Future research could be conducted to test whether time constraints have an effect on academic performance.*

The element of competition in school environments is an important subject to research. Many educators use competition in the hope of positively influencing student performance on assignments and exams. The purpose of this study was to determine whether or not competition actually leads to such an effect. Research findings suggest that competition has an overall positive effect on student performance on routine tasks, which has led to greater understanding

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of how individuals react to certain situations (Cashdan, 1998; Niederle & Vesterlund, 2008; Weber, Wittchen & Hertel 2009).

Gneezy, Niederle, and Rustichini (2003) presented participants with mazes and misinformed a portion of them that the opposite sex performed better on mazes than their respective sex did. Gneezy et al. (2003) conducted their study in a tournament style setting and compensated participants with money. They also tried to invoke competitive feelings by setting up some of the tournaments in a “winner-takes-all” format (Gneezy et al., 2003). They found that participants’ performance increased when they were told about sex differences (Gneezy et al., 2003).

Consistent with my hypothesis, the researchers found notable sex differences among their results (such that men outperformed women when given the task along with the false information (Gneezy et al, 2003). Past research has consistently shown that there are differences between the performance of men and women on competitive routine tasks (Cotton & McIntyre, 2010). Cotton and McIntyre (2010) also note that men take more pleasure from engaging in competition than females, who are likely to avoid such environments. Gneezy et al. (2003) suggest that there was a significant gender gap in performance in their trials, such that men far outperformed women.

Kusá (2010) makes the proposition that if women are made to believe that there is a gender difference, and the task is mentally or physically taxing, then women would put in less of an effort. Kusá (2010) offers that women may experience a “stereotype threat” in which women become anxious while doing the task, which leads to decreased competitive drive.

Furthermore, Niederle and Vesterlund (2008) felt that women compete, but they are not likely to do so against men. They note that women might think that they have little chance of

winning, so they do not try as hard as men (Niederle & Vesterlund, 2008). Niederle and Vesterlund (2008) also suggest that women might seem to underperform because men might try too hard when competing.

Interestingly, studies have shown that women actually perform better than men during certain conditions (Cashdan, 1998). Cashdan (1998) found that in cases in which women must provide for themselves and their offspring, opposite sex differences prevail much more so than in the other studies. Arguably, it can be assumed that these women are forced to be competitive in both school and work environments. Furthermore, Weber et al. (2009) states that, although men are more motivated by social competition in general, environmental motivational facts, in which the woman was indispensable, resulted in increased competition of women over men. These women were tested on various routine tasks that would be commonplace in classrooms, and turned out to be more competitive than their male counterparts (Weber et al., 2003).

The present study tested whether or not competition plays a significant role in determining college student performance on routine tasks that they may encounter in everyday life. Using a 2 x 2 x 2 factorial design, participants in the study were asked to find as many words as possible within a given amount of time. The current research compared the scores of men and women on word puzzles in four different conditions. It was hypothesized that students who are told of gender differences will do better than those who are not, with men performing better than women. It was also hypothesized that those students who are told about other students' scores on the word search prior to attempting it would also score better than the control group, who were not told any false information. Results from the present study could help educators find out whether or not competition has a positive effect on performance.

## **Method**

### **Participants**

Forty-two Lindenwood University undergraduate students were recruited from the Lindenwood Participant Pool (LPP) to participate in the present study. The LPP is designed to allow researchers to test participants who willingly sign up to partake in studies in exchange for bonus points toward their respective classes. All students who signed up for the present study were at least 18 years old. In order to recruit participants, a sign-up sheet and a recruitment description form (see Appendix A) were pinned on the LPP bulletin board. Two participants were excluded from the data analyses for reasons stated below. Of the 40 students who were included in the aggregate data analyses, 22 were women and 18 were men. Nine undergraduate participants were freshmen, 19 were sophomores, 8 were juniors, and 4 were seniors. The mean age of participants was 20.4 years ( $SD = 2.06$ ) with a mode of 19. Twenty-nine participants were native English speakers and 11 were non-native English speakers. Of the 42 participants, one had a self-reported reading disability and one student expressed discomfort before beginning the word search puzzle. The data from both students was not included in the aggregate data analyses. The student who felt uncomfortable was allowed to leave, but still received bonus points.

### **Materials & Procedure**

Sessions were conducted inside the psychology lab in Young Hall rooms 105a, 105b, and 105c. Each room had at least two desks and two chairs—one of each for the researcher the participant. Participants were provided with writing utensils to fill out all forms and the word search puzzle. An iPhone stopwatch was placed in front of participants so they could monitor their time. Participants received an informed consent form, a word search puzzle with a word

key, a demographic questionnaire, and a feedback letter, respectively. The participants signed an informed consent form (see Appendix B). Groups 1, 2, and 3 were read scripts to incite competitive emotions and to ensure credibility of deception (see Appendix C). Group 4—the control group—was not read a script. After participants signed an informed consent form, and the respective groups were read scripts, a word search puzzle was administered.

A word search puzzle was used because it represented a commonplace task that a person, regardless of sex, would do in everyday life. The word search puzzle included 6-letter and 7-letter words of roughly the same difficulty. The purpose for the words being of the same difficulty was to ensure that some participants would not look for or easier words first (thus finding more words within the given time), while other participants might have chosen to do the list in order (thus finding fewer words within the given time). Words on the sheet were horizontal, vertical, or diagonal (see Appendix D). Participants received a word key in order to know what words appeared on the word search puzzle (see Appendix E). The researcher used a word search key because it was believed that the number of words non-native English speakers found would be much higher if they knew what words to look for. The researcher came to this conclusion after pilot testing indicated that the scores of non-native English speakers who received a word key were closer to the scores of native English speakers who received a word key than if both groups received no word key.

Participants were divided into four groups. As previously mentioned, Groups 1 through 3 were read scripts to incite competitive emotions. Group 1 was told that the opposite sex is shown to find more words on word search puzzles within 4 minutes than the other sex, and that the opposite sex had found an average of 12 words in that time period. Group 2 was told that participants had been finding an average of 12 words in 4 minutes. Group 3 was only told that



the opposite sex did better on word search puzzles. Group 4 was not given any false information. The dependent variable for the present study was the number of words participants found within 4 minutes.

After the word search puzzle was given, participants were asked to fill out a demographic questionnaire (see Appendix F). The form consisted of questions concerning a participant's gender, age, current class status at Lindenwood University, native language, and potential reading disabilities. Participants in Groups 1 through 3 were asked if they felt competitive when they were given the information intended to provoke competitive emotion. The question about competitiveness featured a Likert scale in which participants rated 5 for "very competitive" 4 for "more competitive," 3 for "not competitive," 2 for "not competitive," 1 for "less competitive," and 0 for "much less competitive." Once they had filled out the questionnaire, participants received a feedback letter which informed them of the purpose of the study and the researcher's hypothesis (see Appendix G). Before participants left, the research ensured that all parts of their bonus point receipts were filled out, and then were informed that they were free to leave.

### **Results**

It was hypothesized that men are more competitive than women, and will perform better than women when told that the opposite sex does better on tasks that either sex would encounter on a daily basis. Therefore, men who are told false information about gender differences will perform better than women who are told the same information. It was also hypothesized that all participants who are given false information intended to incite competitive emotions will perform better on the word search puzzles than the control group, who are not given such information.

Analyses were focused on the levels of competitiveness in participants and the scores of men and women on the word search forms. The present study used a 2 (opposite sex) x 2 (time results) x 2 (sex) factorial design. Main effects included: opposite sex information (OSI), time result information (TRI), and sex of participant (Sex). Interactions included: OSI x TRI; OSI x Sex; TRI x Sex; OSI x TRI x Sex.

Results from the 2x2x2 ANOVA indicated a significant main effect of TRI,  $F(1, 32) = 6.070$ ,  $p < .05$ . There was an approaching significant interaction of OSI x Sex,  $F(1, 32) = 3.735$ ,  $p = .062$ . In other words, the time results information provided to Group 2 had a significant effect on participants' performance while the interaction between opposite sex information and sex of participant showed an approaching significant interaction. Thus, my results partially supported my main hypothesis.

There were 10 participants in all four groups, and each group had roughly the same number of men as women. Men in Group 1 ( $N = 4$ ) found an average of 14.25 words in four minutes ( $SD = 3.20$ ), while women ( $N = 6$ ) found an average of 11 words ( $SD = 2.09$ ). Participants in Group 1 all felt competitive when given the false information regarding sex differences and the amount of words the opposite sex found in four minutes. Of the men in Group 1, 100% rated more competitive. Of the women in Group 1, 16% rated very competitive and 83% rated more competitive.

The average score of men ( $N = 4$ ) in Group 2 was 11.75 ( $SD = 3.09$ ), while the average score of women ( $N = 6$ ) was 13 ( $SD = 4.88$ ). Participants in Group 2 all felt more competitive when given the false information on time differences. Of the men in Group 2, 100% rated more competitive, while 33.32% of women rated very competitive and 66.68% rated more competitive.

The average score of men ( $N = 5$ ) in Group 3 found an average of 11 words ( $SD = 3.80$ ), while women ( $N = 5$ ) found an average of 10 words ( $SD = 3.67$ ). Of the men in Group 2, 100% rated very competitive, while 80% of women rated more competitive and 20% rated not competitive.

Group 4 served as the control group. On average, men ( $N = 5$ ) in the control group found 7.4 words ( $SD = 3.20$ ). Women ( $N = 5$ ) in Group 4 found an average of 10.6 words ( $SD = 3.00$ ).

### **Discussion**

As previously stated, it was hypothesized that men are more competitive than women, and will perform better than women when told that the opposite sex does better on tasks that either sex would encounter on a daily basis. Consequently, men who are told false information about gender differences will perform better than women who are told the same information. It was also hypothesized that all participants who are given false information intended to incite competitive emotions will perform better on the word search puzzles than the control group, who are not given such information.

Numerous researchers have found that competition has a positive effect on performance (Cashdan, 1998; Niederle & Vesterlund, 2008; Weber, Wittchen & Hertel 2009). However, data from the current study did not strongly support their findings because cores of individuals who rated themselves as being very competitive did not significantly differ from those who rated not feeling competitive. That being said, (Opposite Sex Information)  $\times$  (Sex) was approaching a significant value ( $p = .062$ ). Gneezy, Niederle, and Rustichini (2003) found that participants' performance positively increased when they were told about sex differences on maze puzzle scores. The fact that the current study implemented a different type of puzzle could explain why the present study did not indicate such results. Weber, Wittchen, and Hertel (2009) found that

women scored better on competitive tests that did not include information about sex differences. However, the present study did not find any significant values after the data analyses.

Findings from the analysis of the aggregate data did not support the hypothesis that men perform better than women on tasks if they are told about the superior performance of the opposite sex. Therefore, I failed to reject the null hypothesis. Data from the present study did not support the hypothesis that telling information intended to incite feelings of competition will increase scores, regardless of sex. Therefore, I failed to reject the null hypothesis.

The present study had several limitations that could have influenced the accuracy of the results. If similar study with more participants were conducted that found participants perform better when told about differences in performance, then educators could use this information to help their students perform better academically. Educators might also better understand that telling women about sex differences is not as beneficial as simply telling them about differences in competition, regardless of sex. More extensive studies might find that women compete better in same-sex environments, in which case parents might consider the benefits of their girls attending same-sex schools.

The primary limitation of the present study was the small sample size. Additionally, participants were only recruited from the LPP. Even though a script was used to ensure the credibility of deception, not all participants believed in the deceptive information. Participants could have told other individuals involved with the LPP the basic premises of the study, because all participants were recruited from one source. Another limitation is that, toward the end of the semester, participants seemed not to perform as well, and it was evident that they simply wanted to finish the study and leave with their bonus point's receipt.

One suggestion for future study would be to collect data from more participants, preferably over 100. The Likert scale for competitiveness could be expanded from 1-5 to 1-10 to more accurately gauge how competitive participants felt. The type of competition emotion inducing information could be changed to attractiveness or to test for athletic competitiveness to see if each sex would feel more competitive in those scenarios.

The finding from the present study that time information has the most significant effect on performance could lead to a future study. Scores of participants did not improve until the element of time statistics was given, and some participants indicated that they performed differently when under the pressure of time. Thus, research could test the influence of time constraints on test scores.

Future research could be conducted to find out what other variables besides time constraints and competition could be responsible for the differences in scores. Such research could eventually lead to an exceedingly significant result that educators could employ to their students' benefit.

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## **Appendix A**

### **Recruitment Description**

In this study, you will be asked to complete word search puzzle and a demographics questionnaire. First, you will be given a word search puzzle requiring you to find words within the puzzle to the best of your ability. You will then be asked a few questions pertaining to your own demographics. The entire procedure should take no more than 10 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 a word search puzzle, and a survey which requires me to fill out demographic information about myself. I understand that I should be able to complete this project within 10 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 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.

\_\_\_\_\_  
(Signature of participant)

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature of researcher obtaining consent)

Date: \_\_\_\_\_

Student Researcher's Name and Number:

Ben Maxwell (573)-453-0097 [gbm575@lionmail.lindenwood.edu](mailto:gbm575@lionmail.lindenwood.edu)

Supervisor/Course Instructor

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



## **Appendix C**

### **Scripts**

#### **Group 1 Script:**

A past research study conducted by two students in Advanced Research Methods found that \_\_\_\_\_ found more words on a word search puzzle than \_\_\_\_\_ within 4 minutes. \_\_\_\_\_ found 12 words within those 4 minutes. The present study is being conducted to test the accuracy of their results.

#### **Group 2 Script:**

The present study is being conducted to find out how many words on average participants can find within 4 minutes. So far participants have found an average of 12 words in 4 minutes.

#### **Group 3 Script:**

A past research study conducted by two students in Advanced Research Methods found that \_\_\_\_\_ found more words on a word search puzzle than \_\_\_\_\_ within 4 minutes. The present study is being conducted to test the accuracy of their results.

Appendix D

# Word Search

Research ID Number: \_\_\_\_\_ (Assigned by Researcher)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d | t | o | e | n | c | r | l | X | l | g | e | b | l | i |
| o | h | c | p | h | g | y | n | Z | j | e | y | j | e | s |
| l | r | c | a | a | i | m | e | o | i | i | t | l | c | o |
| l | i | u | s | r | n | k | y | l | t | g | h | t | q | e |
| a | l | p | t | b | j | i | a | s | l | i | z | g | e | y |
| r | l | y | e | o | u | t | b | s | j | o | c | a | i | r |
| t | n | q | l | r | r | c | s | w | c | u | w | e | g | n |
| k | i | l | u | b | e | h | o | v | w | h | n | m | m | g |
| c | a | b | p | a | u | e | r | r | o | i | o | g | z | o |
| a | g | f | c | n | r | n | b | a | e | l | l | o | l | h |
| b | r | i | i | d | i | r | q | t | m | n | u | l | l | e |
| b | o | n | n | i | n | z | y | i | h | c | t | m | o | o |
| a | o | g | e | t | a | e | p | o | g | g | c | i | e | w |
| g | v | e | m | o | l | u | h | n | k | i | k | z | r | q |
| e | e | r | a | k | p | d | w | a | l | n | u | t | l | e |

Appendix E

# Word Key

**ABSORB**

**BANDIT**

**CINEMA**

**DOLLAR**

**ENTIRE**

**FINGER**

**GROOVE**

**HARBOR**

**INJURE**

**JUNGLE**

**KITCHEN**

**LETTER**

**NOTICE**

**OCCUPY**

**PASTEL**

**QUARRY**

**RATION**

**SCHOOL**

**THRILL**

**URINAL**

**VOLUME**

**WALNUT**

**WILLOW**

**YELLOW**

**ZIGZAG**

**CABBAGE**

**Appendix F**  
**Demographics Questionnaire**

**Subject ID Number:** \_\_\_\_\_ (Assigned by Researcher)

**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 year are you at Lindenwood University?
  - a. Freshman
  - b. Sophomore
  - c. Junior
  - d. Senior
  - e. Other \_\_\_\_\_
  
- 4) Are you aware of any disabilities that might have influenced your ability to solve the word search puzzle?
  - a. YES
  - b. NO
  
- 5) Is English your native language?

YES            NO            Other: \_\_\_\_\_

- 6) How competitive did you feel when given the information about differences in performance?
  - a. Very competitive
  - b. More competitive
  - c. Not competitive
  - d. Less competitive
  - e. Very uncompetitive

**Appendix G**  
**Feedback Letter**

Thank you for participating in my study. The present study was conducted in order to determine whether participants would find more word search puzzle solutions in four minutes if they were presented with false information that suggested individuals of the opposite sex outperformed them on word puzzles printed in lowercase with or without the factor of being timed. I hypothesized that if participants were given false information about the superior performance of the opposite sex on word puzzles then they would be more likely to find more word search puzzle solutions in the given time than participants who were not given this information because I believe that the element of competition increases performance. I used deception because I believed it would invoke feelings of competition, thereby enhancing participant performance. Please note that we are not interested in your individual results; rather, we are only interested in the overall findings based on aggregate data. No identifying information about you will be associated with any of the findings, nor will it be possible for us to trace your responses on an individual basis.

If you are interested in obtaining the final results of this study 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,

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Supervisor:

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## The Relationship between Visual Stimuli on Learning and Memory

Jacob Glose<sup>2</sup>      Melissa Luley<sup>3</sup>

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*This study focused on the effects of visual stimuli on information retention. Previous research findings have provided much insight into the effects of visual stimuli on the process of retention. Visual stimuli aids in how much information will be absorbed as well as the process of gaining knowledge through the process of vision (Dake, 1999; Rogoff, 2005). Researchers believed there would be a difference in information retention, as measured by a comprehensive quiz, between participants who receive text with pictures and those who receive text only. This study presented 34 participants with an information source that was either text only or one that included the presence of pictures. They were then given a content related quiz regarding the information on the text. The results indicated there was a slight difference in average scores. The participants who received the text with pictures scored slightly higher than the other participants. The data collected can certainly be generalized to many areas of education and the formation of better textbooks and curriculum. The presence of visual stimuli and the effect on information retention is pertinent to the formation of better strategies in improving student performance.*

As humans, much of what we perceive comes from our sense of sight. Visual stimuli not only affects our learning of our surroundings, but also our judgments and conclusions made about those surroundings. In effect, visual stimuli trigger specifically what is referred to as the

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Other questions regarding this study may be directed to Michiko Nohara-LeClair, Lindenwood University, [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu),

automatic cognitive process (Lakin, 2006). Additionally, the cognitive process allows for humans to gain knowledge or create their own ideas based on what they are seeing (Dake, 1999). In consideration of learning, this concept may allow for a cognitive connection between the presence of visual stimuli, the perception of images, and the ability to gain knowledge, information retention.

As 80 % of perception comes from vision, it is a natural human instinct to look at and examine images (Barry, 1994). This sense of vision is used to create seamless connections between these images and their meaning (Burnett, 2004). The connection between visual stimuli and the cognitive process are seen most saliently when images are generated through the physical eye. In this process, there is an integration of intuitive, visual knowing, and as it is combined with cognitive processes, generating subsequent cognition (Williams, 2006). Furthermore, images can also be used to determine how much information will be absorbed based on the information conveyed and the perceived pleasure and displeasure for the visual stimuli (Rogoff, 2005). Therefore, the amount of information retained should be able to be controlled based on the presence of visual stimuli.

How then can visual stimuli be related to reading comprehension? Skilled reading comes not only from one's ability in word recognition, but rather it comes from when this is combined with the ability to recognize main ideas and supporting details in text (Jitendra, Burgess & Gajria, 2011). Different styles of text may influence the impact of visual stimuli on the reader's comprehension of the text. For instance, in fictional, narrative text, the presence of images may

not be necessary in order to influence comprehension of the intended main ideas. This may be because the types of language used in narrative writing. This style is much more detail oriented in the use of imagery, and allows the reader to use personal experience and prior knowledge to create their own images and visual stimulus in their mind. On the other hand, comprehension of informational content such as a textbook, may be more complimented by the presence of images because of the style of language used (Burgess, Gajria, & Jitendra, 2011). When readers are presented with new information, their comprehension may be enhanced if they are given a visual trigger that they can make those cognitive connections between the text and the image (Burnett, 2004; Burgess Gajria, & Jitendra, 2011). Therefore, if informational content is presented with visual stimuli, then a reader's comprehension should be enhanced when compared to comprehension from text without visual cognitive connections.

## **Method**

### **Participants**

Subjects who took part in this study were recruited participants using the Lindenwood University Participant Pool (LPP). The LPP is a collection of students in certain general education classes that have voluntarily chosen to participate in our study as opposed to other opportunities provided by the LPP for extra credit. We collected data from 15 women and 19 men. These students ranged in age from 19–31 years old.

### **Materials and Procedure**

We used all participant recruitment materials provided by the LPP office. The LPP has two basic Sign-up sheets for experimenters to use in order to recruit participants. Sign-up sheet A is used solely for experimenters who wish to schedule individual appointments with participants.



Sign-up sheet B has a general use in which participants can sign up for a study based on prearranged, specific times designated by the experimenter. For this study, Sign-up sheet B was used in order for participants to sign up for a specific time and room. The Sign-up sheets contain the time, date, location of study, and slots for the participants to provide their name and contact information. The actual rooms utilized for the study varied with each day of research conducted; however, the classroom environment remained very consistent throughout the research process. Research was conducted in various psychology labs on the first floor of Young Hall. These labs were quite small and often contained only one or two desks and a table for the experimenter. Also, the labs are not as well lit.

The necessary materials for this study included our information article, our pictures, comprehension quiz, data collection notebook, and our demographic survey. The information source we used was chosen from <http://history1900s.about.com> and the comprehension quiz, used to measure the amount of learned information, was a collection of multiple-choice, fill in the blank and true false questions. A single notebook of data was kept for all information collected together and organized. A demographic survey was created with general questions regarding age, year in school, and hometown, as well as questions about the participant's learning style.

After the approval from the IRB was received, an article was chosen from <http://history1900s.about.com>. The article selected did not contain any pictures and was used as simply referred to as Article without Pictures (See Appendix A), or Information Source A. Pictures were manually added to the article to create the Article with Pictures (see Appendix B), or Information Source B. The article selected contains a generic topic that the researchers believed to be "not common knowledge." This topic was selected in order to try and avoid any

flawed data by previous knowledge. Participants were then recruited using the LPP and were tested one participant at a time in 10 min increments. A between-participants design was used in the study. One participant received Information Source A and take the comprehension quiz (see Appendix C) and the next participant would receive Information Source B and would then be given the same comprehension quiz.

When participants arrived to the location of research, they were asked to sign in to verify attendance, in addition to receiving a participant receipt which was turned into the LPP for the extra credit the participant received through the study. The participants were also given an informed consent (see Appendix D) form and given information regarding the study. Participants were then given the demographic survey (see Appendix E) and either Information Source A or Information Source B when the demographic was completed. Each participant was given five minutes to read the information source and they were informed to tell us when they were finished reading the source. When completed, participants were then given the same comprehension quiz, no matter which form of the source they were given. At the top of the quiz, the experimenter marked which Information Source was used. When participants completed the quiz they were then debriefed about the study. Participants were given a feedback letter (See Appendix F) and informed that if interested, they could contact the researchers to receive more information regarding the results of the study.

The comprehension quizzes were then scored and data collected in a Microsoft Excel Spread Sheet. The scores for each information source were then compared and used to examine the results of this study.

## Results

We hypothesized the presence of a visual stimuli in an information source will have an influence on quiz scores. In effect, there would be more correct answers on content-related quiz over information that presented the participant with images. However, the results of our analyses revealed that participant scores after reading Information Source A showed an  $M=7.25$  ( $SD = 1.672$ ). Conversely, the calculation for quiz scores after the participations read Information Source B showed an  $M=7$  ( $SD = 2.226$ ). Also, a two-tailed, independent  $t$ -test was used to determine a significant difference between test scores. With  $t(33) = -.048$  and Significance = .962, we fail to reject  $H_0$ . This showed a slight significant difference between test scores. These results did support our hypothesis but not to the degree the researchers anticipated.

## Discussion

We were intent on determining if the presence of visual stimuli helped in information retention. As research from Jitendra, Burgess and Gajria (2011) suggests, the presence of images compliments information, such as in a textbook. Our hypothesis coincided specifically with this notion as we believed that the presence of visual stimuli would increase retention and subsequent scores on a content-related quiz. The presence of images within an information source was a specific variable in which we were intent on manipulating to show the influence on information retention.

The results revealed the presence of images did not attribute to better information retention. The results were not as significant as anticipated; however, the results can still be used for application in many capacities.

There were a few instances of confounds within our study. In consideration of our two sources of information, the presence of images did not directly relate to the questions being

asked but rather just the article as a whole. As each participant is different, they may have reacted different to the information source with pictures. Also, we decided to use black and white pictures. The use of color is a two-fold issue. In one instance, the use of color has potential to visually connect readers in a greater way. However, the use of color may not be a salient advantage if the image itself is the sole determinant in the influence of information retention. For future studies, a counterbalance of color pictures and black and white pictures could certainly show great significance in which condition actually showed more influence. We found that some readers were visibly affected by the nature of the information source. A pre-existing sensitivity to animals and their safety had great potential to affect their emotions and influence their performance on the content-related quiz. This confound is not easily determined but for future research, the subject matter of the information source could focus on a topic which does not have such potential to evoke so much emotion. Further, directly related to the foundation of our study, we found that 4 of 34 participants were not self-reported visual learners. The nature of learning styles created a confounding variable within the study. Truly, there are minimal options to minimize this variable but the potential to affect the retention of information is certainly present. In consideration of future research, a strong focus could be on a distinction between visual learners and non-visual learners. In our study, we did focus on differentiating between learning styles in terms of administering specific information sources.

In terms of future research and the design of the study, any replication of this study could be benefited by adjustments and changes. In our study, we found it to be disadvantageous to have multiple participants in the research room at one time. Given the nature of this study and the use of multiple information sources, it is to the advantage of the results to keep participants separate.

The presence or lack of a visual stimuli and the combination of different learning styles creates great opportunity to create educational opportunities for students. If images are present, it can be predicted that students will succeed and if images are absent, students are still able to pursue great education success as well.

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## **Appendix A**

### **Laika: First Dog in Space**

The Cold War was only a decade old when the space race between the Soviet Union and the United States began. On October 4, 1957, the Soviets were the first to successfully launch a rocket into space with their launch of Sputnik 1, a basketball-sized satellite.

Approximately a week after Sputnik 1's successful launch, Soviet leader Nikita Khrushchev suggested that another rocket be launched into space to mark the 40th anniversary of the Russian Revolution on November 7, 1957. That left Soviet engineers only three weeks to fully design and build a new rocket.

The Soviets, in ruthless competition with the United States, wanted to make another "first;" so they decided to send the first living creature into orbit. While Soviet engineers hurriedly worked on the design, three stray dogs were extensively tested and trained for the flight.

The dogs were confined in small places, subjected to extremely loud noises and vibrations, and made to wear a newly created space suit. All of these tests were to condition the dogs to the experiences they would likely have during the flight. Though all three did well, it was Laika who was chosen to board Sputnik 2.

Laika, which means "barker" in Russian, was a three-year old, stray mutt that weighed thirteen pounds and had a calm demeanor. She was placed in her restrictive module several days in advance and then right before launch, she was covered in an alcohol solution and painted with iodine in several spots so that sensors could be placed on her. The sensors were to monitor her heartbeat, blood pressure, and other bodily functions to better understand any physical changes that might occur in space.

Though Laika's module was restrictive, it was padded and had just enough room for her to lay down or stand as she wished. She also had access to special, gelatinous, space food made for her.

On November 3, 1957, Sputnik 2 launched from Baikonur Cosmodrome (now located in Kazakhstan near the Aral Sea). The rocket successfully reached space and the spacecraft, with Laika inside, began to orbit the earth. The spacecraft circled the earth every hour and forty-two minutes, traveling approximately 18,000 miles per hour. As the world watched and waited for news of Laika's condition, the Soviet Union announced that a recovery plan had not been established for Laika. With only three weeks to create the new spacecraft, they did not have time to create a way for Laika to make it home. The de facto plan was for Laika to die in space.

Though all agree Laika made into space and successfully lived through several orbits, there is a question as to how long she lived after that. Some say that the plan was for her to live for several days and that her last food allotment was poisoned. Others say she died four days into the trip when there was an electrical burnout and the interior temperatures rose dramatically. And still others say she died five to seven hours into the flight from stress and heat.

However, she certainly did not live beyond six days into trip, because on the sixth day, the batteries in the spacecraft died and all life-support systems failed. The spacecraft continued to orbit the earth with all its systems off until it reentered earth's atmosphere on April 14, 1958 and burned up on reentry.

Laika proved that it was possible for a living being to enter space. Her death also sparked animal rights debates across the planet. In the Soviet Union, Laika and all the other animals that made space flight possible are remembered as heroes.

<http://history1900s.about.com/od/1950s/p/laikathedog.htm>



## Appendix B

### Laika: First Dog in Space

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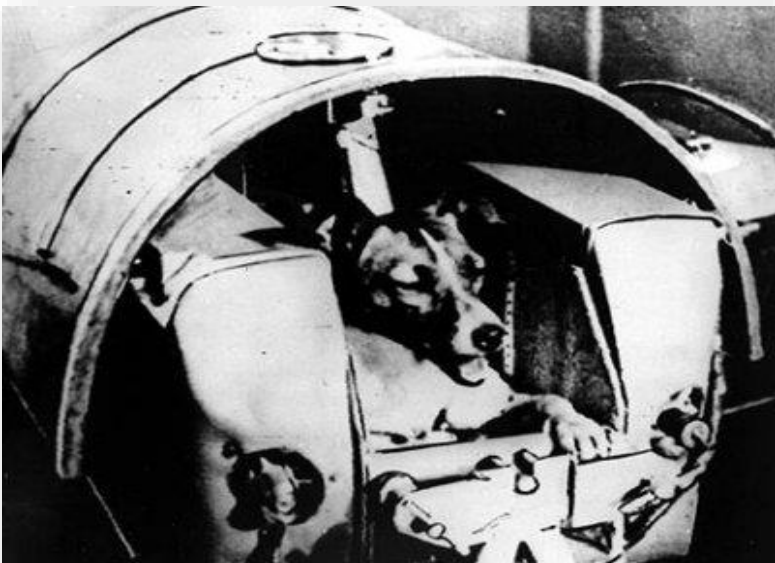
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the trip when there was an electrical burnout and the interior temperatures rose dramatically. And still others say she died five to seven hours into the flight from stress and heat.

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Laika proved that it was possible for a living being to enter space. Her death also sparked animal rights debates across the planet. In the Soviet Union, Laika and all the other animals that made space flight possible are remembered as heroes.

**Appendix C**  
**Sample Comprehension Questions**

Please Circle: TEXT ONLY      PICTURES

1. Who was the first country to successfully launch a rocket into space?
  - a. \_\_\_\_\_
  
2. The second planned launch was to mark the 30th Anniversary of the Russian Revolution.  
TRUE    FALSE
  
3. What was the name of the satellite Laika was trained to be on board?
  - a. A: Sputnik I
  - b. B: Kliper 3
  - c. C: Sputnik 2
  - d. D: Soyuz I
  
4. Please list the three theories as to how Laika died during her trip to space
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  
5. Please finish the sentence:  
Laika didn't live beyond six days into the trip because on the 6th day, the \_\_\_\_\_  
in the spacecraft died and all failed. \_\_\_\_\_
  
6. Why was no recovery plan created in order for Laika to safely return home?
  
7. How often did Laika's spacecraft orbit the Earth?
  - a. Once a day
  - b. Every 3 hours 22 minutes
  - c. Once every week
  - d. Two times every 5 hours
  - e. Every 1 hour 42 minutes

8. In Russian, Laika means “Canine”  
TRUE      FALSE
  
9. Why were sensors placed on Laika during her trip to space?
  
10. Why did the Soviet Union send Laika into space?
  - a. To test and study the condition of space travel on animals
  - b. To prove that living animals could survive the launch and orbit into space.
  - c. In order to test a new spacecraft, a living creature was sent into space in place of a human.
  - d. In order to beat the United States and be the first to send a living creature into space

**Appendix D**  
**Informed Consent Form**

I, \_\_\_\_\_ (print name), understand that I will be taking part in a research project that requires me to read a short article and complete a content-related quiz. I understand that I should be able to complete this project within 15 minutes. I am 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 Researchers' Names and Numbers:

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Jacob Glose        636-232-4945

Supervisor:

Dr. Michiko Nohara-LeClair

Course Instructor

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**Appendix E**  
**Demographic Survey**

1. Age \_\_\_\_\_
2. Gender (circle)      Male      Female
3. Ethnicity: White/Caucasian      Hispanic/Latino      Asian/Pacific Islander  
African American
- Other \_\_\_\_\_
4. Year in School: Freshman      Sophomore      Junior      Senior      Other
5. Major (s) \_\_\_\_\_
6. Are you a Visual Learner? YES      NO

**Appendix F**  
**Feedback Letter**

Thank you for participating in our study. The purpose of this study will be to determine if there is a significant influence from images on information retention, as measured through a content-related test over given material. There were two information sources given in this study. One source was absent of images and the other source included the presence of images to supplement the text. The content-related quizzes were consistent for both information sources.

Please note that we are not interested in your individual results; rather, we are 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. Our contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study at a later date, please contact us and we will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigators:

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Jacob Glose 636-232-4945

Supervisor:

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



An Analysis of Ethnic Labels: Essentialism vs. Circumstantialism

Jon Holloway<sup>4</sup>

Lindenwood University

*Labeling was used through the daily life of most people and is critical in the idea of ethnicity. The purpose behind this experiment was to test Lindenwood student's thought process behind ethnic labeling. Mainly the experiment was meant to develop the idea of whether an individual was more circumstantialist or essentialist in nature when dealing with ideas of labeling. The hypothesis was that the Lindenwood students would tend to lean toward the essentialist group thought process due to the diversity of the student body. Essentialist believed their biological parents passed on ethnicity. While circumstantialist believed ethnicity was created by behavior (White, 1999). The experiment would test this through the use of voluntary questionnaires that deal with two switched at birth scenarios. These switched at birth scenarios mainly deal with scenarios where a child born of a different ethnic background is raised by a family with a different ethnic background. There will also be a demographic survey. The results of the questionnaire and survey were analyzed with frequency tables. The results showed that there was no statistically significant pattern in the demographic surveys, but the questionnaires tended to support the hypothesis. The results showed that 68% of the responses were essentialist in nature and 32% were circumstantialist in nature. Further research should be done and the sample size needs to be bigger to increase validity. Academic research like this helps further the knowledge of the human brain and benefits other researchers.*

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Ethnicity has been part of culture and society for thousands of years. This was because humans were constantly categorizing and labeling their world to make sense of it. The goal of the current study was to find out how people categorize and label each other into different ethnicities. In order to understand how people categorize each other, one must know how the category was defined. For the purposes of this study ethnicity will be defined as a group of people that share a common belief, ancestry, and most importantly, culture. Within this study there were two viewpoints that the participants will be given. The Essentialist group dealt with the idea that ethnicity was determined from someone's hereditary ethnic group; for example, a White-Christian is always a white Christian even if they begin worshipping at a mosque or worship at Hindu shrine. The Essentialist view they was that hereditary ethnicities such religious preferences cannot be changed by an individual (White, 1999). Meanwhile, the Circumstantialist group is much different and believes that depending on the environment and behavior of the individuals they can change their ethnicity. Basically they believe that a White-Christian that changed his or her religion and could be considered a White-Jew, White-Muslim, or change his religion (Brubaker, Loveman, & Stamatov, 2004).

The rationale in determining essentialist or circumstantialist tendencies was that one could understand how people perceive ethnicity in our world and was to further substantiate academic claims that ethnicity was an adaptive cognitive function that has developed over time. The essentialist group has definitive formulae for determining ethnic groups and as a result this lent credence to the idea that categorizing ethnicities might have some cognitive adaptive roots. If essentialist viewpoints were prevalent one could deduce that more unconscious labeling is going on and that it was a cognitive function within the human brain. In essence the experimenter is trying to find out if the individual is labeling the individual along a hereditary

thought process versus the situational thought process used by circumstantialists.

Several experiments that have dealt with ethnicity used switched at birth scenarios to determine whether people were circumstantialist or essentialist (White, 1999). The switched at birth scenario uses an orphaned child of ethnic group A and is raised by an adoptive family that is ethnic group B. The point of the scenario is to give an individual the option to choose between essentialist or circumstantialist stances of different situations. These studies dealt with groups of people who chose between circumstantialist and essentialist viewpoints on a questionnaire (White, 1999). In general, his findings were that people would lean towards an essentialist viewpoint. He reasoned that this was because people evolved cognitively in groups and learned to identify other groups. These groups then became associated within certain behaviors depending on the outcomes of interaction (White, 1999). These views were why ethnicities and some of stereotypical beliefs still exist today. The hypothesis proposed for this study tends to agree with this assessment, but expands a bit on this concept with the “Us” and “Them” concept.

The “Us” and “Them” concept is the idea that there were two groups “Us” and “Them” and the “in group” or “Us” tends to view the other group negatively or differently (Brubaker, 2009). The hypothesis of this study was that people will lean towards essentialist views because of the “Us” and “Them” concept. This will be because of ethnic diversity within Lindenwood University and the idea that the more diverse a community was the more essentialist it will become. Research dealing with this concept showed that two tribal groups in Mongolia developed more essentialist ideas as they ethnic diversity of the community increased (Brubaker, 2009). As people migrate into tighter and smaller ethnic groups they will label other groups and take more essentialist viewpoints. The “Us” and “Them” concept would motivate people to be essentialist and was due to the cognitive function of the brain. The manner in which the study

would attempt to determine whether people were actually becoming essentialist was through a questionnaire.

That questionnaire was similar to the experiment in that it used a switched at birth scenario, but it was actually modeled off of a questionnaire that will be used in China in the summer of 2011(White, 1999). In every experiment the participant was presented with scenario that can either be answered in an essentialist or circumstantialist in nature. For instance, at the end of most questionnaires of this form the participant is asked to determine the ethnicity of the adopted child. If the participant chooses the ethnicity of the biological parents it was essentialist and if they were to choose the adoptive parent's ethnicity they would be circumstantialist. The reason that the participant's was categorized as essentialist was that they chose a biological relationship over the behavioral influences of the adoptive family. The same goes for the circumstantialist response except that the behavioral influence of the family and the child take precedence over the biological ethnicity of the individual. The purpose behind this kind of question was to get an automatic response that gave the experimenter an idea of what the participant was thinking. The experiment utilized participants from Lindenwood University specifically those who participated in the Lindenwood Participant Pool. During the experiment they filled out a questionnaire that details a switched at birth scenario. The purpose of this scenario was to reveal the cognitive functions of the individual as either circumstantialist or essentialist in nature. The idea was that by understanding the nature of how participants categorize ethnicity one could better understand the cognitive formation of an ethnic label.

## **Method**

### **Participants**

Within this research men and women were recruited from Lindenwood University. The intended amount of students to participate within the experiment was 40 students or more. The participants were all recruited through the Lindenwood Participant Pool (LPP). This pool drew students from Select GE-level classes in psychology, anthropology, sociology, athletic training, exercise training. Total number of participants recruited was 35 participants and they received bonus points within these courses if they completed an experiment. Of these participants 22 were male and 13 were female. These participants were largely from the St. Louis area as 22 of the participants hometowns were within Missouri. There were seven more participants from the United States and other six participants were from Africa, China, Serbia, and Turkey. The ethnicity of these participants was also collected eleven participants were of German descent, five were African American, three Irish, two Italian, three Serbian, there were one participant from these ethnicities Greek, Haitian, Scottish, Russian, Turkish, Bahmain, and five individuals were unidentified in ethnicity. The average age of participants was 20.52. The native languages of each participant were 27 English, 1 Swahili, 3 Serbian, 1 Creole, 1 Chinese, 1 Turkish. In general the participants were diverse enough to give a good sample of a diverse community.

### **Materials**

Students that participated were given two copies of the experiment's informed consent letter (see Appendix A) before the experiment began. Afterwards the students read and signed the informed consent letter, they were asked to fill out a demographic survey (see Appendix B) that asked for their sex, ethnicity, and their students' status. This survey was given to gain an understanding of any patterns that developed between these variables. Once the survey was

completed a 16-item questionnaire dealing with different ethnic labeling situations would be presented (see Appendix C). The items are modeled off of a questionnaire developed by Scupin (2011) for a related study he will use in a trip to China testing similar ideas. When the questionnaires are completed the students will be asked to fill out a feedback letter (see Appendix D) that contained the reason for the experiment and the potential benefit to society as a whole. This letter contained the contact information of the researcher and the supervisor. Upon leaving the study the students were told to fill out their receipts which confirmed their completion of the study. Those receipts were used to gain extra credit through the pre-approved classes within the psychology, anthropology, and sociology departments. The students' participation was documented on a "list of participants" which was given to the LPP office every week. The location of the experiment was in classrooms with an average of 20 chairs and a psychology lab with an average of 3 chairs. The classrooms were more open and spacious while the psychology lab was more cramped and small.

### **Procedure**

The researcher posted a Sign-up sheet approved by LPP that allowed students to sign up for approved dates. Each student signed the sign-up sheet and proceeded to the experiment's location when students showed groups every 15-30min up at the experiment, they were told to sign on the participant list. After the students completed the participant list they were handed two copies of the informed consent form. If students were under the age of 18 their parent or guardian was provided the informed consent form. They were told to fill both out and to keep one for their records. The other informed consent form was to be given to the researcher. Upon the completion of these forms the terms of the informed consent forms should have been understood by the students. The students were also informed that their participation within the

study could be terminated at any time if they felt uncomfortable. The students were also assured if they decided to terminate their participation they would still receive a receipt and thereby bonus points for their classes.

A brief explanation of the study was provided before the students received a questionnaire and demographic survey. Students were provided a demographic survey immediately followed by a 16-item questionnaire. Students were allotted 20 to 30 minutes to complete their questionnaire. There were two scenarios that specifically designed with switched at birth scenarios to engender a circumstantialist or essentialist response in participants. In order to understand if a response was essentialist or circumstantialist in nature the experimenter went through the scoring systems of previous experiments. In general, if a response were essentialist in nature it would favor the hereditary response. For instance, within each scenario some attributes of the biological parents are presented. These could have included the height and even length of fingers of the parents. If the participant favors the more hereditary based answer they were choosing an essentialist answer. If they choose the other answer they will be choosing circumstantialist answer because they would be using reasoning based off the environment of the individual. The environment that the individual grows up in is the main driving force behind circumstantialist thinking. So if participants answer in such a way that indicated that they believed the environment would have been influenced the child the response would be circumstantialist. Questions 1, 2, 9, and 10 were used to determine if individuals understood the question. If they did not understand the question their results were discarded for that scenario. If the students could not complete the questionnaire within 30 minutes they were asked to stop and the questionnaire was discarded. After the completion of this questionnaire the student would receive a feedback letter and debriefing to give them a better idea of the purpose, rationale, and

possible benefits of the experiment. Once the debriefing was completed students received a participant receipt to fill out. These receipts could then be turned into their professors for extra credit.

## **Results**

The results of the study were analyzed using frequency tables to determine if there were any significant patterns and if there was an Essentialist majority in thought procreation. In general the majority of the question did fall into the Essentialist group. The results were that 68 % the questions asked were answered in the essentialist category. While 32 % of the question asked were considered circumstantialist in nature. The scores were coded into circumstantialist and essentialist answers. A majority of these answers were yes and no questions. The yes questions were circumstantialist in nature and the no questions were essentialist in nature. These responses would usually have individuals choose between situations where a characteristic of the adoptive child was to be determined. The participant had the choice between the child gaining the trait through hereditary means or the adoptive families influence or environment. If the participant chose yes they would usually chose the environment over the hereditary factors. When the participant chose an essentialist response they received a point and when they chose a circumstantialist response they received no points. Through tallying up the total score of essentialist and circumstantialist answers of each participant the experimenter could gain a better idea of what the thought processes were behind their responses. There were very few individuals that actually obtained purely circumstantialist or essentialist scores the average score have was around 6.91 out 10. When scoring the questionnaires a high score would indicate high essentialist viewpoint and a lower score would indicate circumstantialist viewpoint. An Independent t test was performed between the two different scenarios and  $t(36) = -2.69$  also



showed that there was no significance between the two conditions. This was done to determine if there were bias or significant differences between scenarios due to ethnic bias.

### **Discussion**

After the results of the statistical analysis were completed and processed the experiment has failed to reject the null hypothesis. Lindenwood students showed essentialist thought procreation when labeling an individual's ethnicity. The results support the hypothesis and further substantiate research such as White research on ethnicity in Mongolia (1999). This experiment proposed the idea that diverse communities created reinforced essentialist views was supported by this research. Since the sample was composed of diverse ethnicities, it provided decent information on this idea of diverse communities reinforcing essentialist thought. The questionnaires seemed have to worked in that they have gotten the participant to think about ethnicity in either a circumstantialist or an essentialist way. The experiment achieved this separation of essentialist and circumstantialist thought by presenting scenarios and questions that forced the participant to choose between environmental or hereditary factors. The questionnaires provided the switched at birth scenario that attempted to polarize participant's opinions into either the essentialist or circumstantialist group. Essentialist answers favored the hereditary labels of ethnicity for the child. For instance, Mexican child adopted by a German family would be considered Mexican in ethnicity by essentialist and that answer would be scored as one towards the total of ten possible points in the questionnaire. Through using a scenario that forces the individual to choose one group from the other the experimenter was able to analyze the data and get a general idea of what kind of thought procreation the participant had.

The main issue with this is the strength of their circumstantialist or essentialist views. As was stated in the results there very few maxed scores or zeros. It would seem individuals tend to

score “soft” rather than “hard” scores. Some research has attempted to explain this phenomenon as the soft and hard classifications within circumstantialist and essentialist groups. Essentially, soft categories are those individuals who were on the fence between essentialist and circumstantialist ideas (Brubaker, 2009). For instance, throughout the questionnaires an individual would answer numerous question in circumstantialist way and then at the end of the scenario answer in essentialist way by stating the child was still the same ethnicity as their biological parents and not their adoptive parents. This might have indicated confusion on the part of the participant, but it seemed to happen about one third of the situations indicating a pattern. In general, these individuals answered the questions 1, 2, 9, and 10 correctly indicating they were paying attention. This would seem to indicate that the individuals believed that one could change his behavior, but not their ethnicity. This supports the idea that individuals can carry both essentialist and circumstantialist views on different levels. It could even be seen in the results of the study as well since a majority of the participants scored 7 indicating their at least 70 percent essentialist. This means that very few “hard” essentialist or circumstantialist was found in this study. Those few participants that were considered hard essentialist’s are those who believe absolutely that hereditary attributes of ethnicity are passed down biologically and not created through behavior.

In general, the study seemed to have fairly consistent participant scores those that were not consistent, such as those who could not answer questions 1, 2, 9, and 10 were discarded. The fact that the experimenter did not use a consistent environment throughout the study could have detracted from the environmental influences on individuals and skewed results. There also could have been issues with the fact that the experimenter had to omit question 7 from the results, as there was no parallel in the other scenario to counterbalance the result. Individuals may have

been fatigued by the time they came to the second scenario. The issue of fatigue was also not addressed through counterbalancing the order of the questions due to the fact that the order of questionnaire was designed to develop the specific ideas of the ethnic labels within the participants mind. In general, the experiment's fatigue and order effects were minimized through the shortness of the answer yes or no and the fact that there were only 15 questions in all. These factors probably caused little damage to the results of the experiment due to their relatively weak nature.

Validity was probably an important shortcoming of this experiment. Even though the standardization of the questions on the questionnaire and the assigned time was appropriate, the lack of participants ( $n = 36$ ) did not let the results translate well to the general student body in Lindenwood University. Due to the consistent nature of the results from the questionnaires the internal validity can supported. The results on average showed an essentialist trend, which would support the idea that essentialism was a major factor in the thought processes of participants. Increasing the number of participants next time the study was performed would increase the external validity greatly. The lack of external validity was probably the biggest drawback to the study.

Even though the external validity was lacking due to number of participants the general hypothesis seemed to be sound. Ethnic labels and the way individuals go about assigning them was the point and general idea behind the study. The importance of this study can be seen in the academic progress that can be gained through research. If the type of thought processes behind ethnicity is narrowed down one can research them more easily. It makes the research easier by narrowing down the factors one needs to look into to decide on what caused the development of that specific ethnic label. The trends these thought processes take were also important to the

research. For instance, the ideas of hard and soft essentialism and the distribution of these views according to environment are very important to research. Their important because they help the experiment to understand what kind of situation they could expect in different cultural environments. Through gaining a better understanding one could advance research and study in the creation of these thought processes.

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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 complete a short questionnaire asking about my perception of ethnic labels. I understand that I should be able to complete this project within 20-30 minutes. I am 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:

Jon Holloway 573-560-3215 Email: [jeh218@lionmail.lindenwod.edu](mailto:jeh218@lionmail.lindenwod.edu) (preferred)

Supervisor:

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Course Instructor

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**Appendix B**

**Demographic Survey**

**Participant ID:** \_\_\_\_\_

**Sex (Male/Female):** \_\_\_\_\_

**Student Status (freshman, sophomore, junior, senior):** \_\_\_\_\_

**Ethnicity (Irish, German, Mexican, etc.):** \_\_\_\_\_

**Appendix C**

**Questionnaire for Missouri, United States**

ID #

City:

Ethnic Group (German, Mexican, Irish, etc.):

Place of Origin:

Father's ethnic group

Mother's ethnic Group

Age:

Native Language:

Gender: Male or Female (circle the answer)



A. Mexican woman went to a hospital in order to give birth to a baby boy.

While giving birth, the woman dies. She had no husband.

At the same time, a German American woman gave birth to a baby boy in the same hospital.

The German American couple adopted the baby from the Mexican woman and raised it in their home.

She never tells the boy that he was adopted. The two boys grew up together as brothers.

1. Which woman gave birth to the baby that was adopted?  
Mexican or German American

2. With which woman did the adopted baby grow up?  
Mexican or German American

The Mexican woman was tall; the German American woman was short.

3. Will the two boys be the same height when they are adults?

The Mexican woman had long fingers; the German American woman had short fingers.

4. Will both boys have fingers of the same length when they are adults?

The Mexican woman really liked the color red, whereas the German American woman liked the color green.

5. Will the two boys like the same color as the German American mother when they are adults?

In school, both boys take a class to learn to speak English.

6. Will both boys learn to speak English in the same amount of time?

Also in school, the two boys take a class in advanced English.

7. Will both boys perform equally well in the class?

8. Is the adoptive boy Mexican or German American?

9. Why do you believe this boy is Mexican or German American? (explain in a couple sentences to a paragraph)

**B.** German American woman went to a hospital in order to give birth to a baby boy.

While giving birth, the woman dies. She had no husband.

At the same time, a Mexican woman gave birth to a baby boy in the same hospital.

The Mexican adopted the baby from the German American woman and raised him in her home.

She never tells the boy that he was adopted. The two boys grew up together as brothers.

10. Which woman gave birth to the baby that was adopted?  
Mexican or German American

11. With which woman did the adopted baby grow up?  
Mexican or German American

The German American woman was tall; the Mexican woman was short.

12. Will the two boys be the same height when they are adults?  
The German American woman had long fingers; the Mexican woman had short fingers.

13. Will both boys have fingers of the same length when they are adults?  
The German American woman really liked the color red, whereas the Mexican woman liked the color green.

14. Will the two boys like the same color when they are adults?  
Both boys learn to speak Spanish.

15. Will both boys learn to speak Spanish in the same amount of time?

16. Is the adoptive boy Mexican or German American?

17. Why do you believe this boy is Mexican or German American? (explain in a couple sentences to a paragraph)

**Appendix D**  
**Feedback Letter**

Thank you for participating in my study. The questionnaire was used in order to determine people's perception of ethnic labels. These labels are narrowed into two categories for the purpose of this study. Those categories are essentialist and circumstantialist. Essentialists basically believe that one's ethnic group's stick with someone throughout his or her life and the circumstantialist group largely believes that one can change his or her ethnic group through his or her behavior. The general hypothesis of the experiment was that most Lindenwood students would lean towards the circumstantialist point of view. Because Lindenwood students tend to receive a more diverse ethnic environment than an average person. The reason that this idea could be important is to determine the way in which groups cognitively think about each other through labels. This can be used in numerous studies to back up or question previous research and theories.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of students, of which you are now a part of. No identifying information about you will be associated with any of the findings.

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring him or her up now or in the future. Our contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study 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:

Jon Holloway 573-560-3215 (jeh218@lionmail.lindenwood.edu)

Supervisor:

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

Archival Study: How the Architecture of a Room can Influence a Person's Mood

Jordan McKay<sup>5</sup>

Lindenwood University

*I conducted this meta-analysis of published studies examining how architectural designs can affect a person's mood, as it pertains to colors of and the overall arrangement of the room. There are many factors that influence one's mood; however, there is evidence showing that color can affect the way a person feels. Not only can color be a factor but the design of the room, whether it is a small confined space or a wide-open space, can have significant implications on a person's mood and creativity. Many interior designers and architects consider these factors when designing a room and or space. By trying to incorporate the psychological factors of people one could make a room more appealing. Numerous studies were conducted in which design, color, and lightening showed significant results in obtaining better grades, increased morale, and productivity. Using this information can therefore lead to designing more efficient buildings to increase the work potential of students and employees.*

This meta-analysis of published studies was in relevance to examining how architectural designs can affect a person's mood, as it pertains to colors of and the overall arrangement of the room. There are many factors that influence one's mood; however, there is evidence showing that color can affect the way a person feels. Not only can color be a factor but the design of the room, whether it is a small confined space or a wide-open space, can have significant

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implications on a person's mood and creativity. Many interior designers and architects consider these factors when designing a room and or space. By trying to incorporate the psychological factors of people one could make a room more appealing. Restaurants are good examples of this, because they are designed to make a person feel welcome, calm, and even hungry. Therefore, why not use this information and apply it to corporate and or educational settings. This could be used to potentially increase the morale of the faculty and or staff as well as increase creativity and overall production from the workers and students.

A study was conducted by W. Bro and Victor Popow (2009) on psychology and architecture. This study involved examining artificial structures and their possible influences on human behavior. For this study it was believed that the human body responded to the design or structure of their environment biologically. Whether it is conscious or unconscious awareness, there was this predisposition that involved many factors influencing humans based on their environment. Complexity in the influences of colors and lights on the physical and behavioral effects on people was an issue in determining results. Other issues involved textures, acoustical characteristics; however, it was ultimately light that had the most influence. "Light is the most effective element in creating a sense of mystery and awe, and the manipulation of light is a principal agent in the creation of shrines and religious buildings" (Bro & Popow, 2009). According to results of the study, the wiring of the human brain and its reaction to the light and patterns of a room gives reason to believe that architecture causes behavioral effects.

In contrary to Popow's (2009) study combination of both design and color, there are studies that include the psychology of how color alone, influences behavior. A study by David Johnson (2008) found results that there are significant behavioral and physiological effects in how people respond to various colors. The color blue causes the body to produce calming

chemicals, however depending on the shade of blue it can cause symptoms of sadness and depression (Johnson, 2008). The color red can stimulate faster breathing as well as increase heart rate. Red can also stimulate hunger. The color yellow can enhance concentration and can actually speed up the metabolism. A designer and or architect could use this information to their advantage to produce environments that stimulate positive behavior (Johnson, 2008). Businesses and schools could also use this to their advantage by using these colors to possibly increase morale and productivity.

Architects have stated that the places that we inhabit can affect our thoughts, feelings, and emotions. This type of thinking is drawing the attention of behavioral scientists to find an empirical basis to this statement. Jennifer Kelley (2007), of Via Architecture provides examples of these other factors of the design that can influence these types of effects. Kelley (2007) found that when a person is working in a space with a ten foot ceiling, can show signs of thinking more freely and abstractly. This is due to the possibility of a person processing more abstract connections between objects in the room. It was also found that a person, who works in a space with an eight foot ceiling, will most likely focus on specifics (Kelley, 2007). Although, a spacious room induces abstract thinking, there are situations in which a tight space is necessary. A surgeon, for example, would be more effective in a smaller room size where he or she can focus on the finite specifics (Kelley, 2007).

The hypothesis is that the overall design of a room, including its arrangement and use of color can show significant effects in a person's morale and effectiveness in the work place. Therefore, by examining these articles, it can be determined that using colors and elaborate designs can increase productivity in many different schools and businesses.

## **Method**

### **Participants**

For this study I will be conducting a meta-analysis of published studies examining the effects of how an architectural design of a room as well as the color and overall arrangement of the room can affect a person's mood. Therefore, no participants will be used in this study.

### **Materials/Procedure**

Due to the nature of this study, various online databases of published studies from Lindenwood University were examined. I used this online database to examine scholarly articles and or journals that are relevant to the study that involves how architecture and color can affect a person's mood. By having such a wide variety of studies and articles to examine I can find more evidence to support the fact that these factors do have significant effects in a person's mood. Therefore, the majority of my materials included a computer that has access to the internet, library references and periodicals, pen and paper for any potential side notes as well as a suitable area that gives me the ability to examine my articles in quiet.

## **Results**

To elaborate further on the effects of architectural design and color on a person's morale, one must learn how to use different colors and arrangements effectively in order to stimulate a person's mood. As it pertains to colors, the most effective use depends on the room setting. Colors are effectively placed in kitchens, offices, and classrooms to stimulate a variety of emotions and feelings. My hypothesis is that the color and overall arrangement of a room will show significant effects in stimulating a response from people. By implementing these different colors and designs an architect and or designer could use it to increase productivity and morale in a business and or education setting.

The most effective method used in designing a room can involve the arrangement of the objects and the colors used. According to Kelley (2007), a person is inclined to think more abstractly in a more spacious area as opposed to a person who may focus on specifics in a smaller room setting. Therefore, when it pertains to space a larger room would be most effective in the classroom so that students can potentially engage in more elaborate thinking processes. A smaller space would be most effective in an operating room where one must focus on specifics. And a combination of the two could be used effectively in business offices to stimulate both types of thinking during the various planning stages. Other findings by Kelley included the fact that having rooms with adequate sunlight can improve students' grades. Lighting has also been linked to a having less of cognitive decline in retirement homes. The colors that are most effectively used in these settings are lighter shades of blue, yellow, and green. Using a combination of these colors can create more elaborate ideas, calm behavior, optimism, relaxation, ultimately increase productivity by increasing morale.

### **Discussion**

The hypothesis was that there will be significant differences in morale depending on the arrangement and color of the room. This idea developed from the various findings of how design influenced a person. Although, I did believe that design could have significant effects on the body, it was the impact of colors and lighting that was surprising. With adequate lighting and an assortment of colors can create major impacts in not only morale but is linked to productivity, better grades, and inhibits a decline in cognitive ability in seniors (Kelley, 2010). Therefore one could use this information and design business offices and schools that can cause employees/students to reach their full cognitive potential. However, to improve this experiment I would have liked to examine more studies that were relevant to this idea. I would also like to



design my own experiment in the future to observe these results first hand and apply it to future work in the field of architecture.

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Self-Esteem and Stress Perception among Athletes and Non-Athletes

Federica Bertolini<sup>6</sup>

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*This study examined the differences between athletes and non-athletes students in relation to self-esteem and stress level. Gender of the participants was also taken into consideration. Thirty participants were recruited at Lindenwood University in St. Charles, MO. Fourteen participants were athletes and 16 participants were non-athletes. Also, 14 participants were males and 16 participants were female. Rosenberg Scale (Rosenberg, 1965) and Perceived Stress Scale (Cohen, 1983) were used to test self-esteem and stress level respectively. The hypothesis of this study was that college student athletes have a higher self-esteem and a higher stress level than non-athletes students. However, the results showed no statistical difference in stress level between athletes and non-athletes. The only difference found was the fact the non-athletes female scored higher in self-esteem than female athletes. This result suggests some connections with self-awareness. Nevertheless, this result may be due to an experiment bias due to the small number of participants and the fact that two female participants mistakenly took the surveys twice. Therefore future research on this topic is required to have more valuable data.*

Physical exercise has been known to be an essential feature for a healthy life style, while stress has been associated with a high number of negative outcomes such as distraction, mood changes, headaches, high blood pressure to more severe consequences as heart damage,

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depression and even death (Gurung, 2010). College life can be very stressful and students often have to deal with many different stress factors. Sports are often an important component of college life and can affect college students in a variety of ways. In the college environment, participation in a competitive team can be either a stressor or a good stress reliever (Gurung, 2010; Storch, Storch, Killiany, & Roberti, 2005). A previously conducted study showed how the majority of low stressed students described themselves as very healthy (Hudd et al., 2000).

Self-esteem can also play a significant role for a positive and healthy life. Self-esteem is considered to be the evaluative feelings that an individual has about the self and it depends on a variety of contingency domains such as other's approval and competition (Deckers, 2010). Earlier studies have focused on self-esteem components in intercollegiate athletes with the goal to understand the effects of sport participation on self-esteem (Ryska, 2002). Other previous researches reported that students score lower in self-esteem when under significant amounts of stress (Hudd et al., 2000).

In addition, according to Hudd et al. (2000), students who do not practice a sport are more likely to consider themselves very stressed, while a significant amount of athletes perceived a low level of stress. Also, stressed students reported to have a lower self-esteem (Hudd et al., 2000). According to other past studies, exercise is considered a means for people to reduce stress and develop self-esteem (Kongsjord, 2010). Other studies show how fitness training can positively affect self-esteem (Hart, 1985).

In order to assess the levels of self-esteem and stress perceived, several studies regarding collegiate student-athletes and non-athlete, used the Rosenberg Scale (Rosenberg, 1989) and the Perceived Stress Scale (Cohen, 1983) (Armstrong & Oomen-Early, 2009; Catron, 2005; Taylor,

1995). Previous studies have showed that athletes score much higher in the Rosenberg self-esteem scale than non-athletes students (Armstrong & Oomen-Early, 2009).

The purpose of this study was to find out the differences in stress and self-esteem levels between college athletes and non-athlete college students, and more specifically, if collegiate athletes have more self-esteem than non-athletes, and, on the other hand, if athletes are more stressed than non-athlete students. The participants were surveyed on these matters, self-esteem and stress perception, by using the Rosenberg Self-esteem Scale (Rosenberg, 1989) and the PSS-Perceived Stress Scale (Cohen, 1983).

Based on the previous literature, the hypothesis of this study was that college student athletes have a higher self-esteem and a higher stress level than non-athletes students. This study was worth accomplishing because, as the literature reviews showed, exercise can have a variety of beneficial outcomes especially on self-esteem and stress level. Therefore, college student practicing a sport may greatly benefit from it. The results of this study can be beneficial to the society and promote exercise in college. The results can provide insight to further studies regarding differences between athletic participation in college and the perception of stress and self-esteem in college students.

## **Method**

### **Participants**

Students at Lindenwood University in Saint Charles, Missouri, were recruited through the Lindenwood Participant Pool (LPP) to participate in the study. The LPP enlists students from a variety of fields including psychology, sociology, anthropology classes. Participants earned extra credit toward their LPP participating general education-level courses. In order to

recruit the participants, the researcher posted a signup sheet on the LPP bulletin board in Young Hall.

Thirty participants were recruited for this study. There were 14 athletes and 16 non-athletes. The majority of athletes were part of a team sport such as volleyball and hockey. Fourteen participants were men and 16 were women. Half of the participants were 19 years old. The majority (43% of the total) was also sophomores, 9 were freshman and 8 were juniors. No seniors participated in the study. All the participants but two spoke English as a first language.

### **Materials and Procedure**

The experiment took place in one of the rooms in Young Hall. Classrooms and the psychology lab were used. The classrooms used had about 20 desks and chairs, while the psychology lab had only few desks and chairs. The classrooms were generally quite spacious, while the lab was pretty small. All the classrooms and the lab were well lit. The participants took the surveys with only the researcher in the room or with few other participants.

The experiment took between 10 to 15 minutes for each of the participants. First, the researcher informed the participant about the study and his right to leave the study if he felt uncomfortable to continue. The researcher gave them two copies of the informed consent form to read and sign (see Appendix A). The participants kept one copy, and the researcher kept the second copy for her records. Each participant was asked to fill out three different surveys. The first one was a demographic questionnaire that the researcher created for the study (see Appendix B). The demographic questionnaire asked about gender, age, class, if they are athlete, the amount of exercise, first language, overall GPA, amount of credit hours, and if they work off campus. The second survey was the Rosenberg Scale. This short survey asks the subjects to classify a list of ten statements regarding their feelings by choosing among four answers:

strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD) (see Appendix C). The third survey was the Perceived Stress Scale (PSS) (Cohen, 1983). The survey's questions asked the subjects to indicate how often they experience some feelings and thoughts during the last month (see Appendix D). Afterward, the researcher debriefed the subjects and gave them a feedback letter (see Appendix E) to contact her and to know more about the study, especially if interested in the results. At the end the participants were given a receipt to turn in Young 407 in order to get their extra credit.

### **Results**

It was predicted that college student athletes have a higher self-esteem and a higher stress level than non-athletes students. In order to determine the interaction between the variables a 2(sex) X 2(athlete) Multivariate Analysis of Variance was conducted for the two measures of self-esteem and stress perception. The MANOVA results revealed a statistically significant interaction between sex and athlete:  $F(2, 25) = 3.484, p < .05$ . The results of the follow-up univariate test revealed a statistically significant interaction between sex and athlete for the Rosenberg Scale on self-esteem:  $F(1, 26) = 5.364, p < .05$ , but not for the PSS. A series of post-hoc analyses revealed that female non-athletes had higher self-esteem ( $M=18.71, SD=.951$ ) than any of the other groups (female athletes  $M=17.00, SD=1.000$ ; male non-athletes  $M=17.00, SD=2.000$ ; male athletes  $M=17.80, SD=1.483$ ) (see Table 1).

### **Discussion**

Although the result of this study was controversial to the literature review and rejected the hypothesis, this study opened further questions on self-esteem and athleticism. The only significant difference was between the female athletes and non-athletes. In contrast to the research question, the results demonstrated that female non-athletes have higher self-esteem than

female athletes. This may be due to more self-awareness in female athletes than non-female athletes. Practicing a sport at competitive level may increase self-awareness because every time the individual practice or compete, he or she is evaluated or judged by the coach, judges or other teammates. Competing may make an individual more aware of lack of skills and abilities when surrounded by better athletes. Therefore, students not involved in sports may not develop a broader consciousness of their skills and physical appearance.

Even though the college where the participants were recruited offered more than 46 different sports, the athlete that participated in the study were part of only eight sports. The majority of the athletes were also part of a team sport which may had triggered more competition since there are a specific number of athletes that can be part of the competitive squad. Also, the majority of the female athlete participated in a masculine sport such as wrestling which may have influence the feelings about the self on the female athletes.

As mentioned previously in the literature review, self-esteem is affected by several characteristic including other's approval and competition (Deckers, 2010). Therefore, female non-athletes may have fewer circumstances to outperform in competitive tasks than female athletes since they do not participate in a sport. As a consequence, the non-competitive environment on the field may lead to higher self-esteem.

Furthermore, the results may have been influenced by the small number of participants. The size of the group of participants was the biggest limitation of this study. Also, two female participants mistakenly participated twice in the experiment. The researcher was not able to identify them and therefore their results were included in the study. Hence, the results may be biased due to this mistake.



For future research on these subjects, a bigger sample size is necessary. Also, having the experiment in the same or very similar room may help to reduce potential threats and bias. This study triggered several questions regarding the interaction between athleticism and self-esteem, especially in women. Future studies could compare other characteristics that may affect self-esteem in college students and maybe focus only on female participants.

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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 complete a short demographic questionnaire and two different surveys asking me about my perception regarding self-esteem and stress. I understand that I should be able to complete this project within 20 minutes. I am 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 Researchers' Name and  
Number: Federica Bertolini (740)-438-  
4257 [fb263@lionmail.lindenwood.edu](mailto:fb263@lionmail.lindenwood.edu)

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

[mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

## Appendix B

### Demographic : Questionnaire

SUBJECT ID NUMBER: \_\_\_\_\_ (Assigned by Researcher)

- 1) Are you  Male  Female
- 2) Age \_\_\_\_\_ years old
- 3) Class  Freshman  Sophomore  Junior  Senior  other \_\_\_\_\_
- 4) Are you an athlete?  No  Yes If yes, what sport? \_\_\_\_\_
- 5) First language  English  Other
- 6) Average of amount of HOURS spent weekly in exercising: \_\_\_\_\_ hours
- 7) Overall GPA at LU  4.00-3.50  3.40-3.00  2.90-2.50  2.40-2.00  1.90-1.50   
1.40-0.90  N/A
- 8) Average of CREDIT HOURS per semester at LU: \_\_\_\_\_ credits
- 9) Do you work off-campus?  No  Yes If yes, how many hours per week? \_\_\_\_\_

**Appendix C**

ID: \_\_\_\_\_ (Assigned by Researcher)

**Roseberg Scale** (Rosenberg, 1965)Instruction

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

- |                                                                                  |    |   |   |    |
|----------------------------------------------------------------------------------|----|---|---|----|
| 1. On the whole, I am satisfied with myself.                                     | SA | A | D | SD |
| 2. At times, I think I am not good at all.                                       | SA | A | D | SD |
| 3. I feel that I have a number of good qualities.                                | SA | A | D | SD |
| 4. I am able to do things as well as most other people.                          | SA | A | D | SD |
| 5. I feel I do not have much to be proud of.                                     | SA | A | D | SD |
| 6. I certainly feel useless at times.                                            | SA | A | D | SD |
| 7. I feel that I'm a person of worth, at least on an equal plane<br>with others. | SA | A | D | SD |
| 8. I wish I could have more respect for myself.                                  | SA | A | D | SD |
| 9. All in all, I am inclined to feel that I am a failure.                        | SA | A | D | SD |
| 10. I take a positive attitude toward myself.                                    | SA | A | D | SD |

**Appendix D**

**ID:** \_\_\_\_\_ (Assigned by Researcher)

**PSS (Cohen, 1965)**

Instruction:

The questions of this scale ask you about your feelings and thought during THE LAST MONTH. In each case, you will be asked to indicate your response by placing an “X” over the circle representing HOW OFTEN you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don’t try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. In the last month, how often have you felt that you were unable to control the important things in your life?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. In the last month, how often have you felt nervous and “stressed”?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. In the last month, how often have you dealt successfully with day to day problems and annoyances?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

6. In the last month, how often have you felt confident about your ability to handle your personal problems?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. In the last month, how often have you felt that things were going your way?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. In the last month, how often have you found that you could not cope with all the things that you had to?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. In the last month, how often have you been able to control irritations in your life?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



10. In the last month, how often have you felt that you were on top of things?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. In the last month, how often have you been angered because of things that happened that were outside of your control?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

12. In the last month, how often have you found yourself thinking about things that you have to accomplish?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

13. In the last month, how often have you been able to control the way you spend your time?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never                 | Almost Never          | Sometimes<br>Often    | Fairly Often          | Very                  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## **Appendix E**

### **Feedback Letter**

Thank you for participating in my study. The study you have participated in was designed to assess whether there are any differences between athletes and non-athletes on measures of self-esteem and stress level.

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. 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:

Federica Bertolini 740-438-4257 ([fb263@lionmail.lindenwood.edu](mailto:fb263@lionmail.lindenwood.edu))

Supervisor:

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

Table 1

**Rosenberg**

| SEX    | ATHLETE | Mean  | St. Deviation | N |
|--------|---------|-------|---------------|---|
| male   | no      | 17    | 2.000         | 9 |
|        | yes     | 17.8  | 1.483         | 5 |
| female | no      | 18.71 | 0.951         | 7 |
|        | yes     | 17    | 1.000         | 9 |

## **Senior Research Project Papers**

## Is Beauty Only Skin Deep?

Amber Fetsch<sup>7</sup>

Lindenwood University

*This study was done to determine if a person's idea of attractiveness is based on more than just looks. This could be beneficial to know when meeting people and having a better understanding of why you surround yourself with the people you do. Twenty-four undergraduate students were recruited to rate models on a scale of attractiveness in a packet. There were 12 variations of the packets. Six of the packets just showed pictures of three men and three women. The other six packets showed the same pictures but also included income and job information. The ratings of the attractiveness of the models were compared to see if the models with high income jobs were considered more attractive. The results revealed that there were no differences in attractiveness ratings of the models based on income information. This may mean that when rating attractiveness on a piece of paper, people may only look at the picture.*

Can money change your perspective of a person? Are there factors besides your physical appearance that can affect your perceived attractiveness? Evidence has shown that there are many other things that can affect someone's idea of you. Everyone automatically judges people when meeting them for the first time. Moreover, our

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[ajf646@lionmail.lindenwood.edu](mailto:ajf646@lionmail.lindenwood.edu)

perceptions of others could be swayed by any little bit of information we learn about them. We readily make conclusions and judgments based on little information. This study was meant to show if people will come to conclusions based on information given about a presented model. This could account for divorce rates, lost friendships, and problems with anyone that, after getting to know the person, you changed your mind about.

Research evidence suggests that when you are not the best candidate for a job, your attractiveness may help you get ahead. Researchers found that highly attractive women with less than average qualifications for a job were picked for the job more than the women who are of average attractiveness (Watkins & Johnston, 2000). They gave participants a fake application that had an attractive photo attached, an average photo attached, or no photo at all. The participants rated the applicant to be of higher quality when an attractive photo was attached than the identical application with no photo. The participants were also more likely to offer the interview to the person with the less than average application with an attractive photo attached than the control with no photo attached (Watkins & Johnston, 2000).

Evidence has shown that outside information about a person influences their attractiveness. A large group of college-aged men were asked to rate women's body sizes for attractiveness (Swami, et al., 2010). There were groups that were also given personality information for the female models that was either considered positive or negative. The men considered a larger range of women's body sizes to be attractive when the women had positive personality traits and they found a smaller range of women's body sizes as attractive when the women had negative personality traits, as compared to the control group (Swami, et al, 2010). Other researchers have found that women tend to

rate men as being more attractive when they are thought to have a lot of money (Dunn & Searle, 2010). In one study, they found that women rated men that were seen driving a silver Bentley Continental GT than the men that were seen driving a red Ford Fiesta ST (Dunn & Searle, 2010).

A person's status may influence a person's decision to engage in any romantic type of actions with a person. In a study, participants were given different scenarios of partners. Each participant had a hypothetical partner and then a second offer from a person they just met. The participants were asked different degrees of romantic interaction, such as: would you go on a date with this person, or would you have sex with this person, with the second model. The women were more prone to accept an offer of romantic interaction when the model had a high socioeconomic status. The male participants, however, were more likely to engage in a romantic interaction when the model was attractive regardless of status (Greitemeyer, 2005). More evidence for this was shown in a study that had models dressed as if they were of a certain socioeconomic status. Participants were asked to rate each model of the opposite sex for attractiveness. Then they were asked if they would engage in certain relationships with the models. Reportedly, women rated the men that were considered unattractive as being more attractive when they were associated with a high economic status (Townsend & Levy, 2001).

## **Method**

### **Participants**

The researcher recruited participants using the Lindenwood Participant Pool, which is an opportunity for students at Lindenwood University to earn extra credit by

participating in students' studies. Each time a student participates, they are given ten extra credit points. The participants consisted of 9 women and 13 men from Lindenwood University. The majority of the participants were 19 years old and were in their freshman year at the University.

## **Materials**

The participants were given two consent forms that were borrowed from the LPP and modified to fit the present study (see Appendix A). A packet containing six pictures of models and a survey was constructed. The models consisted of three men and three women. The pictures for the packets were found using Google search engine. There were 12 variations of the packet. Even though there were 12 variations of the packet, each contained the same cover which consisted of a sheet of paper that had the title of the project, "Skin Deep" about a quarter of the way down the page in Times New Roman, size 16 font. Under the title was the word "Packet" and a number that followed (see Appendix B). The next six pages were the pictures of the models. In packets 1 through 6, there was only pictures of the models and an attractiveness rating scale (see Appendix C), in packets seven through 12 there were pictures of the models and occupation information, high income (see Appendix D) or low income (see Appendix E), made with a text box in Microsoft Word in Times New Roman, font size 12, as well as the rating scale. The occupations were found by searching for highest and lowest paid jobs using Google search engine. The remaining packets included pictures of the models along with their occupational information and annual income (see Appendices A and B). All of the rating scales were in Times New Roman font, size 12. All of the models' pictures were found using Google Search Engine under Images. Three of the models were women and



three of the models were men. The order of the models were counterbalanced and their income was alternated on the packets that had this information. Each model was associated with high income information and low income information and no income information but each participant will only see one version of the same model. The seventh page on all of the packets was a short survey asking for some demographic information (see Appendix F). Lastly, the participants were given a feedback letter (see Appendix G) separate from the packet that was borrowed from the LPP and modified to fit the present study.

### **Procedure**

The researcher used a 2 (sex of model) X 3 (income status) ANOVA design. Rooms were requested through the Lindenwood Participant Pool (LPP) that had one or two desks in the room. Each participant was given two informed consent forms. After completing the consent forms they were given a packet. The ratings were compared between each model separately; model A's, no occupation information, was compared to model A's, occupation information provided, to see if the participants rated the models that had higher income as more attractive. After the participants completed the survey they were told to turn them in. Each participant was then debriefed and given a feedback letter, and a receipt to turn in to get extra credit.

### **Results**

The researcher hypothesized that when comparing the same model, a picture with high income shown would be rated higher than a picture of the same model with no income or low income shown. The participants were asked to rate each model on a scale of 1 to 10, one being not attractive and ten being extremely attractive. A one-way

ANOVA was done to compare the means of the attractiveness ratings of the pictures of the same models against each other. The independent variable being the attractiveness ratings of the pictures with no income shown and my dependent variables were the attractiveness ratings of the pictures with high and low income shown. The results of a one-way ANOVA examining the attractiveness ratings of Model A based on income information revealed no significant main effect of Income,  $F(2,19) = 2.716$ ,  $p > .05$ .

The results of a MANOVA examining attractiveness ratings of the female models as rated by men and women revealed a significant main effect of Model  $(2, 19) = 8.188$ ,  $p < .05$ . Model D was rated higher overall

An independent samples t-test was done to determine if there was a difference in ratings of the models between the men and women. What was found was the men and women generally rated each model about the same; however, the female models were rated higher (Model D  $t_{df} = 7.86$ ,  $SD = 1.83$ , Model E,  $t_{df} = 6.41$ ,  $SD = 1.99$ , Model F,  $t_{df} = 6.73$ ,  $SD = 2.05$ ) than the male models overall (Model A,  $t_{df} = 5.45$ ,  $SD = 2.22$ , Model B,  $t_{df} = 5.45$ ,  $SD = 2.58$ , Model C,  $t_{df} = 4.77$ ,  $SD = 2.00$ ).

### Discussion

The results of the present study did not support my hypothesis that the models with higher income will be rated higher on a scale of attractiveness. There was a very small sample of participants that lead to there not being much data. There were a few male participants who felt discouraged about rating the attractiveness of other males. This could account for the overall lower rating of the male models. The female models were all considered attractive and this may have caused a ceiling effect for their attractiveness ratings. Many of the participants, while being debriefed, admitted that they did not notice

the income information given. A few even said that they believed that it had nothing to do with attractiveness.

Model D was rated higher, overall by both men and women. This model was the only blonde model. My participants may have had a preference for her hair. In the future, it may be essential to ask what color hair the participants preferred.

The pictures shown were found using Google search engine. It was difficult to find pictures of models that did not look posed. Many of the pictures found had to be purchased in order to use them. Grants were not given for this study, so they were unavailable for use.

In the future, it may be easier to personally take pictures of models so the researcher can manipulate how the models look. It may be better to only show three or four pictures instead of six. It may be better to also use models that look more similar, that way the blonde model may not be rated higher.

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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 complete a short questionnaire asking me about my opinion of the appearance of models presented. I understand that I should be able to complete this project within 10 minutes. I am 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 my informed consent form will be kept separate from my questionnaire. 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

Supervisor: Course Instructor

Amber Fetsch:

Dr. Michiko Nohara-LeClair:

314 -853-2802

(636)-949-4371

[Ajf646@lionmail.lindenwood.edu](mailto:Ajf646@lionmail.lindenwood.edu)

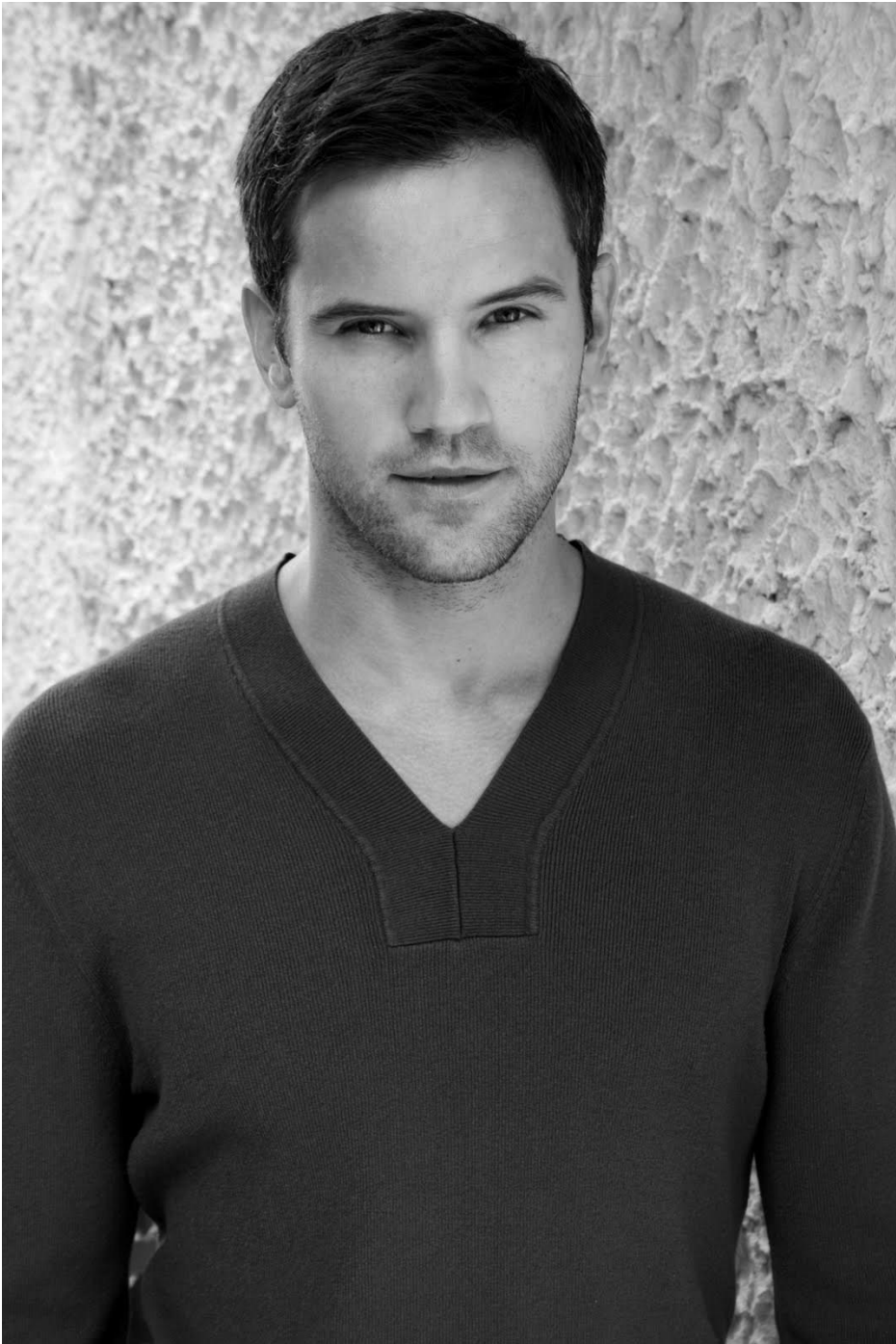
[mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu)

Appendix B

Skin Deep

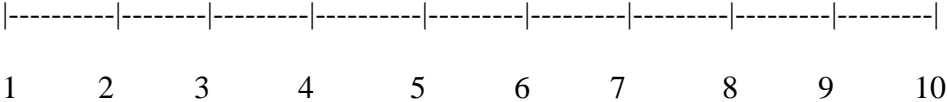
Packet # 1

Appendix C

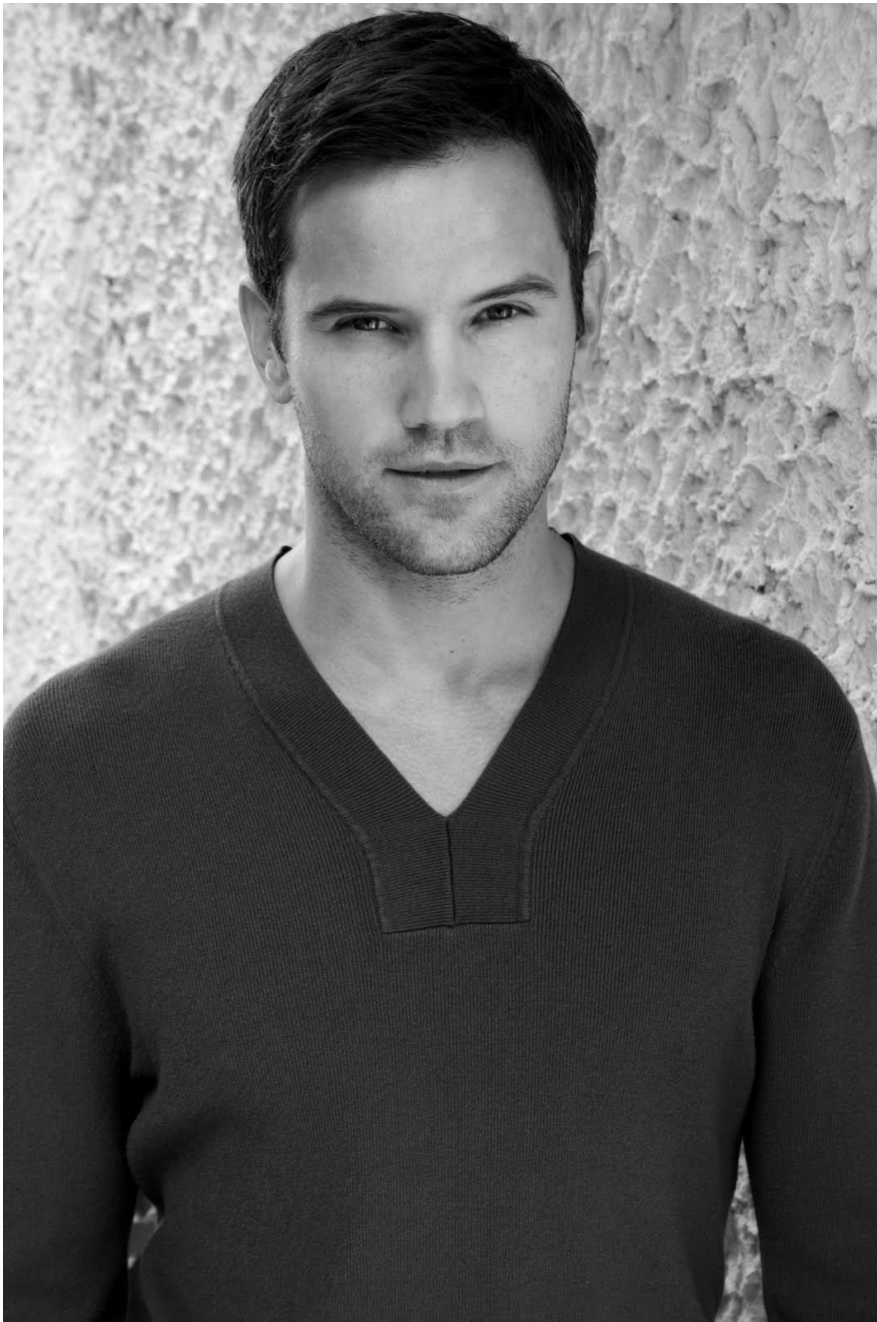


Please rate the model's attractiveness on the following scale, 1 being not attractive and 10 being very attractive.

Model A



**Appendix D**

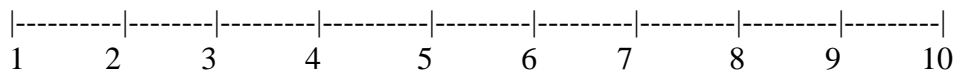


Occupation:  
Account Executive  
of Advertising

Income:  
\$120,000 a year

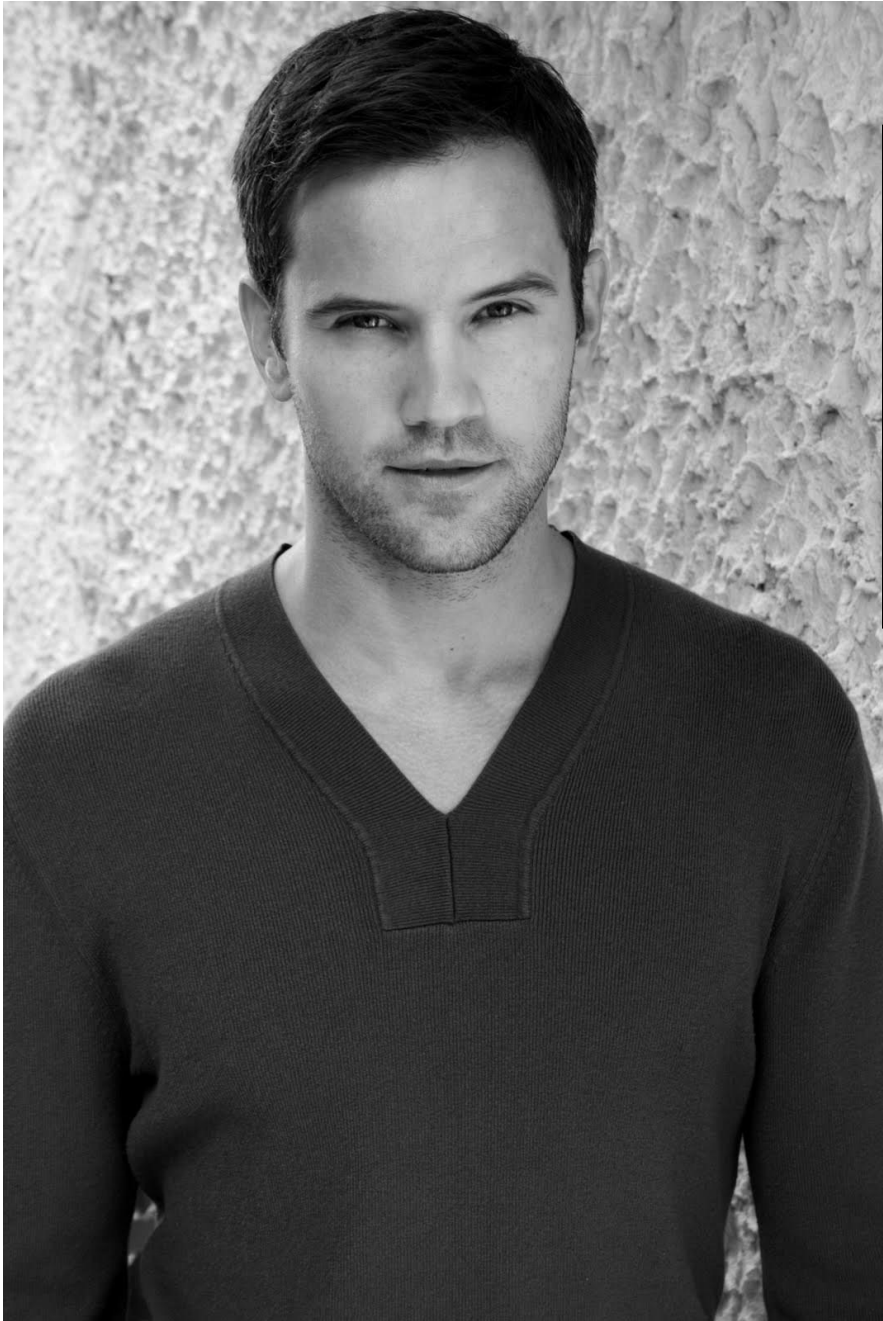
Please rate the model's attractiveness on the following scale, 1 being not attractive and 10 being very attractive.

Model A





Appendix E

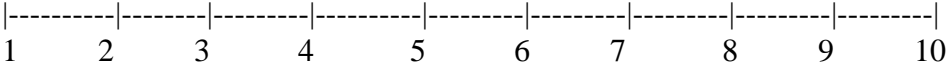


Occupation:  
Elementary  
School Teacher

Income:  
\$45,000 a year

Please rate the model's attractiveness on the following scale, 1 being not attractive and 10 being very attractive.

Model A



## Appendix F

### Survey

1. What is your Gender?

Male          Female          Other

2. How old are you? (in years)

3. What class are you in school?

Freshman          Sophomore          Junior          Senior          Other

4. What Country are you from?

5. Are you in a romantic relationship?

Yes          No          Unknown          No Answer

5a. If yes, How long? (In years and months)

\

## Appendix G

### Feedback Letter

Thank you for participating in my study. The questionnaire was used in order to determine if people became more attractive based on their income. I want to know if the ratings of the models that were given jobs and incomes will be higher than the models by themselves, specifically the models with high incomes. This will give me an idea of if attraction is only skin deep or if there is more to it. This can account for how we meet people and why we choose to associate ourselves with the people we associate ourselves with.

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. 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 us and we 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:

Amber Fetsch 314-853-2802

ajf646@lionmail.lindenwood.edu

Supervisor:

Dr. Michiko Nohara-LeClair

636-949-4371

(mnohara-leclair@lindenwood.edu)

Perceived Racial Expectations of Children

Jessica R. Roesslein<sup>8</sup>

Lindenwood University

*This study concerns the presence of prejudice among children, especially concerning ambiguous everyday situations. Racism can be a source of a variety of health issues, and everyday acts of prejudice can be even more harmful than overt acts of racism. Therefore, this study aims to identify racial preferences among children, in the form of everyday ambiguous situations by having them identify what is occurring in a picture involving ambiguous interactions between white and black children on a playground. Identifying racism early in life could help combat the cumulative stress effects that racism has on the individual. By reducing this stress, one can in turn decrease the frequency of mental and physical health issues amongst adults. By bringing to light the prejudices that may still exist in schools today, students, parents, and educators may be made more aware of their actions and in turn may take steps to decrease prejudicial acts.*

This study aims to provide insight into what type of situations prejudice occurs in children and when. In the United States it is considered unacceptable to participate in acts of outright discrimination, but in ambiguous racist acts, this solid norm can be blurred (Marino, Negy, Hammons, McKinney, & Asberg, 2007). Few members of society show full blown racism by committing hate crimes and showing overt discrimination but unintentional racist tendencies

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<sup>8</sup> Jessica R. Roesslein, Psychology Department, Lindenwood University.

Correspondence concerning this project should be directed to Jessica R. Roesslein, 209 S. Kingshighway, Saint Charles, MO, 63301, jrr626@lionmail.lindenwood.edu

like avoiding walking past a large group of minorities are still prevalent in our society (Buhin & Vera, 2008).

Findings show that discrimination in our society has not been eliminated. Within a lifetime, African American adults believed that they were victims of racism 100% of the time. 99.4 percent of those surveyed reported that racism was a source of stress in their lives (Kessler, 1999). In a survey of children ages 8 to 13, 88 % reported experiencing at least one act of racial discrimination against them. These acts occurred in both school and community settings, with both peers and adults as the discriminating party (Pachter, Bernstien, Szalacha & Coll, 2010). In another study of fifth grade students, 15 % experienced perceived racism, with 80 % of the discrimination occurring at school (Coker, et al., 2009). Another study also revealed that the majority of racial incidents occurred within the school system (Flanagan, Syvertsen, Gill, Gallay, & Cumsille, 2009). These studies show the significance of how early in life discrimination occurs and how widespread it is on our society, especially within schools.

Not only is discrimination common but it also has detrimental effects on health. Perceiving prejudicial experiences is positively correlated to instances of negative mental health effects in adulthood. It is not just overt acts of racism that cause harm, but more often than not things like exclusion and rejection cause the most harm (Broudy, et al., 2006). Since such less overt acts of racism occur more frequently than overt acts, they can then become a common part of one's life, causing chronic stress. Interpretations of acts of discrimination begin to change as these encounters continue to occur. Continuing discrimination causes intensification of negative feelings during future acts of discrimination (Broudy, et al., 2006). Since the negative feelings continue to be heightened, coping strategies begin to become depleted causing an increase in the risk of cardiovascular disease, and other stress related diseases (Broudy, et al., 2006).

In children, individuals who reported an experience with racism were more likely to exhibit symptoms of four mental health disorders: attention deficit hyperactivity disorder, depression, conduct disorder, and oppositional defiant disorder (Coker, et al., 2009). Therefore, catching discrimination early on is vital to helping reduce stress and improve physical and mental health among children and adults within the school system and society at large.

Once racism is detected, prevention programs may be put in place to help combat racism. Buhin and Vera (2008) offer five recommendations for such a program; (a) to create opportunity for meaningful interactions between those of different races, (b) have school staff and parents model positive interracial interactions (c) discuss facts about different racial groups and discuss stereotyping and oppression of different racial groups (d) have skilled staff available to discuss emotional trauma of discrimination, which creates a safe discussion environment (e) group discussion on common human experiences. Although these are only suggestions, they are useful in starting to combat racism in our society.

Prejudice is a well-studied subject but research has revealed contradictory results. The study by Clark and Clark (1947) is probably the most noted research pertaining to prejudice in children. Of the many different aspects Clark and Clark tested, they found that all children, regardless of race, preferred the doll with white skin over the doll with black skin (Clark & Clark, 1947). Although Clark and Clark found that all children preferred the white doll, a later study by Habra and Grant (1969) found that children of both races preferred the doll associated with their own race. Another interesting note is that the preference for their race continued to increase with age (Hraba & Grant, 1969). The United States has had a fluctuating history in regards to the race related social climate, and the climate during each if these studies is no exception. Habra and Grant (1969) suggested that ethnic pride at the time could have contributed

to the difference of results. They noted that in the years before the study a black pride campaign had been in place, possibly enhancing positive associations with the black doll.

Overt discrimination of the past may no longer exist, but smaller prejudices live on, even today. In a more recent study by Jordan and Hernandez-Reif (2009), computer generated drawings took the place of dolls. In addition to this, two other skin tones were added creating a total of four different skin tones in which the child could choose from. When choosing from all four, children showed no preference for a specific skin tone, but when the choice was narrowed to only black and white skin tones, the results changed (Jordan & Hernandez-Reif, 2009). Caucasian children choosing from the white or black drawing preferred their own race; African American children, on the other hand, were split in their decision and varied in whether they preferred the white or black drawing (Jordan & Hernandez-Reif, 2009). Within the literature reviewed, all yielded varying results. These dissimilarities are a result of the ever changing racial climate in which we live, highlighting the need for continuing research. Since racism can be detrimental to both mind and body, using research to examine racism, especially in children is a worthwhile venture.

Surprisingly, overt racism can often be much easier to cope with than ambiguous acts of discrimination (Bennett, Merritt, Edwards, & Sollers, 2004). For this reason, ambiguous situations can be more detrimental to one's health, both physically and mentally. Consequently, the study focuses on the ambiguous prejudices of children.

Children ages 5-12 years were eligible for the present study for several reasons. First, Habra and Grant (1969) found that children in their study (ages 3-7 years) preferred their own race more frequently as their age increased. This upward trend was expected to continue and therefore a higher median age was utilized as to yield more pertinent results. In addition, Jordan

and Hernandez-Reif (2009) also used children ages 3-7 years which could have contributed to the variation in African American preference for race. Both of these studies are more recent and therefore, more relevant to the participants in this study.

Yet another reason to use a slightly older sample of participants is the stages of prejudice in which individuals go through. Nesdale (1999) suggested four different stages of prejudice in children. It was in the ages from 7 on that prejudices become concrete in the child's mind and begin to surface. The children in the study were contained mostly in this stage, which would also increase the likelihood of tangible results.

In the study, prejudice in children was examined through the use of a drawing that represents three focus areas containing ambiguous situations of children at play. Each focus area contained one African American child and one Caucasian child. The child was asked to describe what was happening in the drawing and the results were coded as either prosocial or conflict and it was noted of which race the action was attributed to.

Based on the outcomes of the reviewed literature, the proposed hypothesis was that participants would show an inclination towards their own race by interpreting the children in each focus area in a way that is more favorable to their own race.

## **Method**

### **Participants**

Participants (N=30) for the study were recruited from a Midwestern private school (N=33.3%) during class time and also from an area public school system (N=66.7%) through an afterschool program, which kept students from missing classroom time. Both males (N=43.3%) and females (N= 56.7%) were recruited and only children ages 5 to 12 were eligible to



participate. The students who met these requirements were required to obtain written parental consent, as well as verbally assent to the study themselves. The mean age of participants was 8.33 years with a standard deviation of 1.605. Of all the participants, 86.7% were Caucasian, 6.7% African American, and 6.7% 'Other'. This amounted to only two African American participants, and two participants in the 'Other' category. There was one Hispanic child and one Hispanic and Caucasian mixed child within the 'other' category.

### **Materials**

The study was conducted at the location of recruitment (i.e. the school in which the student is currently attending). Interviews in both schools took place in a meeting room used for teacher conferences and other meetings, it was away from other students and free from distractions. This area was well lit and contained one large table and multiple chairs. Two drawings (A and B) were utilized for this study, although the participant was only presented with one during the interview (see Appendices A and B). Each drawing contained the same three focus areas that could be determined as either prosocial or conflict: (1) children sharing candy/children stealing candy, (2) children playing tag/ children pushing one another (3) children helping pick up books/ children knocking books out of the others hands. Drawing A and B differed only on the side of which the races are presented. The participants' responses to the drawing were recorded with pen and paper and were later be coded by the researcher.

### **Procedure**

Prior to the start of the study a packet of information was be emailed to the public school district for approval to utilize their students in the study. This packet included; a letter of intent (see Appendix C), the parental consent form (see Appendix D), a letter to the principal and principal consent (see Appendix E), Lindenwood University Institutional Review Board

disposition letter (see Appendix F), Copy of the researcher's background check (see Appendix G), copy of the researcher's ethics training certificate (see Appendix H), and both drawings to be used (see Appendices A and B). The packet of information for the school district was emailed to a director for review and upon his consent a meeting was set up to introduce the study to the director of the afterschool program. The research was presented at this meeting and when approved, individual afterschool directors were contacted. Once an interested director was found, the afterschool director signed the principle or administrator consent form (see Appendix E).

This procedure differed slightly for the private school. In the private school, the director was personally spoken with, the study was described and questions were answered. Following the discussion the principle or administrator consent form was signed by the director (see Appendix D). In both locations, parents received a permission form to be filled out (see Appendix D), as well as the principal or administrator (see Appendix E). It was indicated which students were eligible (students age 5-12) and a parental consent form was sent home with those students. Those students who returned the signed parental consent form were asked to verbally assent to participate in the study in front of an adult witness (i.e. teacher or administrator).

After these procedures were completed each participant was individually called into the interview area. At this time the participant was reminded that they may leave the study at any time without prejudice or penalty. Once this was done the child was seated next to the researcher and presented randomly with either Drawing A or B (see Appendices A and B). The child was then asked "What do you think is happening in this picture?" As the participant described each area they were asked which child was instigating the action they described. If the participant did not comment on one or more of the focus areas they were further prompted, "And what are these children doing?" If the participant still did not respond they were not asked any further questions.

All of the participants' responses were recorded with pen and paper. At the completion of the interview the child was debriefed, and then returned to their classroom. The next child was then interviewed. This continued until all eligible participants were interviewed. At the completion of all interviews parent feedback letters (see Appendix I) were sent home with participants and involved staff also received a feedback letter (see Appendix J).

### **Results**

Results of the interview were coded by the researcher (white female) as either prosocial, conflict, or neutral and it was noted which race was attributed to what action. Actions such as sharing, giving, playing, and helping were coded as prosocial, while actions such as taking, pushing, and stealing were coded as conflict. Those results that were left unanswered or did not clearly fit either category were coded as neutral.

A chi-squared analysis was performed to assess whether the children were attributing prosocial actions with their own race and antisocial actions to a race other than their own. Upon analysis, it was found that Caucasian children (N=26) contributed prosocial actions significantly more often than antisocial actions to their own race,  $\chi^2_{(4)}=13.113, p=.011$ . However, there was no significant data pointing to Caucasian children attributing African Americans with antisocial action. There were only two African American participants in this study, which was not enough to draw meaningful conclusions on the perceptions of African American children. However, it should be noted that both African American children in the study attributed the African American child in the tag/pushing focus area as being antisocial. However, by chance, both were given the same drawing of the black child behind the white child, so this could have contributed to their attribution (see Appendix A).

Descriptive statistics were also examined for all three focus areas. In the tag/pushing focus area, 44.4% of participants who identified the act as prosocial, attributed the Caucasian child to the prosocial act, while only 16.7% attributed the prosocial act to the African American child in the picture. Of those participants who interpreted an antisocial act, 16.7% attributed it to the Caucasian child while 83.3% attributed the antisocial act to the African American child in the picture. This focus area was perceived as antisocial more frequently than the other two focus areas, and the majority of the participants saw the African American child as the perpetrator of the antisocial act within the tag/pushing focus area. The physicality of this focus area when compared with the other focus areas may have attributed to the increased rate of antisocial perceptions.

In the sharing/taking lollipop focus area, participants overwhelmingly saw this focus area as prosocial. Of those participants who interpreted it as a prosocial act, 90% attributed the action to Caucasian child in the picture and 88.9% attributed the action to the African American child in the picture. Of the few that interpreted the focus area as antisocial, 10% attributed the antisocial action to the Caucasian child in the picture and 11.1% to the African American child in the picture.

The helping/pushing books focus area was also widely viewed as prosocial, only slightly less so than the sharing/ taking focus area. Of those participants who interpreted the focus area as prosocial, 77.8% attributed the action to the Caucasian child in the picture and 88.3% attributed it to the African American child in the picture. Of the children who interpreted the focus area as antisocial, 22.2% attributed the antisocial action to the Caucasian child in the picture, and 16.7% attributed the action to the African American child in the picture. It is notable that this is the only

focus area in which the Caucasian child was more frequently attributed to the antisocial action than the African American child.

### **Discussion**

The hypothesis that children will show a greater preference for their own race by interpreting the focus areas in a way that is more favorable to the member of their own race was partially supported through the chi-square analysis, showing that Caucasian children significantly relate their own race to prosocial actions. Although no other significant findings were made, a trend of African Americans being seen as more antisocial seems to be emerging in the descriptive data. A larger, more diverse sample may be able to yield more pertinent results regarding African Americans.

In conclusion, this study examined possible ambiguous prejudices of children in the present day, adding to data in the ever-changing climate of race. Through this study some insight was gained into the prejudice of children and furthering this research may allow others to begin to answer questions on how to prevent racism.

However, possible limitations of the study should be mentioned. First, the sample of children was taken from only two schools, all within the same suburban area. While the results may represent the area in which the data was taken, one should be cautious when generalizing this to other populations. Also, given the limited number of African Americans in the sample, one should not draw conclusions on African Americans based on this study. Another limitation was that utilizing a cartoon drawing may not seem as realistic, and therefore may not represent how the child would react to real life situations involving prejudice. Also, in future studies, it would be helpful to have a blind judge also interpret the results to lessen any bias, as well as

utilizing both an African American and Caucasian researcher in the administration on the interview.

Despite the limitations of the study, the implications could prove far-reaching. This study fills the gap of knowledge on current relevant data regarding children. Past research has focused on objects such as dolls to get data on prejudice. By taking it a step further and using real life situations depicted in a drawing, this could produce a more accurate depiction of childhood prejudice. The initial results of the study reveal a clear preference of Caucasians for their own race, through further research based on the trend of the descriptive data, it may be possible to determine other preferences or prejudices in children. If further prejudices could be identified, this could lead to research on how to prevent it. By catching discrimination early on and preventing it, it in turn could lead to the decrease in health effects related to racism. These health effects include cardiovascular disease and other stress related health concerns in adults, as well as attention deficit hyperactivity disorder and conduct disorder in children.

By bringing to light racism in children, parents, students, and educators can be made more aware of underlying prejudices they may have. This awareness will hopefully breed reform in schools. Since the school system has a very controlled curriculum and strives to provide its students with a stress free learning environment, knowledge of racism can begin a process of removing it, creating an environment more conducive to learning.

Mere participation in this study could open up discussion of race in the home and help people to reevaluate their thoughts on the current state of race in America.

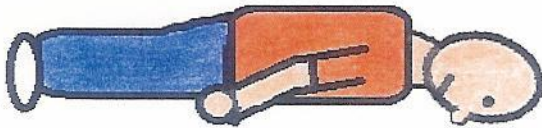
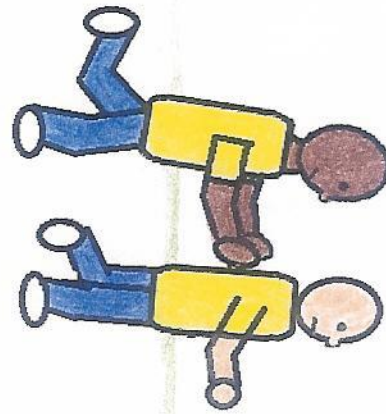
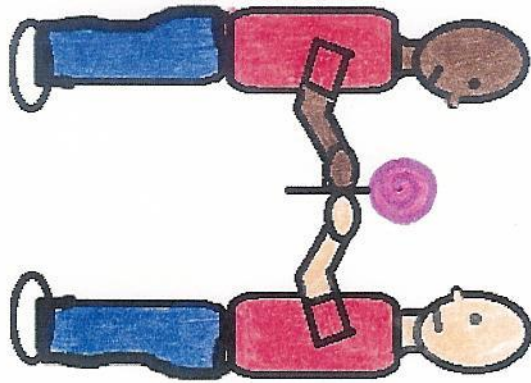
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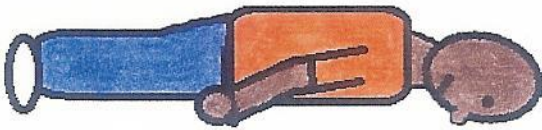
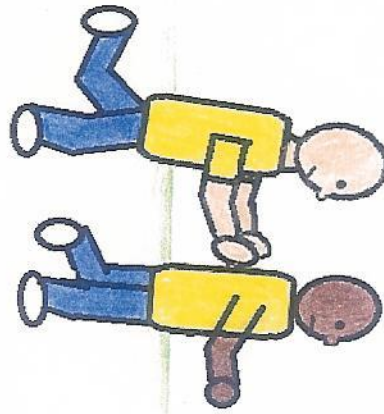
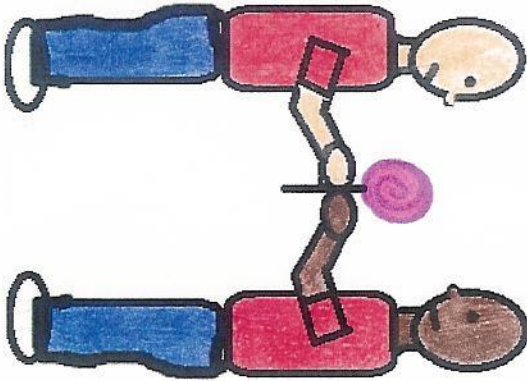
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Appendix A



Appendix B



## Appendix C

Jessica Roesslein  
6 Beaufort Ct.  
Saint Charles, MO 63301  
[Jrr626@lindenwood.lionmail.edu](mailto:Jrr626@lindenwood.lionmail.edu)

September 14, 2010

XXX  
Superintendent  
XXX School District  
Address

Dear XXX,

I am contacting you in regards to recruiting elementary school students from the XXX School District for participation in my study entitled, "Perceived Racial Expectations of Children." The purpose of this study is to identify any slight preferences and biases that children may have toward children with a different skin color.

I am an undergraduate student at Lindenwood University and currently conducting an undergraduate research under the supervision of Dr. Michiko Nohara- LeClair. I have completed two courses in research design, which stress the importance of ethical research. I also have completed the online human ethics training from the National Institutes of Health (certificate number: 505784) and have cleared a background check (8/24/2010). In addition, I am currently enrolled in two education courses and am set to begin my classroom observations within the Francis Howell School District starting DATE (use same format as date up above).

Enclosed you will find several documents;

- A detailed description of the study to be conducted
- A copy of the parental consent form
- A letter to the principal and consent form
- The Lindenwood University Institutional Review Board disposition letter
- A copy of my background check
- A copy of my online ethics training certificate
- A copy of both drawings to be used in the study

Thank you so much for taking the time to review my study and consider allowing it to take place at your institution. If you have any questions regarding my study please feel free to contact me via email at [jrr626@lionmail.lindenwood.edu](mailto:jrr626@lionmail.lindenwood.edu) or contact my research supervisor at [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu).

Sincerely,  
Jessica Roesslein

## Appendix D

### Invitation to Participate in a Study of Perceived Racial Expectations of Children

#### **Description of the Study:**

Your child is being invited to participate in a study about racial expectations they may have involving everyday situations. The goal of this study is to learn what slight preferences children might have with respect to different races in the context of everyday life. Please read this form and ask any questions you may have before you agree to your child being in the study.

If you decide to let your child take part in this study he/she will be asked to look at a scene with various children of different races at play with one another. In this picture there will be ambiguous situations such as a child passing candy to one another. Your child will be asked to tell the researcher what is happening in the picture and your child's responses will be recorded with paper and pencil. This will take about 15 minutes.

#### **Risks and Benefits of Being in the Study:**

Though there does not appear to be any risks or discomforts to your child the researcher will let the child know that he/she may withdraw for the study at any time without any penalties.

Your child may benefit from the curiosity of the experiment process and the feeling of being involved.

#### **Confidentiality:**

I will protect your child's confidentiality by coding his/her information with a number so no one can trace the answers to his/her name. All the findings will be combined and no identifying information will be used. All the information from the study will be kept confidential and shredded after 1 year.

#### **Voluntary Nature of the Study:**

Your decision to allow your child to take part in the study is voluntary. Your child is free to choose not to take part in the study or to stop taking part at any time without any penalty.

#### **Contacts and Questions:**

If you have questions or concerns you may contact the researcher or Faculty Supervisor at the contact information listed below.

Researcher:  
Jessica Roesslein  
(314)-712-1069  
[Jrr626@lionmail.lindenwood.edu](mailto:Jrr626@lionmail.lindenwood.edu)

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

#### **Statement of Consent:**

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree allow my child \_\_\_\_\_ to participate in this study.

*Print your child's name*

\_\_\_\_\_  
Print Parent/Guardian Name

\_\_\_\_\_  
Signature of Parent or Guardian

\_\_\_\_\_  
Date

## Appendix E

### Date

Name of Director/Principal  
Name of School  
Address of School

My name is Jessica Roesslein and I am currently conducting undergraduate research through Lindenwood University under the supervision of Dr. Michiko Nohara-LeClair. I am writing this letter to obtain permission to recruit children from Becky David Elementary School for participation in my study.

This study has already been approved by the Lindenwood University Institutional Review Board in February, 2010 (LU IRB # 10-57, see disposition form attached) and an application for renewal is currently being reviewed. In addition to IRB approval, I have also taken other measures to ensure the safety and ethical treatment of your students. I have completed two courses in research design at Lindenwood University, which stress the importance of ethical research. I have also completed the online human ethics training from the National Institutes of Health (9/4/2010, Certification Number: 505784) and have cleared a background check which has been filed with the Missouri Department of Health and Senior Services Family Care Safety Registry (see attached copy). I have also completed a pilot study with children from another area school this spring.

The goal of this study is to learn whether children demonstrate subtle preferences towards one race or another in the context of everyday life. The participants will be tested individually and be asked to look at a scene with children of different skin color at play with one another. In this picture there will be ambiguous situations such as a child passing candy to one another. The participant will then be asked to tell me what is happening in the picture. The participant's response will be coded as containing a prosocial behavior (such as one child sharing his candy with the other) or a conflict (the children are bickering over whose candy it is). A follow-up question will be asked to determine which child in the picture is perceived as being responsible for the behavior (for example, who is the one sharing with whom). The participant's responses will be recorded by paper and pencil and no audio or video recordings will be used to ensure anonymity and confidentiality.

The entire session with each participant will take about 15 minutes. The participants who choose to participate must turn in a signed parental consent form that I will supply and express assent to being included in the study by verbally assenting to participation in front of an adult witness, such as a teacher. If at any time they choose not to continue they can stop and return to class without prejudice or penalty. Although I do not anticipate any major risks to the participants, if they appear uncomfortable at any time during the study I will reassure them that they do not have to participate. If you have questions or concerns you may contact the researcher or Faculty Supervisor at the contact information listed below. Thank you so much for your time!

Principle Investigator  
Jessica Roesslein  
[\(314\)-712-1069](tel:(314)712-1069)  
[Jrr626@lionmail.lindenwood.edu](mailto:Jrr626@lionmail.lindenwood.edu)

Faculty Supervisor:  
Michiko Nohara-LeClair, Ph.D.  
Professor of Psychology  
Lindenwood University  
[209 S. Kingshighway  
Saint Charles, MO 63301](http://www.lindenwood.edu/209_S_Kingshighway_Saint_Charles_MO_63301)  
(636)-949-4371  
[Mnohara-leclair@lindenwood.edu](mailto:Mnohara-leclair@lindenwood.edu)

Please fill in the following if you consent to having Jessica Roesslein work at Becky-David Elementary School.

### **Statement of Consent:**

I \_\_\_\_\_ (print name) understand the procedures described above. My questions have been answered to my satisfaction, and I agree allow this study to take place at my facility, Becky-David Elementary School on XXX

\_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**Appendix F**

IRB Project Number \_\_\_\_\_ 11-25

**LINDENWOOD UNIVERSITY**

**Institutional Review Board Disposition Report**

**To: Ms. Jessica Roesslein**

**CC: Dr. Nohara-LeClair**

The IRB has reviewed your abbreviated application for the continuation of your research and it has been approved.

Ricardo Delgado Date: 9/29/2010

Institutional Review Board Chair



Appendix G



Missouri Department of Health and Senior Services

P.O. Box 570, Jefferson City, MO 65102-0570 Phone: 573-751-6400 FAX: 573-751-6010  
RELAY MISSOURI for Hearing and Speech Impaired 1-800-735-2966 VOICE 1-800-735-2466



Jeremiah W. (Jay) Nixon  
Governor

8/24/2010

**FAMILY CARE SAFETY REGISTRY**  
Background Screening Result  
Registrant ROESSLEIN, JESSICA ROSEANNE  
Registrant No. 62925531

JESSICA ROESSLEIN  
ATTN - JESSICA ROESSLEIN  
6 BEAUFORT CT  
ST CHARLES MO 63301

The Family Care Safety Registry (FCSR) received your request on 08/24/2010 for a background screening. The background screening 1971103009 performed on 08/24/2010 indicated the following:

**No finding reported in the background screening.**

The FCSR background screening accesses information from the following agencies:

- Criminal history information on file with the MO State Highway Patrol
- Sex Offender Registry information on file with the MO State Highway Patrol
- Child abuse/neglect information on file with the MO Dept. of Social Services
- Foster parent license denial, revocation or suspension information on file with the MO Dept. of Social Services
- Employee Disqualification List information on file with the MO Dept. of Health and Senior Services
- Employee Disqualification Registry information on file with the MO Dept. of Mental Health
- Child Care license revocations on file with the MO Dept. of Health and Senior Services

A copy of this background screening has been provided to the individual. If results were indicated, you may obtain specific information about these results by contacting the FCSR toll-free, 1-866-422-6872, or by submitting your request in writing to the Missouri Department of Health and Senior Services, Family Care Safety Registry, P.O. Box 570, Jefferson City, MO 65102. The request must include your name, address, telephone number and the reason for requesting the information and must include registrant's full name, social security number and background screening number shown above.

The FCSR provides background screening information for employment purposes only. Anyone misusing information provided by the FCSR is guilty of a class B misdemeanor. The FCSR bases criminal history identification on the name, social security number and date of birth you provided, not the use of fingerprints. Please be advised that you need to contact your licensing representative or other agency contact to determine whether this background screening meets the requirements for licensure, certification or registration by state agencies.

If you have any questions or need assistance you may contact the FCSR toll free at 866-422-6872.



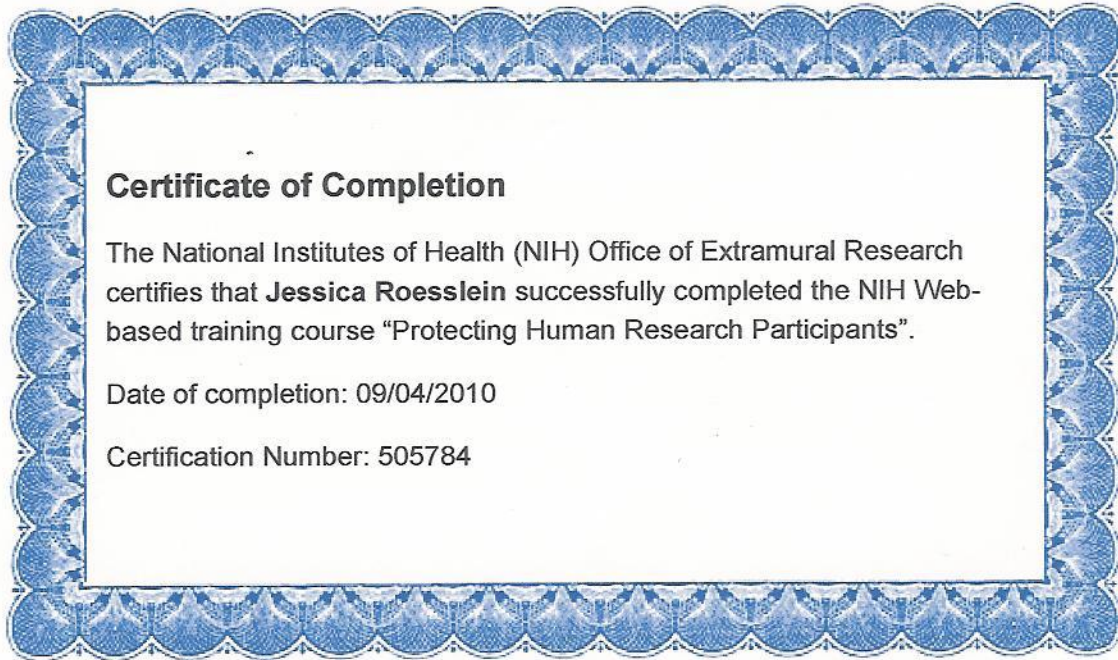
[www.dhss.state.mo.us](http://www.dhss.state.mo.us)

The Missouri Department of Health and Senior Services protects and promotes quality of life and health for all Missourians by developing and implementing programs and systems that provide: information and education, effective regulation and oversight, quality services, and surveillance of diseases and conditions.

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER: Services provided on a nondiscriminatory basis.



**Appendix H**



## Appendix I

Parents:

Thank you for allowing your child to participate in the study “Perceived Racial Expectations of Children”. The purpose of this study was to identify if any racial prejudices exist in children. If prejudice is identified, this will open the door to future research on how to prevent it. Keep in mind that all of the information in this study was combined and that no identifying information will be used.

If you are interested in the aggregate of this study it will be made available for you to look at after the completion of the study upon your request. If you have any questions or concerns please contact me at the information listed below.

Thank you!

Jessica Roesslein  
(314)-712-1069  
[Jrr626@lionmail.lindenwood.edu](mailto:Jrr626@lionmail.lindenwood.edu)

## Appendix J

Dear \_\_\_\_\_ :

Thank you for allowing me to take time out of your schedule to invite willing students with parent permission to take part in my study. Your students are being asked to participate in a study about racial expectations they may have involving everyday situations. The goal of this study is to learn what slight preferences children might have to their own race or other races in the context of everyday life.

Your students will be pulled out of class individually for about 15 minutes each and be asked to look at a scene with various children of different races at play with one another. In this picture there will be ambiguous situations such as a child passing candy to one another. Your students will be asked to tell me what is happening in the picture and his/her responses will be recorded with paper and pencil.

If you are interested in the aggregate of this study it will be made available for you to look at after the completion of the study upon your request. If you have any questions or concerns please contact me at the information listed below.

Thank you!

Jessica Roesslein  
(314)-712-1069  
[Jrr626@lionmail.lindenwood.edu](mailto:Jrr626@lionmail.lindenwood.edu)