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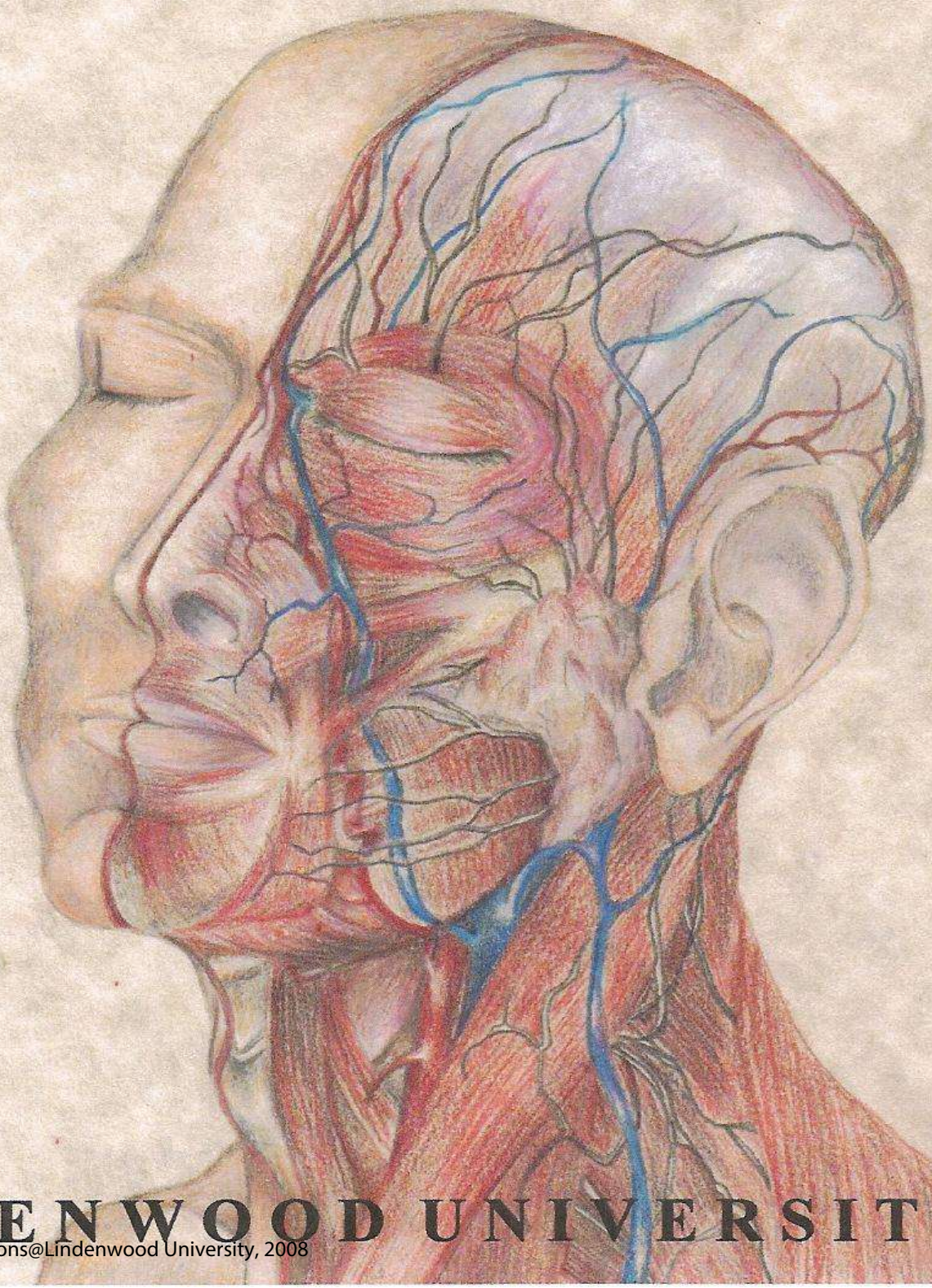

EXPLORE EVERYTHING

LINDENWOOD UNIVERSITY

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About the Research Methods Journal

It is evident from the papers found in this journal that the students from the spring 2008 semester had interests in a variety of different areas within the field of psychological science. The students worked very hard to produce fine papers and they all took part in helping to review each other's work in preparation for this publication. The cover of this year's journal was chosen by the students and designed by Allison Smith.

On behalf of the PSY404 class of spring 2008, I would like to take this opportunity to thank the many individuals who contributed to the students' success; a special thanks goes to the members of the Institutional Review Board (IRB), to the officers of the Human Subject Pool (HSP) as well as to all of the HSP-supporting faculty members in the Anthropology/Sociology and Psychology programs.

Last but not least of all, we would like to extend a special thanks to the course tutor, Rachel Rogers for her support throughout the course and for editing the current journal.

Dr. Michiko Nohara-LeClair
Course Professor

The Power of Music

Michelle Bella, Tijana Redzepovic, and Kandice Schroeder

Music can influence one's mood and alter one's concentration, either in a positive way or a negative way. Such as classical music tends to soothe and focus one's mood where as techno seems to excite and distract one's mood. The main objective of this experiment is to determine whether one's memory is more efficient and improves when presented with classical music rather than techno while studying a list of words. In this study, 30 participants performed a series of memory test while listening to classical, techno and no music at all. Although, music did not seem to affect performance on the memory test, sex did seem to play a role in the outcome of the memory tests.

History has shown that music has played an important role in people's behaviors and how they perform on certain tasks. A recent study measuring the effect of music on simple tasks revealed that background music has a significant effect on the subject's performance (Hallam, Price, & Katsarou, 2002). While calming music seemed to increase the subject's level of performance, aggressive and disruptive music appeared to do the opposite, decreasing the subject's level of performance and even lowering their altruistic behavior level. Surprisingly, this study proved that music more likely affects arousal and mood rather than cognition when studying mental ability on simple tasks (Hallam, Price, & Katsarou, 2002).

Another study investigated whether subject-preferred music had a significant effect on cognitive tasks (Hirokawa, 2004). This study, which involved three different conditions, the first being subject-preferred music followed by relaxation instruction and ending with silence control, focused on the effects different conditions had on memory tests and energy levels. Results

showed that subject-preferred music increased the subject's energy level, unlike the other two conditions that decreased energy level and increased calmness and tiredness levels (Hirokawa, 2004). While all three conditions seemed to lower subject's tension levels, results indicated that there was no significant difference among scores on the memory test. This study revealed that subject-preferred music seems to increase energy levels, therefore, increased energy levels can lead to an increase in test performance. Contrary to music, silence tends to have the opposite effect on subjects by increasing their calmness and tiredness, therefore decreasing their overall performance on tests (Hirokawa, 2004).

A third study, compared the effect of different types of music on vocabulary and comprehension skills (Dawson, 2003). Subjects were tested in four different conditions, including Mozart, Yanni, Pink Floyd, and silence, while performing simple cognitive tasks. The results revealed the famous Mozart Effect which revealed that out of the four conditions, subject's performance levels improved while listening to Mozart music.

Similar to these three studies, the purpose of our study is to see if music enhances memory and comprehension skills. This finding could be helpful in improving the study habits and memory in students at Lindenwood University. We propose that subjects' performance level will increase while listening to classical music or no music, when compared to other music types such as techno. We hypothesize that techno will in fact decrease the subject's level of performance while taking a memory test.

Method

Participants

A total of 30 participants, 16 women and 14 men were students recruited from the Lindenwood University Human Subject Pool (HSP). The subjects were all above the age of 18,

undergraduate students at Lindenwood University and included both men and women students. For participating in the experiment, the HSP students were rewarded extra credit points from their professors. The subjects were recruited by a signup sheet outside the HSP office on the fourth floor of Young Hall and the professors of the HSP classes gave notice of the extra credit opportunities to their students. The HSP consisted of students from the introduction course of the Social Science Classes.

Materials

The experiment was conducted in room 105 in Young Hall. The room was small, no bigger than approximately 10 ft. x 12 ft., with plain white walls except a few posted notices that warned experimenters not to throw liquids into the trash cans. There were two tables in the room. One table was used to prepare each session of the experiment and the other table was used for subjects to fill out paperwork and for conducting the experiment. Two chairs were also used during the experiment. One chair was used for the participant each session and the second chair was used for the experimenter to sit in. The room was brightly lit with one overhead fixture and no window was present in the room. For the experiment, a piece of Beethoven classical music was used as well as a piece of Benny Benassi Techno music. The participants would be listening to the music coming from an apple 6GB ipod, with apple head phones. Three lists of words, containing 50 random words were presented to participants to memorize (see Appendix A). A consent form was given to participants to sign to get their permission for participating in the experiment. A datasheet was used to assign numbers to participants and to keep participants information organized. A feedback letter was given to participants after the experiment process to debrief and make experimenters' information available to receive feedback of the results of the study if they were interested. A receipt was given to participants upon completion of

experiment. A pen was used for signing the consent forms. Participants were given a survey regarding their music preference, their own memory rating, their major, and their gender, refer to Appendix B. A watch was used to make sure each session began and finished on time, as well as timing the participants as they completed each task.

Procedure

Before conducting a session, the experiment was set up by one of the three experimenters. When a participant arrived, he/she was greeted by the experimenters and given a seat in one of the chairs at the table in the middle of the room. The participants were asked to sign two consent forms and then given a survey asking several questions about their gender, major and music preference while studying. After filling out the survey, the participants were given a list of instructions to follow as the rest of the session was completed. Since this was a within-subject design, all participants were told that they would be presented with classical music, techno music and no music while memorizing three lists, a different list with each condition.

The experimenter was sitting at the same table as the participant. The same experimenter showed the ipod to the participants and instructed them to put on the headphones. The participants were asked to keep the headphones on during the course of the experiment until they were asked to take them off. The experimenter played a sample piece of classical music to ensure the volume was comfortable for the participants. A techno or classical piece of music was on the ipod ready to play when the time began. The experimenter explained to the participant that they would be given a list of 50 words to memorize while listening to music coming from the ipod for one minute. After this, the list would be taken away and they would be given a blank piece of paper to write down all the words they remembered from the list, and they would be given one

minute to do this as well. After these two minutes were up, the participant took 30 seconds rest period while the experimenter prepared the other piece of music for the participant. They were asked to repeat the same steps listening to either, classical or techno music, each participant listened to different music while studying different lists, this was repeated for each type of music and each list of words. The experimenter sitting at the table had a stop watch ready to ensure each task began and ended on time.

In every experiment there were two minutes while participants were not listening to any music while memorizing the words and in this case they were asked to take off the headphones. The sequence of music pieces and not listening to music at all was counterbalanced for order of presentation with six different combinations. Once the combinations reached the sixth participant it was started over again with the seventh participant starting at the first one. The experimenter collected the sheets each time the participant completed a two minute interval. Upon completion of the session, the subject were given a feed back letter, a receipt and a verbal "thank you." Data were put into a folder.

Results

A one-way repeated measure analysis of variance (ANOVA) performed on participants' scores on memory tests revealed no main effect of the experimental condition, $F(2, 28) = 2.449$, $p > .05$. However, the memory scores of participants while listening to classical music (M=10.13, SD=3.21) or no music (M=10.13, SD=3.21) were higher than scores while listening to classical music (M=8.93, SD=2.92), they did not significantly differ from one another.

The 30 participants consisted of 16 women and 14 men, since these measures were fairly equal another test was conducted to measure the sex difference in memory scores. A 2 (sex) X 3 (music) ANOVA was conducted to reveal the sex difference among memory scores while

listening to techno music, classical music or no music. The results revealed a statistically significant main effect of sex, $F(1, 28) = 5.838$, $p < .05$, the data reveals that females ($M = 10.75$) did significantly better than males ($M = 8.66$) on all the memory tests.

Discussion

The predicted outcome of the study did not match the results found. It was predicted that participants would perform better on a memory test while listening to classical music rather than no music or techno music. There was a difference in the means of the test scores but not enough to prove significance. The average of the scores while listening to classical music was higher than the average while listening to techno music or no music, but after conducting a repeated measure one-way ANOVA, no significance was established.

Therefore, our hypothesis that while listening to classical music one will perform better on a memory test than while listening to techno or no music was not supported by our findings. This could be due to many different factors. Since a repeated measure design was performed, only 30 participants were tested. Perhaps a larger number of participants would have confirmed our hypothesis. It was also perceived that participants may have been affected by the floor effect; everyone did poorly on all three memory tests regardless of the present music in the background. This could be due to the fact that participants were recruited from the Lindenwood University Human Subject Pool; participant may have only been interested in receiving extra credit, not in performing well on the memory tests. It was noted that participants casually gave up listing remembered words after 15 seconds, saying “okay that’s all I remember” instead of focusing the whole 60 seconds they were given. The three memory lists presented to participants consisted of 50 random words only an average of 20% of words was recalled by participants.

It could be possible that too many words were presented but since participants were given 60 seconds to look at the lists 50 words seemed appropriate. On the contrary, participants may have felt overwhelmed and stressed by the amount of words presented. Also, since a repeated measures design was administered it is very likely that participants felt worried and hassled and experienced the fatigue effect. Participants did show signs of annoyance for example sigh or rolling of the eyes, at having to memorize three separate lists on three separate occasions. Another possible reason for not finding significance may be due to the words on the lists being too random, maybe if each list followed a theme, it would have been easier and less stressful for participants to recall words from each consecutive list.

Dawson (2003) conducted a study to compare the effect of different types of music on vocabulary and comprehension skills. Subjects were tested in four different conditions, including Mozart, Yanni, Pink Floyd, and silence, while performing simple cognitive tasks. The results revealed the famous Mozart Effect which revealed that out of the four conditions, subject's performance levels improved while listening to Mozart music (Dawson, 2003). Unfortunately this study did not match the results that we found which could be due to a number of factors. It was noticed that participants were visually distracted by the techno music, they bobbed their heads, tapped their pen or foot. Unfortunately, observation doesn't mean significance. Therefore, more research in this area is needed in order to see if music really does affect memory and learning.

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Appendix A

LIST 1

	JACKET
MOON	FAIRY
HAIR	LOVE
CUP	PARADISE
STOVE	DUDE
PICTURE	SHARK
SPRAY	DUCK
PURPLE	HAT
CARD	CLOTH
LAMP	LADY
GRASS	TRAMP
MONSTER	BLOND
CAT	BOMB
BROTHER	
RED	
JUICE	
CHAIR	
PANTS	
MIST	
MARRIAGE	
BEACH	
CHILD	
MOUSE	
SISTER	
WING	
ORANGE	
WATER	
DESK	

LIST 2

SCENE
SHAPE
SHOW
TYPE
VIEW
VISUAL
PICTURE
METHOD
TINT
VALUE
PRICE
GALERY
SPRING
FLUSH
PHONE
SEED
DROP
NAP
AIR
DAMP
PERSONAL
AMUSED
SEED
WATER
LIMB
RABBIT
STONE
STOMP
JUMBO
NUTTY
AWARD
TRIM
SWAN
PLAYGROUND
GOLD
WHIP
LINK
FOIL
COAL
SIDE

LIST 3

APPLY
ARTIST
ARTWORK
BEAUTIFUL
BORDER
BRUSH
DESIGN
COPY
DRAW
FINE
MODEL
MEDIUM
WILLOW
BEE
VIOLET
ASHES
MISTLETOE
TOOTH
THIN
EYE
BAD
OLD
CURVED
SCRATCH
KNITTING
SILVER
TOUR
DIVA
EXIT
METAL
STONE
ENGINE
ENJOY
ROAR
TICKET
WITTY
HOST
CREW
LUCKY
ECHO

Appendix B

Survey

1. What is your gender?

Female Male

2. What is your major?

3. On a scale from 1-10, one being the weak and ten being strong, how would you rate your short tem memory? Circle one.

1 2 3 4 5 6 7 8 9 10

4. What type of music do you prefer to listen to while studying?

Classical Techno No music Other

What Can You Remember? An Approach to Reading

Laura Lagemann and Allison Schulte

Reading comprehension can be affected by the reading method used, whether this is reading silently, aloud, or being read to by another. Our study measures the impact different reading methods has on the overall comprehension of a given passage. Our 90 subjects consisted of 58 women and 35 men. Subjects were randomly placed into three groups, for each of the three reading method variables being measured. Each group read the same passage. Our hypotheses for the study were that subjects reading the passage silently will recall more information about the passage than if they are read aloud to, or if they read aloud to themselves. We also hypothesized that primarily English-speaking individuals will have more correct answers on the passage questionnaire than English as second language (ESL) individuals. However, upon completion of our study, we did not find any statistical significance for either of our hypotheses.

Does an individual's ability to retain information change based on the way one reads a passage? Will individuals retain and comprehend more from a passage when reading the passage aloud, reading it silently, or when individuals have the passage read aloud to them? Our study deals with the issue of comprehending and retaining information when reading, via three different reading methods. Many people in society today read passages, articles, books, and many other reading materials. Do these individuals comprehend and retain more information when reading silently, as opposed to

aloud or when they are read to aloud? Does the language spoken impact reading comprehension and retention? Our study reflects and measures these questions.

One of the two hypotheses of our study was that if individuals read a passage silently to themselves, they will recall more information about the passage than if they are read aloud to, or if they read aloud to themselves. We also hypothesized that primarily English-speaking individuals would retain and comprehend more information resulting in more correct answers on our passage questionnaire than English as second language (ESL) individuals. We felt that reading silently to one's self would result in better comprehension, since individuals can then focus more on what they are reading, and on what they are getting out of the information they are reading. Individuals will then not have to worry about how well they are able to read, as they are not reading out loud for others to hear; they merely have to understand the passage, and be able to read it well enough for their own needs. Individuals may read the passage as slowly as they wish, and may also read over parts that maybe they do not understand as well, allowing for additional comprehension. If subjects are reading out loud to others, they may not be able to do this. In addition, reading out loud to others places an additional added stress on subjects in that they do not want to mess up, or be unable to pronounce a word in front of others, whereas reading silently aids in better comprehension. In contrast, reading silently to one's self aids in better comprehension of a passage, than having the same passage read aloud. Since subjects may be distracted by the person reading to them whether this is due to what the reader is wearing or how fast she reads, subjects may not pay as close attention to detail and information as they would if they read the passage to themselves.

In addition, if subjects are reading a passage that is in a language other than their primary language, it may be more difficult to comprehend and retain the information. This could lead to possible lower scores on the passage questionnaire given as a part of our study. On the contrary, if subjects read from a passage in a language used on a daily basis, they can focus more on what is being said. This will consequently lead to better comprehension and information retention overall.

Consequently, the purpose of this study is to determine whether or not there is a statistically significant effect of reading methods on a subject's comprehension of a passage. We wish to determine whether reading silently to one's self results in better retaining and comprehension of information in a passage, as opposed to the other two reading methods. This study is important because we will gain a better understanding of which reading method is best to use for students, when retaining and comprehending information in a passage is the ultimate goal. If we find statistical significance between the different reading methods, our findings may become useful not only for teachers, but for students and parents as well when trying to improve information comprehension.

Many studies have been completed regarding how the different reading methods and abilities individuals have affects how they retain and comprehend information. We have found many articles showing similar findings in how poor-ability readers benefit from reading out loud, as this heightens their comprehension, whereas average-ability readers benefit from reading silently. For example, according to Hale, A.D., Skinner, C.H., Williams, J., Hawkins, R., Neddenriep, C.E., and Dizer, J. (2002), it was found that high school students in particular typically comprehend more information when reading silently, when reading for comprehension (p. 12). Higher-skilled readers where found

unaffected by reading either aloud or silently their ability to retain or comprehend information was measured. This is because higher-skilled readers can comprehend and retain more information in a more efficient manner. As a college-level study, we may have average and higher-skilled subjects as participants; this could impact on our study in a direction either away from or towards our comprehension hypothesis, depending on our results upon our study's completion.

Readers with an average reading ability had higher comprehension and higher abilities to retain information when reading silently to themselves, as Hale et al. found (2007), which also applies to high school students (p. 13). This aspect of information retaining and comprehension has been found in many studies. This is an interesting piece of information which supports our hypothesis, and gives an insight into possible explanations of why one of our subjects may retain more in one reading method than another subject.

Hinchley and Levy (1988) showed that when children read, they not only focus on reading the actual words involved in the passage, but they also tie each word to the next one. While doing this, they simultaneously attempt to grasp an understanding of what is being said not only in the sentence they just read, but in the entire passage. Individuals use complex mental processes in order to comprehend what is being read. This can be difficult to do while reading, especially if reading aloud. Individuals must focus on what is being said, so that they can retain the information. However, Hinchley and Levy revealed that "skilled readers are fluent word decoders" (p. 4), and are thus able to master the task of decoding and comprehending words, and the passages in which they are contained. For individuals who may have difficulties with processing information, it may

take longer to process the information in a sentence or passage. Trying to relate the content from a sentence to the content described in an entire passage may be more difficult for individuals with learning disabilities, or individuals who have difficulties with processing information, than individuals who do not. For these reasons, we are interested in whether individuals in our study have any known learning disabilities.

The researchers, Prior and Welling (2001), found that a reader's abilities, expertise, and interest in a particular subject affects their comprehension (p. 11). Further incorporating the finding that individuals must not only focus on the words being read, but also the passage itself; and that comprehension increases when reading topics of interest, many teachers use sustained silent reading in their classrooms (p. 11). This is often used for children to help improve comprehension levels. In addition to this, Carreker et al. (2007) found that daily silent reading in the classroom for a period of fifteen minutes out of an hour-long class has helped this improvement in reading comprehension levels. Thus, the incorporation of daily silent readings in subjects which interest and enhance the abilities and expertise of a student may help to enhance the overall reading comprehension found among students. In effect, we examined how many hours of leisurely reading time our subjects engage in weekly, according to what they reported on our survey, and compared this to the reading comprehension score they received over the passage material read.

Further expanding on these ideas, researchers Ping-Ha and Chi-Ting (2000) found that sustained silent reading is beneficial to individuals. Their study found positive improvements in regards to reading skill levels and reading comprehension (p. 11). These improvements occurred as an outgrowth of using sustained silent reading in classrooms.

These results were found in students whose first and primary language was English, as well as those whose primary language was not. In effect, silent reading may be beneficial to foreign or non-English speaking students, as well as to English-speaking students, in regards to comprehension. These findings relate to our second hypothesis, where we measure the effects of primary language on comprehension when reading a passage with different reading methods. If more English-speaking than non-English speaking subjects comprehend and retain more information when reading silently than in the other reading conditions, we may consequently be able to find statistical significance with our second hypothesis.

Research found by McCallum, R.S., Sharp, S., Bell, S.M., George, T. (2004) shows that individuals who reside in rural areas, as opposed to urban or suburban areas, have lower reading comprehension levels when reading orally (p. 244). Oral reading was also found to be much more beneficial for males than females in regards to individuals who have learning disabilities. These researchers also found that students enhanced their comprehension when reading orally, because they need to concentrate and focus more in order to satisfy the listener by reading well (p. 243). This does not happen when reading silently, as the reader can skip over difficult words. In McCallum et al.'s study, "students reading aloud to another took, on average, thirty-percent longer to read a passage than those reading silently" (p. 245), although individuals who read silently to themselves read more efficiently. This entailed positive results of reading comprehension in the study, which also relates to what we are trying to measure in our study.

All in all, we have found many sources and studies which help to explain and give a background understanding of what we are trying to measure in our study. Many studies

have effectively been completed concerning the effects of reading methods on the comprehension of individuals. These studies show that there are real-life connections in this field of study, which helped to fuel our study. In addition to this, connections between reading comprehension for English and English as second language individuals have also been found in studies. This, in effect, gives individuals a more comprehensive understanding of our second hypothesis. Furthermore, our goal is to find related results in our study, to where both of our hypotheses are supported. These results will show the benefits of using different reading methods on society. The effects of language and different reading methods on comprehension and retaining information should perhaps be looked further into for use in different school systems, and when studying, so that the most effective method may be used.

Method

Participants

Altogether there were 93 participants in our study. The experiment consisted of 35 men which left 58 women. There were 67 primarily English-speaking subjects in our study, and 26 other subjects spoke a primary language other than English. These other languages included Spanish, Nepali, Swedish, and Japanese. In the group that had to read aloud to themselves there were a total of 31 participants, 30 in the group that read silently, and 32 in the group that was read aloud to. All participants were recruited from the Lindenwood University Human Subject Pool, which consists of any psychology or sociology 100 level students and all participants received extra credit from their participating professors.

Materials

The materials used in this experiment included the room used which was the psychology lab in Young Hall Room 105 Lab B. Already in the room was a table with several chairs around it, a desk and a computer which was not used for the experiment. We used papers such as the informed consent forms, feedback letters, and participant receipts, a demographic survey asking them simple questions about their Cumulative College GPA, their year status in school, what their primary language is, and whether they are male or female. They were also asked how much time they spend reading leisurely, such as how many hours per week they read for pleasure. Their reading style preference was also asked, as well as whether they considered themselves visual or auditory learners, and if they have learning disabilities that they know of. A passage on Ronald Reagan consisting of general info about his life, and a questionnaire with questions pertaining to the Ronald Reagan passage was also given to the subjects. Participants were also provided with a pen to fill out the paperwork.

Procedure

Upon walking into the psych lab, participants from the Lindenwood University Human Subject Pool were unknowingly randomly assigned to one of three groups: reading a passage aloud to themselves, reading the same passage silently to themselves, or being read the same passage out loud by the experimenter. Random assignment was used to determine which participants were assigned to what group, based on the order that they were scheduled to participate as they walk into the lab. Students were first asked to fill out the required paperwork for the study, such as the informed consent forms (Appendix A) and signing their name onto the participant sign-in sheet, as well as their

participant receipt. The participants then filled out the same non standardized survey (Appendix B). Once they were placed in a group (Appendix C), and had completed the survey, each participant was given the passage to read (Appendix D), accordingly with their assigned group. They were given as long as needed to read or be read the passage, which typically took anywhere from 3-6 minutes, and the passage was then taken away from them. This was done to prevent them from seeing any answers to the following questionnaire. Next, they were asked to answer a questionnaire (Appendix E) with several questions pertaining to the passage. The same non standardized questionnaire was used for all three groups. Participants were given adequate time to complete the questionnaire. Once the subjects finished the questionnaire, the experimenters gave a short debriefing along with the feedback letter (Appendix F) to explain what it is we are researching, and gave our contact information to the experimenters so that they may see the final results of the study if they wish. After being debriefed, the participants were verbally thanked for their participation.

Results

We conducted a one-way ANOVA for our hypothesis that individuals who read silently will answer more questions correctly than people who read aloud or get read to aloud. The result of this found no statistical significance: $F(2, 90) = 1.633$, $p > .05$. We also did an independent samples t-test for our second hypothesis that individuals whose primary language is English will answer more questions accurately than individuals whose primary language is not English. We did not find statistical significance for this hypothesis: $t(91) = 1.340$, $p > .05$. We found no statistical significance when comparing the number of correct responses on the Reagan questionnaire to any of the other variables

we asked about on our initial survey, including learning disabilities, sex, previous knowledge about the passage, year in school, and Grade Point Average. The mean for Grade Point Average is 3.132 (.5312); the mean for year in college is 1.89 (.949) meaning most of our subjects were in their freshman or sophomore year in college; mean hours of leisurely reading time a week is 2.41 hours (2.626); and the mean reading style preferred is being read to aloud, with a mean score of 1.14 (.457), as reading aloud is scored as one.

Discussion

The results of our data showed that there was not a significant difference in reading styles and memory recollection. An interesting occurrence at the beginning of our study was that both student researchers as well as the research supervisor thought that a different reading method from the other would yield better results for our study. What we realized as an outgrowth of this study is that every individual is different in regards to learning ability. Therefore, whichever reading style works best for one individual is the one that he or she will recall more information with. For instance one of our participants' that was not excluded from our study was blind. We obviously had to read aloud to him since he was not able to read the passage on his own. Obviously for him this reading style is something that he is used to and therefore has easier time recalling information. In finding this, we realize that we should have done a within subjects design for this study, instead of a between-methods design. The participant would read one of three passages aloud, the other silently, and the third one the experimenter would read aloud to the participant; with a questionnaire after each one. This way we could have seen more

significance between the different reading styles and the individual's memory recollection.

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 reading capabilities and habits, as well as other general information, and that I will also read a short passage of literature with following related questions. 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 my 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 HSP 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:
Laura Lagemann 636.328.5989
Allison Schulte 314.484.0722

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

Appendix B
QUESTIONNAIRE

SUBJECT ID NUMBER: _____ (Assigned by Researcher)

1) Are you: MALE FEMALE?

2) What is your cumulative college GPA? _____

3) What is your status in school?

   Freshman Sophomore Junior Senior Grad Student

4) On average, how many hours do you read for pleasure during the week?
   _____

5) What is your preference on reading? Would you rather:

   Read quietly to yourself

   Read out loud to yourself

   Have someone read out loud to you

6) Please read the descriptions below:

   Visual learners typically learn better by visually picturing information when studying, from studying graphs, and other sources of information which one can see. They typically learn better from reading themselves than from having others read or lecture to them the same information.

   Auditory learners typically learn better hearing others lecture or read information to them, than by visualizing, reading information, or using visual media such as graphs for learning use. They learn better by having themselves or others speak out loud the information which they are learning, instead of reading information to themselves.

   Based on the information above, which style of a learner do you consider yourself to be? Visual Auditory

7) What is your primary language? _____

8) Are you aware of any condition that you may be in that may have hindered your performance today? (e.g., learning disability, vision problems, hearing problems, etc) YES NO

Appendix C

Assigned Groups

	Reading Method		
Trial Number	**A** Read Aloud	**B** Read Silent	**C** Read To
1		X	
2	X		
3			X
4	X		
5		X	
6			X
7		X	
8			X
9	X		
10		X	
11			X
12	X		
13		X	
14	X		
15			X
16		X	
17	X		
18			X
19	X		
20		X	
21	X		
22			X
23		X	
24			X
25	X		
26		X	
27			X
28	X		
29		X	
30			X
31		X	
32	X		
33	X		
34		X	
35			X
36			X
37		X	
38	X		
39		X	
40	X		
41		X	
42	X		
43			X

44		X	
45			X
46	X		
47		X	
48		X	
49	X		
50			X
51	X		
52			X
53	X		
54			X
55		X	
56	X		
57		X	
58			X
59	X		
60		X	
61			X
62		X	
63	X		
64			X
65	X		
66			X
67		X	
68			X
69	X		
70	X		
71			X
72			X
73			X
74		X	
75			X
76		X	
77			X
78		X	
79	X		
80			X
81	X		
82		X	
83			X
84		X	
85	X		
86		X	
87			X
88	X		
89	X		
90		X	

Appendix D

Biography of **Ronald Reagan**

Profile of the fortieth President.

www.**whitehouse.gov**/history/presidents/

On February 6, 1911, Ronald Wilson Reagan was born to Nelle and John Reagan in Tampico, Illinois. He attended high school in nearby Dixon and then worked his way through Eureka College. There, he studied economics and sociology, played on the football team, and acted in school plays. Upon graduation, he became a radio sports announcer. A screen test in 1937 won him a contract in Hollywood. During the next two decades he appeared in 53 films.

As president of the Screen Actors Guild, Reagan became embroiled in disputes over the issue of Communism in the film industry; his political views shifted from liberal to conservative. He toured the country as a television host, becoming a spokesman for conservatism. In 1966 he was elected Governor of California by a margin of a million votes; he was re-elected in 1970.

Ronald Reagan won the Republican Presidential nomination in 1980 and chose as his running mate former Texas Congressman and United Nations Ambassador George Bush. Voters troubled by inflation and by the year-long confinement of Americans in Iran swept the Republican ticket into office. Reagan won 489 electoral votes to 49 for President Jimmy Carter.

On January 20, 1981, Reagan took office. Only 69 days later he was shot by a would-be assassin, but quickly recovered and returned to duty. His grace and wit during the dangerous incident caused his popularity to soar.

At the end of his two terms in office, Ronald Reagan viewed with satisfaction the achievements of his innovative program known as the Reagan Revolution, which aimed to reinvigorate the American people and reduce their reliance upon Government. He felt he had fulfilled his campaign pledge of 1980 to restore "the great, confident roar of American progress, growth, and optimism."

Appendix E
Questionnaire

1. Ronald Reagan was born in what year?

    A. 1910
    B. 1920
    C. 1913
    D. 1911

2. What is Ronald Reagan's middle name?

    A. William
    B. Watson
    C. Wilson
    D. Wallace

3. List at least two activities from the passage that Ronald Reagan participated in before becoming president.

---

4. Who did Reagan choose to be his Vice President?

---

5. The _____ "aimed to reinvigorate the American people and reduce their reliance upon Government."

6. Have you ever read or studied information on Ronald Reagan before? YES NO

Appendix F

Feedback Letter

Thank you for participating in our study. The questionnaire was used in order to determine people's different reading preferences and to see how much information a person retains through different reading processes. Our hypothesis is that participants who read a passage silently to themselves, will be able to recall more information about the passage than if they are read aloud to, or read aloud to themselves. We think this study is important because we can consequently gain a better understanding of the best reading method students use to help them retain information when studying. We think that if we find a significant correlation between the different reading methods, that it might be useful for not only teachers, but to the students as well.

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

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. 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:
Allison Schulte 314.484.0722 aschulte127@lionmail.lindenwood.edu
Laura Lagemann 636.328.5989 lal846@lionmail.lindenwood.edu

Supervisor:
Dr. Michiko Nohara-LeClair 636-949-4371 mnoharaleclair@lindenwood.edu

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Think Again

Allison J. Smith and Rachael E. Wilson

A study was conducted to determine if people recall events as they actually exist or if schemas and prior expectations profoundly distort memories. The purpose was to establish if typical items present and not present in a particular scene would be recalled most frequently due to false memory, and if people are skeptical of their own mental abilities. Participants (n=45) briefly viewed 3 photos with typical and atypical items present and not present, then selected items they believed were in the picture. Analysis of the data partially supported our hypothesis because it indicated that typical and atypical items present were recalled the most (atypical was not included in the hypothesis), and typical items not present were recalled second most often.

An interactive experiment was conducted to assess how memory formation, memory reconstruction, and false recall affect mental processing abilities, particularly retrieval capabilities. In conjunction with utilizing a series of memory recall tests, a brief questionnaire was administered to establish participants' beliefs regarding their personal memory, their perception of their recall, and their demographic background information (i.e. age, gender, student grade level, grade point average, and program of study). The primary purpose of this experiment was to use a within-subjects design to determine if people actually recall situations as they exist or if they perceive the scenarios and then unintentionally employ their schemas and/or prior expectations to fill in the parts they think should be there. A secondary aim of this experiment was to determine the degree to which people are skeptical of how they recall items and events; however, since this was

not the main focus of the study, this aspect was found by analyzing the answers provided on the individual questionnaires.

An elementary understanding of certain variables utilized in this experiment should be acquired in order to gain heightened awareness and familiarity with the overall objective of this research. One basically needs to understand the foundation from which this idea was derived, and that entails grasping the notion of how the researchers believe information progresses within the human mind. First, according to Purdy, Markham, Schwartz, and Gordon (2001), memory can be defined as, "an internal record or representation of some prior event or experience" (p. 9). In addition, they state that an information-processing approach is used by the brain to convert sensory input into memory, whether it may be short or long-tem memory, and that structure consists of three separate stages. Those levels are encoding, which involves changing received stimuli into a form recognized by the organism; storage, which is placing the encoded data in the mind for future use; and retrieval, which requires certain steps within the brain itself to extract the information that was stored (Purdy et al.).

A second paradigm that requires explanation is called the network model of memory, which is explained by Cook and Cook (2005) as the way associations between items encountered in life are stored. They state that memory works by having a central idea or node as a hub, which has corresponding items or beliefs connected and associated with it at varying strengths. This entire concept relates directly to schemas, which are frameworks that people use to organize and interpret information (Myers, 2004). A final element of this project that should be understood is memory reconstruction and false recall. Memory reconstruction involves recalling information that has been retained,

while unconsciously inferring the rest. According to Cook and Cook, memory reconstruction happens because memories are not mental copies of reality; therefore, when they are recalled by the individual, only some parts of the scenario are stored and the rest must be automatically inferred (i.e. using prior, similar experiences) in order to produce a complete, whole memory. Whereas, false recall (also referred to as false memory) is having memories for events or items that never actually took place or were there in the original condition, but instead only seem to fit with the given situation or prompt (Purdy et al.).

Along with acquiring the knowledge of the aforementioned elements comes understanding previous research performed in this field of interest. There have been extensive prior studies conducted concerning how memory configuration in general occurs, and how memory reconstruction and false recall affects the entire process. One such study was performed by Peters, Jelicic, Haas, and Merckelbach (2006) where they used 72 participants to evaluate how presenting a list of related words would lead those individuals to create a common word that links them all; however, that basic node was never stated to the participants. Consequently, they believed that hub word would be recalled frequently by the participants in various tests and that would suggest that false memory does affect retrieval ability. This particular study intertwined directly with our research because we both believe that memories placed into storage will change according to the preexisting schemas in a human's mind, which will then formulate the output people are capable of evoking. These experimenters found that reconstructive activity does occur significantly in tests of memory recall, and mentally healthy

individuals falsely recalled the hub word 65-80% of the time depending on the retrieval task that was given to them (i.e. a test of free recall or a test of basic recognition).

Another study that expands upon our preconceived belief that memory is not completely accurate and is subject to extreme distortions was carried out by Loftus and Manning (2001). These researchers utilized 276 participants and had them complete 40-item life event inventories. They then had these people entertain various imagined, hypothetical situations that could have happened to them when they were children based off their personal history. Finally, they had different participants take the same life event inventory again at diverse stages in time (i.e. one day, one week, or two weeks after the initial meeting) via the internet to determine if those imagined scenarios creep into their memories in any form. After statistical analyses were conducted, they discovered memories change with time and the more passage that happened, the more alteration and distortion tended to occur.

Along the same lines of working to pin-point how and where exactly the information-processing system fails, Goodwin, Meissner, and Ericsson (2001) did research that centered around trying to gain insight about assorted encoding strategies affect on recall aptitude. They used 80 participants and a procedure that had two various experimental conditions, which each had the two same basic levels. These researchers were testing to appraise how verbalizing words or remaining silent at the time of encoding changed the percentage of words recalled correctly on subsequent examinations. Their findings indicated that when the scenario trying to be encoded is elaborative or complex (i.e. story-like), it benefits the person to verbally discuss it while processing it in order to reduce the chances of false memories being formed. Whereas, if

the task is simple or repetitive in nature (i.e. remembering a list of words or numbers) the person should not articulate the items because it will substantially increase the likelihood of creating misconstrued information at the time of encoding. This discovery aided us in understanding how every level of the information-processing approach are all subject to undergoing system failures.

A notorious and prominent researcher in the field of false memory, Elizabeth Loftus, provides explanation about how this entire failure phenomenon may possibly occur in the first place. In an article authored by Loftus (2003), she described the numerous studies done by her and her associations, which ultimately lead her to conclude that the power of suggestion and the inability to simultaneously process incoming details is primarily how problems develop. She basically found that when questions are stated in a certain manner or if photographs and stories are doctored in subsequent viewings or recitations, it primes the individual to pullout related details from storage to facilitate a memory that seems most plausible with the given external cues. In addition, she established that human's memory is filled with an infinite number of similarly experienced events and the majority of them tend to eventually leak over into each other in order to provide maximum storage capacity in the mind. Loftus finally expressed that people tend to assume their personal memory is not prone to tremendous amounts of error; therefore, they typical convey memories, or false memories, with much confidence, which in turn makes people even more reassured in their recall ability.

Stemming from the idea that the lack of skepticism within people towards their own memory capabilities is very problematic, comes the implications of how it translates into societal functioning. Schacter (2001) stated in his research that in the late 1990s in

the United States more than 75,000 criminal trials were ultimately determined on the basis of eyewitness testimony alone. He went on to further describe how in an analysis he conducted on 40 wrongfully accused individuals (DNA evidence eventually exonerated them) that 36 of them were incarnated based off mistaken eyewitness testimony. Schacter also explained how source misattributions, which is correctly recognizing information but not properly recognizing where it came from, and unconscious transference, which is unknowingly confusing memories of two similar events or objects, can both account for how the majority of false memory are created.

In a final experiment that contradicted our core beliefs, but ultimately assisted in our understanding of memory formation was conducted by Marsh, McDermott, and Roediger (2004). They recruited 36 participants in order to determine how the placement of the hub word on a list of related items influenced which words are eventually recalled. They performed systematic recognition and recall tests on the participants and finally found that false memories do occur frequently, but are not necessarily guaranteed when by priming people with certain information. They also decided that the emotional state of the individual is exceptionally important when encoding items into memory. These findings provided further proof that not only is memory incredibly malleable, but the idea of how memory precisely functions requires extensive future research since its capabilities are largely unknown.

Our research is primarily designed to add to the body of existing experiments, and thus it predicts certain aspects pertaining to the faintly understood topics of memory retrieval and formation as a whole. Our hypothesis states that if a participant is given a series of three photos with typical and atypical items present the person will recall the

typical items present most often (determined by the selected items on a given list including typical and atypical items present *and* typical and atypical items not present). Next, the person will recall the typical items not present the second most frequently due to false memory. In addition, we subsequently believe that participants do not generally realize how faulty their memory actually is, and lastly we predict all this knowledge could ultimately transpire into providing insight about the accuracy, or lack there of, pertaining to eye-witness testimony.

Method

Participants

The participants utilized in this research project consisted of Lindenwood University students recruited from the Human Subject Pool (HSP), as well as other university students not part of HSP, but interested in the study. Twenty-two men and 23 women from the ages of 17 to 27 (M = 20.53) comprised the final population, with all subjects, but one, being current undergraduate students (see Figure 1 for a compilation of class statuses). Among the participants, there was a very diverse set of student majors, where Psychology appeared most frequently with a total of nine students majoring in this area. The grade point averages of subjects ranged from 2.1 to 4.0 (M = 3.23). The students recruited from the HSP received extra credit for their introductory social science courses as compensation for their participation in this study; other students received Starburst© candy in return for their participation. The data collected from subjects with visual impairments was to be discarded; however, the subjects who participated in this study were not visually impaired in any such way. Data from one subject was discarded

because the subject's age was more than three standard deviations from the mean, making the subject an outlier.

Materials

A computer and printer were used to structure and print the informed consent forms, the non-standardized memory questionnaires, feedback letters, participant receipts, participant lists, experiment description form, data recording sheets, respondents answer sheets, and final experimental finding documents. The informed consent form allowed the experimenters to get documented consent from all participants via signature, which verified that the participants understood the activities entailed, any risks involved, the option to refuse participation and withdraw at any time and without any consequences, information will be unidentifiable and kept confidential, and questions may be presented to either experimenter at any time (see Appendix A). The memory questionnaire consisted of 12 items covering demographics, personal memory rankings, recently forgotten information or items, names of experimenters and experiment, and visual impairments (see Appendix B). The feedback letter simply thanked subjects for their participation, informed them of the purpose of the study, and listed experimenters' contact information for questions and follow-up information (see Appendix C). A respondent answer sheet was utilized after each scene was individually viewed for 20 seconds. The answer sheet was in a forced choice format that contained the five typical items present, five atypical items present, five typical items not present, and five atypical items not present. The participants were instructed to circle all the items they believed were present in the picture they previously viewed (see Appendix D).

A digital camera was utilized to capture the office, kitchen, and park scenes that were created by the experimenters, which contained the items listed in Table 1 (see Appendix E for sample picture). Photo paper in the dimensions of 5 X 7 (inches) was used to display the scenes with color detail. A pen was supplied to each participant so that they could fill out the required forms and select their responses on the questionnaire and answer sheet. A stopwatch was also used by the experimenters to designate time passage. The experiment was conducted in rooms that contained two desks, three chairs, and average wattage florescent lighting.

Procedure

All participants were tested individually in a private room and presented with two informed consent forms upon arrival. Participants read and signed both forms, and were verbally instructed to keep one of the forms for their personal records. The subjects then signed in on the experimenters' record sheet. A questionnaire regarding demographic information, their beliefs about their memory, and visual impairments they may have was given after they completed signing in. An anonymous subject identification number was assigned to each participant on the questionnaire and then used on subsequent answer sheets to ensure confidentiality. Next, participants were verbally informed that they would have 20 seconds to view one prearranged scene and then be asked fill out a data sheet corresponding to that scenario. They were also told that they would repeat this exact procedure two more times, for a total of three scenes.

After the instructions were understood by the subjects, one experimenter handed the participants a photograph while the other experimenter started the stopwatch. Once 20 seconds had elapsed, the participants were instructed to submit the picture back to the

experimenter, who in turn presented a single 20-item list answer sheet to the subjects with the verbal instructions to circle every item they believe they saw in the picture they just viewed. When the participants finished their selections, they were given a ten second break and then presented with the next prearranged scene. After the subjects completed all three viewing sessions and related respondent answer sheets, they were handed participant receipts and a feedback letters. The experimenters aided the subjects in properly filling out the participant receipts, and then debriefed the participants about the objective of the research project and how their information will be kept confidential. Lastly, the order of the three pictures was counterbalanced among the 45 participants using a Latin square design. This was done to reduce practice effect and minimize the influence of the order presentation.

Results

A one-way repeated measures analysis of variance (ANOVA) showed a significant difference between types of items recalled in each scene, $F(3, 42) = 5.017$, $p < .05$. Post hoc tests were then conducted to determine where the significant differences existed, and they revealed significance between five of the six pairs: typical-correct items and typical-added items, $t(44) = 18.005$, $p < .05$, typical-correct items and atypical-added items, $t(44) = 37.866$, $p < .05$, atypical-correct items and typical-added items, $t(44) = 10.595$, $p < .05$, atypical-correct items and atypical-added items, $t(44) = 20.437$, $p < .05$, and typical-added items and atypical-added items, $t(44) = 6.310$, $p < .05$. The paired items that revealed no significance were the typical-correct and atypical-correct items, $t(44) = .000$, $p > .05$ (see Table 2 for all means and standard deviations).

The results of the questionnaire indicated that the average number of tracking devices used was 2.24 on a scale ranging from one to seven. The average number of forgotten items or information within the past week was 2.68, with a range of 0 to 10. On a nominal scale rating memory, the majority of subjects rated their own memory as *average*, as opposed to the other categories: *poor, below average, above average,* and *superb.* The average agreeability rating of the statement, *I always recall all information and events I experience fully, completely, and accurately*, was 6.38, based on a scale from 0 to 10, with 10 being complete agreeability.

Discussion

The central findings of the analysis partially supported the hypotheses that typical items present and not present would be recalled in the greatest proportion out of the four categories of items. In congruent with the first hypothesis, typical items present were recalled the most; however, so were atypical items present, which occurred are the exact same averaged frequency. The latter part of the findings was a surprising discovery given that atypical items present and not present were hypothesized to be in the last two tiers in the sequence of most often recalled items. The results showed that anything present in the picture, regardless of typically, would be recalled more than items not even present, which does moderately agree with out first proposition because we stated that typical items present would be recalled the most.

The next hypothesis for our study specified that typical items not present would be recalled second most often, and this concept was fully supported due to this cluster falling into the second most commonly recalled group of items. After post-hoc tests were performed, the outcomes did demonstrate that the typical items not present were recalled

significantly more than atypical items not present and significantly less than the first two categories of present items (which were recalled at an equal amount). These results further reiterated the fact that typical items not present were remembered at the second most frequency, and this may be attributed to false memory given that these items were absent from each photo.

Secondary findings showed that people are generally skeptical of their mental capabilities. This was determined by the results of the individually administered questionnaire, which was a self-report measure. People typically used approximately two devices when trying to remember things they must do, they rated themselves moderately (an average of six out of ten) on a scale of having a perfect memory, and the majority of participants stated their memory as average (average was the most frequent response out of a five-item scale ranging from poor to superb). This concept of having skepticism towards one's own retrieval ability is a profound discovery because we were unsure how people generally regard their individual memory. We initially believed that people are not doubtful when it comes to things they believe they saw; however, the self-report answers revealed that people due in fact realize their personal recall might contains flaws and distortions.

All of these complied data results can be further compared to previous research literature for the purpose of trying to establish general trends, consensus, and/or contrasts between findings. Our results did follow the preexisting notion that false memory does significantly intertwine with recall ability, and that memory reconstruction does occur considerably within the majority of people's mental retrieval process. However, even though our data matched the trend of false memory being influential in recall, it diverged

when it pertained to the level of skepticism towards personal memory. The participants in our study did rate their memory as less than perfect and stated they do typically forget details, which showed people do believe their memory does contain errors. Previous references literature found the opposite belief because it stated that people in their research do not believe their memory is prone to misrepresentations. Consequently, there is some disagreement on whether or not people believe their memory is faulty when it comes to recalling events they observed.

Our study did find some significant results; however, it is not without limitations and error. First, because our population was limited to 45 Lindenwood University students, we were unable to get a representative sample of the general population. Also, many of our subjects were only interested in the extra credit compensation and, therefore, completed the experiment as fast as possible and inefficiently. This included mainly underclass (freshmen and sophomore) subjects recruited from the HSP. While conducting the study, several participants interrupted their 20-second viewing period by asking questions, or even announcing they were done viewing the scene.

In the future, we would be sure to gather a representative sample including more subjects across different demographics. Also, extraneous variables, such as noise and others entering and leaving, would be controlled for. Subjects would need to be adequately informed that they will have only 20 seconds to view the scenes, without interruption, including questions.

This experiment adds to the existing body of false memory knowledge and helps people further understand the extent to which their memory is prone to distortions. Furthermore, other researchers could build off of this study by integrating more pictures

and/or items into each scene. This would provide even more data to the faintly understood area of brain capabilities and neurology. Ultimately, the field of memory is not fully explored and any reliable information will only help people uncover the mysteries surrounding the human brain.

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Author Note

Allison J. Smith, Psychology; Rachael E. Wilson, Psychology, Lindenwood University.

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Correspondence concerning this article should be addressed to Allison L. Smith, Lindenwood University, Saint Charles, MO 63301. Email: Cagney530@aol.com. Or, Rachael E. Wilson, Lindenwood University, Saint Charles, MO 63301. Email: Rachael0704@aol.com.

Table 1

Items in Scenes

	TYPICAL ITEMS PRESENT	ATYPICAL ITEMS PRESENT	TYPICAL ITEMS NOT PRESENT	ATYPICAL ITEMS NOT PRESENT
Office	Computer Pencils Opened Book Briefcase Desk Lamp	Coca-Cola© Bottle Iron Baseball Trix© Cereal Box Fork	Printer Calendar Book Ends Pens Stapler	Snake Birdhouse Spoon Mittens Blue Flowers
Kitchen	Teapot Coffee Maker Liquid Dish Soap Dishwasher Toaster	Dumbbells Pink Rubber Ducky Toilet Plunger Toolbox DVD Case	Wall Clock Oranges Dinner Plates Tea Cup Refrigerator	Yellow Rubber Ducky Luggage Laundry Basket Credit Card Ruler
Park	Tree Shadows Bench Dog Lamp Post Yellow Flowers	Stop Sign Television Set Treasure Chest Milk Gallon Apple	Bird Clouds Squirrel Child Purple Flowers	Do Not Enter Sign Dog Leash Scissors Water Jug License Plate

Table 2

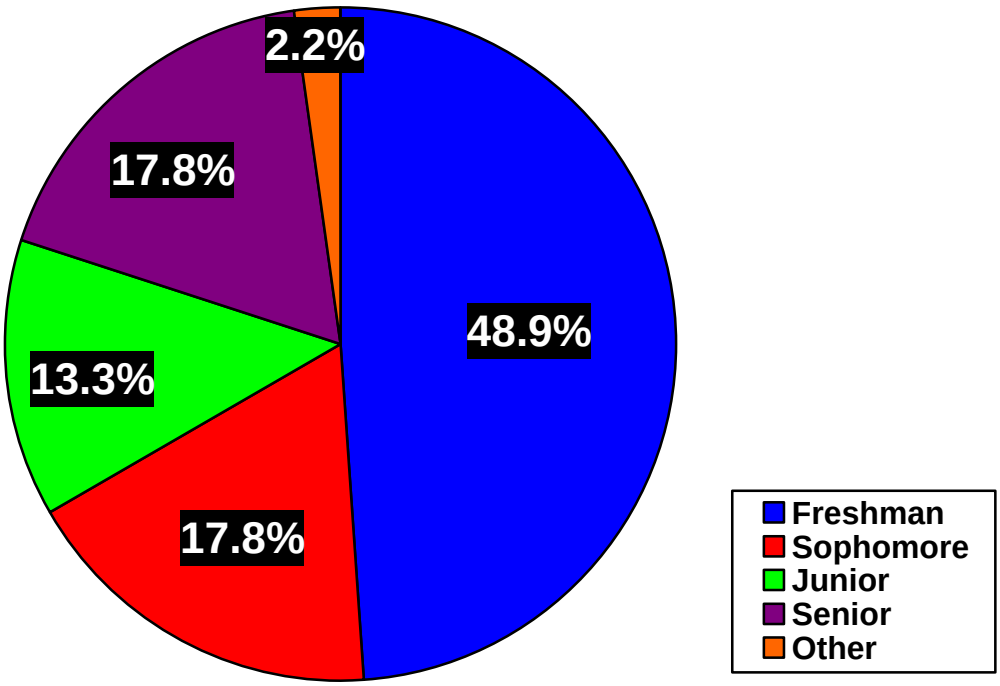
Means and Standard Deviations of Items

	MEAN	STANDARD DEVIATION
Typical Items Correctly Recalled	10.71	1.79
Atypical Items Correctly Recalled	10.71	2.82
Typical Items falsely recalled (Added)	3.11	2.69
Atypical Items Falsely Recalled (Added)	0.80	0.89

Figure Captions

Figure 1. Percentage of subjects recruited from each grade level.

Figure 1



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 regarding my perceptions about my individual memory and participating in an experiment, which involves looking at three particular scenes and then recalling items I believed were present in the scene. 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 HSP 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:

Allison Smith
(636) 926-3750
Cagney530@aol.com

Rachael Wilson
(314) 941-4570
Rachael0704@aol.com

Supervisor:

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

Appendix B

Memory Questionnaire

SUBJECT ID NUMBER: _____ (Assigned by Researcher)

1) Are you: MALE FEMALE

2) Age: _____

3) Grade level: Freshman Sophomore Junior Senior Other: _____

4) Major: _____

5) Grade Point Average: _____

6) How do you keep track of things to do? (CIRCLE ALL THAT APPLY).

day planner your memory wall calendar other people post-its

electrical device (i.e. computer, personal digital assistant, cell phone)

other:_____

7) How would you rank your memory?

POOR BELOW AVERAGE AVERAGE ABOVE AVERAGE SUPERB

8) CIRCLE on the scale of 0 to 10, how much do you agree with this statement **about yourself**: **I always recall all information and events I experience fully, completely, and accurately.**

0 1 2 3 4 5 6 7 8 9 10

Never True Partially True Always True

9) How many times in the last **7 DAYS** have you forgotten to do something? _____ times

10) What is the **name of this experiment**?

_____

11) What is the **name of the experimenters**?

_____

_____

12) Do you have any **visual impairments** that are not corrected which would obstruct you from clearing viewing a **color photograph** and then circling answers on a data sheet? YES NO

Appendix C

Feedback Letter

Think Again

Thank you for participating in this study. The experiment will be used to determine whether prior knowledge and schemas influence a person's recall ability and how false memory manipulates that capability. The photographs used in the study contained typical items that were present, atypical items that were present, typical items that were not present, and atypical items that were not present. We predict that students will remember the typical items present in the scene the most, and then recall the typical items not present in the scene the second most often. For instance, in the office scene, we hypothesized that the computer, opened book, desk lamp, pencils, and briefcase would be recalled most often, followed by pens, book ends, stapler, calendar, and printer.

Please know that we are not interested in individual results, but the results of the group of participants as a whole. All identifying information about you will remain anonymous.

If you have any questions, please contact any of the following experimenters: Allison Smith or Rachael Wilson, contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings, please contact us after May 18, 2008 and we will make it available to you.

Thank you again for your participation.

Sincerely,

Allison Smith
(636) 926-3750
Cagney530@aol.com

Rachael Wilson
(314) 941-4570
Rachael0704@aol.com

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

Appendix D

Experimenters cut between each scene selection and presented them one at a time so the participants did not have prior knowledge of what to look for in each picture.

Respondent Answer Sheet

Circle every item you believe you saw in the picture just presented to you.

computer	pencils	calendar	fork
Coca-Cola© bottle	baseball	briefcase	mittens
iron	opened book	desk lamp	pens
snake	birdhouse	book ends	blue flowers
printer	Trix© cereal box	spoon	stapler

Circle every item you believe you saw in the picture just presented to you.

teapot	toilet plunger	oranges	dishwasher
dumbbells	luggage	credit card	DVD case
yellow rubber ducky	toolbox	liquid dish soap	toaster
wall clock	laundry basket	ruler	tea cup
pink rubber ducky	coffee maker	dinner plates	refrigerator

Circle every item you believe you saw in the picture just presented to you.

bird	bench	stop sign	lamp post
do not enter sign	dog	child	gallon of milk
shadows from the trees	squirrel	purple flowers	apple
dog leash	scissors	television set	license plate
clouds	jug of water	treasure chest	yellow flowers

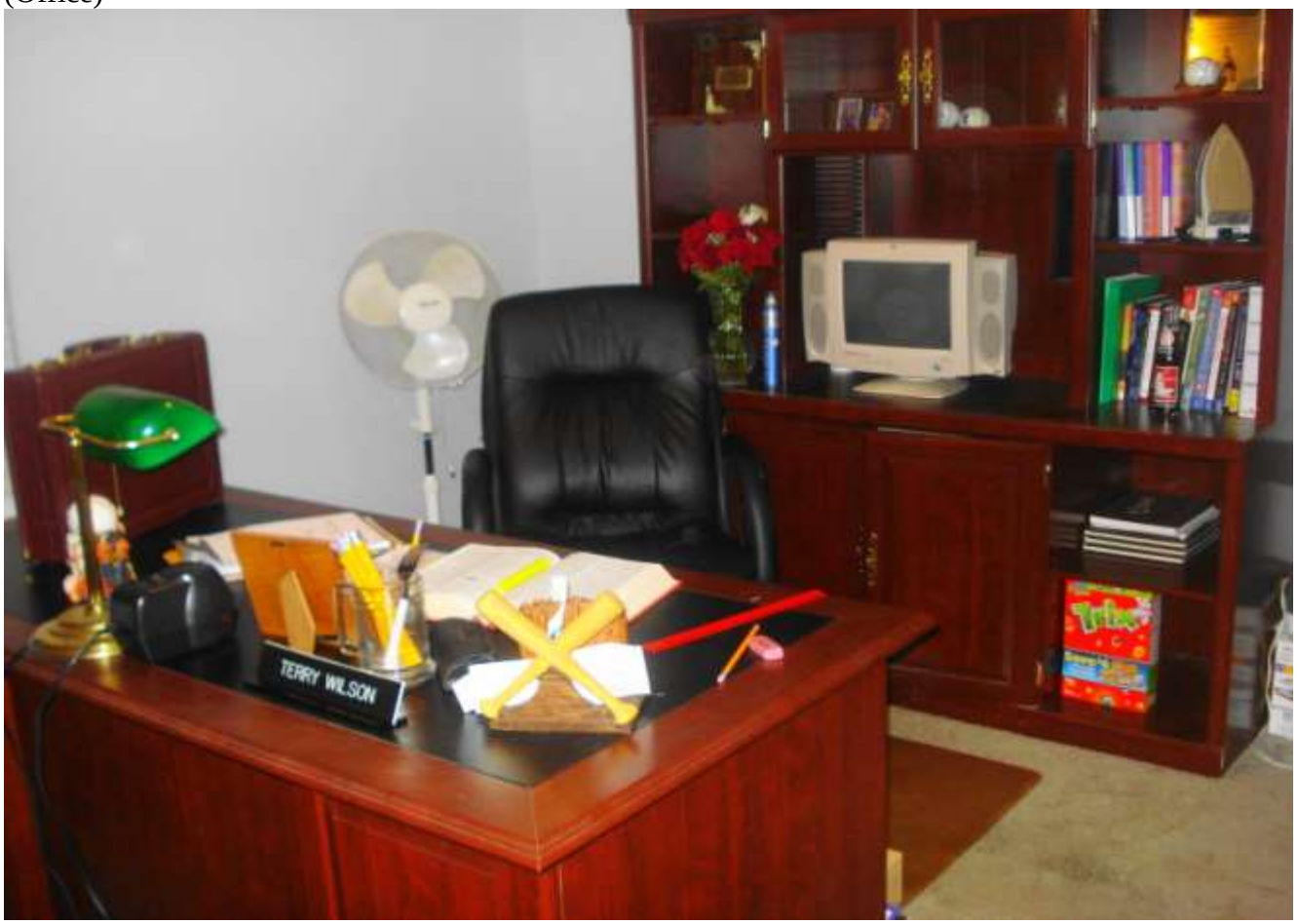
Appendix E

Materials Description

This study will require the use of three pictures of various commonplace scenes for the purpose of testing the participant about their recall ability. The three scenes will be: an office, a park, and a kitchen. This experiment will also have questionnaires that are administered to each participant, and will require the use of a data sheet to collect the data.

Sample Pictures

(Office)



Does Time Distract?

Zachary A. Pashea

The purpose of this study was to determine if the implementation of placing a large clock in front of someone would affect their performance level on a timed task. Twenty-eight undergraduate students were asked to complete a word find. Fifteen of the undergraduate students were simply told when to start and stop working while the rest possessed knowledge of exactly how much time they had left by way of a large clock, which was placed in front of them. I hypothesized that participants with the large clock in front of them would find fewer words. The results revealed a statistically non-significant difference between the two distinct groups.

When students are asked to perform a task in a classroom environment, specific intangibles exist that may hinder the performance levels of the students. For example, if the students are instructed by a professor that they have a certain amount of time to complete the task, it is possible that the students' knowledge of exactly how much time is remaining may indeed affect the students' performance level on that particular task. When students are able to see every second click down, their anxiety level may increase in a dramatic manner, which in turn, could jeopardize their otherwise, acute mental focus. When the students begin to worry about the amount of time that is remaining to complete the task, their minds could also begin to seemingly give up. This could result in their once high concentration levels becoming distracted not only by the time, but by any other intangible that is present in the classroom, for example, a vibrating heating pipe.

There are a plethora of experiments that request for participants to complete a task and while doing so, the participants are timed. However, the fact that the participants are being timed could indeed affect their performance levels, especially if they possess knowledge of exactly how much time is remaining at any specific moment. The knowledge of how much time is remaining could be seen as a threat to students, which in turn could negatively affect their mental functioning. In a study targeted at analyzing the effects of test anxiety and evaluative threat, results illustrated that even if students possessed little or no test anxiety before having taken a test, all of these students performed worse under evaluative threat conditions (Hancock, 2001). When students feel as if they are under pressure to achieve something, their cognitive mindset may feel as if they are being threatened to do something. If this specific mindset develops, the level of concentration that was previously solely devoted to completing the task, may indeed switch over to worrying about how much time is left to complete the task. This is why students perform poorer if they feel threatened.

In an experiment such as completing a word find in a certain amount of time, if participants are aware of exactly how much time remains at any one instant, they may begin to lose the ability to think clearly. In two experiments, which analyzed whether time pressure could effectively prohibit the response level of participants completing a task, the results of both experiments indicated decreased levels of responding when the pressure of time existed (Crooks & Goodie, 2004). If participants are indeed affected in terms of their response level by a pressure instigator such as time, their ability to locate words in a word find could be diminished.

For individuals who perceive everyday situations as potentially threatening, these same individuals may be more inclined to perceive an evaluative situation, such as performing a task in a certain amount of time, as also threatening (Anton, de Man, Dale, Hall, Stout, & Vincent, 1991). The reasoning for this is that these individuals may have high emotional levels which in turn could allow them to perceive more situations as threatening. If these students do indeed view such an evaluative situation as threatening, their anxiety could also increase, which could deter them from producing a great performance. The knowledge of how much time is left to perform a task for these particular students may cause a feeling of numbness in that the students feel that their anxiety has now taken over their mental capabilities (Brewer, 2002). These students are now faced with two genuine battles in that, besides attempting to complete the task, the students must also mentally fight their anxiety levels so that their mental abilities are allowed to succeed.

In the particular case of students who are asked to complete a word find in a designated amount of time, if anxiety is increased due to worrying about how much time remains, these students may also allow their brains to experience another form of distraction. In order to complete a word find, students must analyze letters in a correct order to locate a word. The occurrence of distraction is possible if patterns of letters are perceived incorrectly, which will lead to words not being recognized (Brand-D'Abrescia & Lavie, 2007).

It is my objective to see if the individuals with the large analog wall clock placed in front of them will become mentally distracted by the amount of time left. This will, in turn, cause the individuals to worry about the time rather than fully concentrating on the

task at hand. For this reason, I hypothesize that individuals will find fewer words in the word find when they are in the presence of a large clock sitting right in front of them. Individuals who are unaware of how much time is remaining will be better able to concentrate on locating words, due to the absence of a major distraction and anxiety inducer, in the clock.

Method

Participants

Participants were 28 Lindenwood University undergraduate students. There were 21 freshman and 7 sophomore participants of which, 15 were women and 13 were men. The students were recruited by the Lindenwood University Human Subject Pool. These students received extra credit in their respective classes for their participation. Students signed their names on a sign-up sheet, which was posted directly under the Experiment Description Form on the bulletin board located directly across from the Human Subject Pool office (407) in Young Hall. All individuals correctly adhered to the Lindenwood University Human Subject Pool rules and were able to participate in the experiment. Three experimental sessions were conducted by a single male researcher.

Materials

The experiment took place in one single experimental room, Y105A, which was located on the first floor of Young Hall. The room was no larger than 11 x 12 feet. Also, the lighting was kept as bright as possible throughout the entirety of the experiment to ensure that the participants were able to see clearly. There was only a single researcher and a single participant in the room at one time. The purpose of this dependent measure was to make certain that the participants were not distracted by other people. Along with

these specific criterions, there was one desk in the room with two chairs. A large analog wall clock was used for the informed participants. A stopwatch was used by the researcher to time the uninformed participants Paper was used for the informed consent form, feedback letter, questionnaire, receipt voucher, and word find (Large Print Search and Find (David, 2006). The students were provided with a pen or pencil to use as writing utensil. Finally, the Windows SPSS software was used to categorize and analyze the data from the interviews and demographic surveys.

Procedure

Participants, one at a time based on the sign-up sheet order, walked into the designated lab room and were asked to fill out and sign the informed consent form. Then they were asked to look down at a sheet of paper on the desk, which included random twelve font letters, and tell the researcher what the letters were. It did not matter if the individuals were able to correctly read all of the letters, they were still able to participate in the experiment; however, all of the participants read every letter correct, This method was used to ensure whether the hypothesis would be true or not based on individuals with normal vision.

Next, the participants were asked to complete as much of a word find as they could in 10 minutes. Fifteen random individuals, unassociated with Lindenwood University, were given the word find to complete as a pilot test prior to the actual experiment. At the 10 minute mark, every individual was near completion. This is the reasoning for giving the participants in this experiment 10 minutes to complete the word find.

Thirteen of the individuals participating in the experiment had a large clock put on the desk in front of the word find, which told the individuals how much time they had to complete the word find. These specific participants knew exactly how much time they had, at any one moment, to complete the word find. The remaining 15 participants did not know how much time they had left at any certain time during the experiment. These individuals were told to start and then to stop when the allotted time is up. The time for these individuals was kept by the researcher. The researcher held a stopwatch under the table to ensure that the individuals would possess no idea as to how much exact time they had left to complete the word find. The order of what participants received which treatment was alternated at the beginning of the experiment.

After the time expired, the participants were then asked to answer a questionnaire based on whether knowing the exact time at any certain moment affected them in terms of being able to perform a task better or worse. Then the participants were given the feedback letter, their receipt was completed, and they were thanked for their participation.

Results

Words Found

In order to test the hypothesis of this study, an independent samples t-test was conducted. This t-test was conducted to determine whether the group participants were in (time-informed or time-uninformed) influenced the amount of words located in the word during the allotted time. The analysis of this particular t-test depicted a statistically non-significant result, $t(26)= -1.690$, $p>.05$.

Participant Time

Another independent samples t-test was conducted to determine whether a significant relationship existed between each group and the amount of time the participants used to complete the word find. Due to a problem with the homogeneity of the variance among the variables of time and words found, the degrees of freedom used for this particular analysis was adjusted to 18.184. The analysis of this particular t-test produced a statistically non-significant result, $t(18.184)=2.982$, $p<.05$.

Worrying About Time

After the word find, participants were asked to rate whether their everyday life as a student required them to worry intensely about time based on a completely disagree, somewhat disagree, indifferent, somewhat agree, or completely agree scale. Looking at the descriptive statistics, 64.3% of the students somewhat agreed with the statement, while the lesser majority of 21.4% completely agreed that their everyday life as a student required them to worry intensely about time. Also, 3.6% were indifferent and 3.6% somewhat disagreed with the statement. The remaining 7.1% completely disagreed with the statement. (See Figure 1 for a better illustration of the results for this particular question).

Time when Performing a Task

When asked about whether it is better to know exactly how much time at any one moment a person has left to complete a task, descriptive statistics showed that 39.3% somewhat agreed with the statement and 28.6% of the students completely agreed. Of the remaining participants, 17.9% of the students somewhat disagreed with the statement,

while 10.7% and 3.6% were indifferent or completely disagreed with the statement, respectively. (See Figure 2).

Concentration without Knowledge of Time

Concerning the statement of whether the student would be able to concentrate more on a task without the knowledge of how much time remained at any moment, 46.4% somewhat agreed with the statement, while 14.3% of the students were indifferent to the statement. In terms of disagreeing with the statement, the remaining 14.3% of the students completely agreed with statement. In terms of disagreeing, 7.1% somewhat disagreed, while 17.9% completely disagreed with the statement. (See Figure 3).

Enough Time

When told that there was enough time given to the students to complete the word find, 50% of students completely agreed with the statement. A smaller majority of 21.4% of the students somewhat agreed with the statement. In terms of disagreeing, 10.7% somewhat disagreed with the statement and 10.7% also completely disagreed with the statement. The remaining 7.1% were indifferent. See Figure 4.

Concentration Level Affected

Upon being asked to rate the final statement of whether their concentration level would be affected if they knew exactly how much time was left to complete a task, 39.3% and 35.7% of the students somewhat or completely agreed, respectively. Only 14.3% of the students somewhat disagreed with this statement. Only 3.6% of the students completely disagreed with the statement, while 7.1% were indifferent (see Figure 5).

Discussion

The main findings of this study did not support the hypothesis that the participants who were aware of how much time they had left to complete the word find would find fewer words than the participants who were simply told when their allotted time started and ended. When in the informed group, the vast majority of the participants were unable to finish the word find in the allotted time; however this same majority only needed three or fewer words in order to complete the task. The statistical analysis suggests that most students were unaffected by knowing how much time they had left to finish the task. These particular results could be due to a number of different things, but a few reasons in particular could shed a bright light on the reasoning for the rejection of the hypothesis.

Firstly, college students are of an age in which they have seemingly been performing time-based tasks for the most if not all of their academic career. Even in parochial school, students are given a certain amount of time to complete a task, such as a test. The typical academic day of students includes at least a few different subjects, which is blocked off in specific times. If students were given as much time as they wanted to complete a task, they would likely be unable to complete their daily academic class schedule. This experience over the years of being given an allotted amount of time to complete a task may easily have successfully conditioned college students to concentrate at high level no matter how much time is remaining.

Secondly, in this particular experiment, the task chosen for the students to complete was a word find, which possessed absolutely no level of worth when compared to the importance level of an academic test. The students who knew exactly how much

time they had left at any one moment, quite easily, may have not been feeling any real pressure whatsoever due to the fact that this particular word find meant nothing for their grades. Granted, the experimenters' hope and assumption was that students would give their best effort on the word find as if the results truly meant something to the students, but how can the experimenter be certain that the participants did take the task seriously? In one specific manner, the contents of a word find are quite similar to the questions left on a test, in which the student does not possess an answer to. At this point, the concentration level of the students could become affected if the knowledge of how much time is left is known to the students. This is the case in that, like searching for a word, the students is also searching his brain for an answer to a particular question or questions. But, if the students are not emotionally intertwined with the potential results of the task, their respective concentration levels may fail to become distracted even if the knowledge of little time remaining exists.

According to Brewer (2002), students may feel a sense of numbness when presented with a task to perform in a certain amount of time. It is not clear from the results of this study that the informed students did or did not feel pressure by knowing how much time was left at any moment. This inference can simply not be made. However, the results of the words found significance analysis suggest that even if the informed students possessed a heightened sensation of pressure due to the knowledge of time, their performance level was not significantly affected.

In terms of the uninformed group, the results depicted a vast majority of students who performed better when they did not know exactly how much time was left at any single moment. Again, one could suggest from the above reasons concerning the

informed group that maybe these undergraduate students have become accustomed to solely concentrating on the task at hand when faced with a timed task. Even though this precise ideology contradicts the finding by many authors, mentioned in this document, it remains impossible for one to prove anything more from this study besides the occurrence of a specific relationship, involving two variables. In this particular case, number of words found with knowing or not knowing how much time is left to complete the word find served as these two variables.

The results of the student surveys possess interesting implications. For example, the majority of answers reflected an overall ideology that it is better to know how much time is left to complete a task, but also this knowledge of time could somewhat affect the concentration level of students when performing a task. These findings essentially possess a canceling-out nature in that students are uncertain of which method would give an advantage to their performance level. For this precise reason, more studies such as this one need to be completed to aid in a better development of academic environments for students.

With that said, there exist methodical improvements for this study, which could possibly result in statistically significant findings. For example, a typical wall-clock was used in the timing of the informed individuals in this study. A digital clock could possibly have provided more accurate timing results for the informed participants. Also, the study took place in a room that possessed a liquid pipe above the head of the participant. It is seemingly impossible to characterize the noise of this pipe as a normal classroom sound, but in the interest of the researcher to keep the environment exactly the same throughout the duration of the study, a room change was not made. It would be

beneficial in this particular study if more students possessed the opportunity to take part. A larger population of participants could have provided a more thorough test of the hypothesis in this study.

In order to possibly understand whether an academic test would provide better results, it would be beneficial if the students participated in timed tasks which were of relation to their current academic studies. This method could possibly illustrate a concentration level change due to the fact that the scores on the task matter for the students' grades. It remains important for research pertaining to the possible distraction that time may serve on students' concentration levels to continue so that people are better able to understand what circumstances may possibly help or hinder the academic achievement level of students.

References

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Hancock, D. R. (2001). Effects of test anxiety and evaluative threat on students' achievement and motivation. *The Journal of Educational Research, 94*, 284-291. Retrieved March 4, 2008, from Proquest database.

Figure 1

Worrying about time

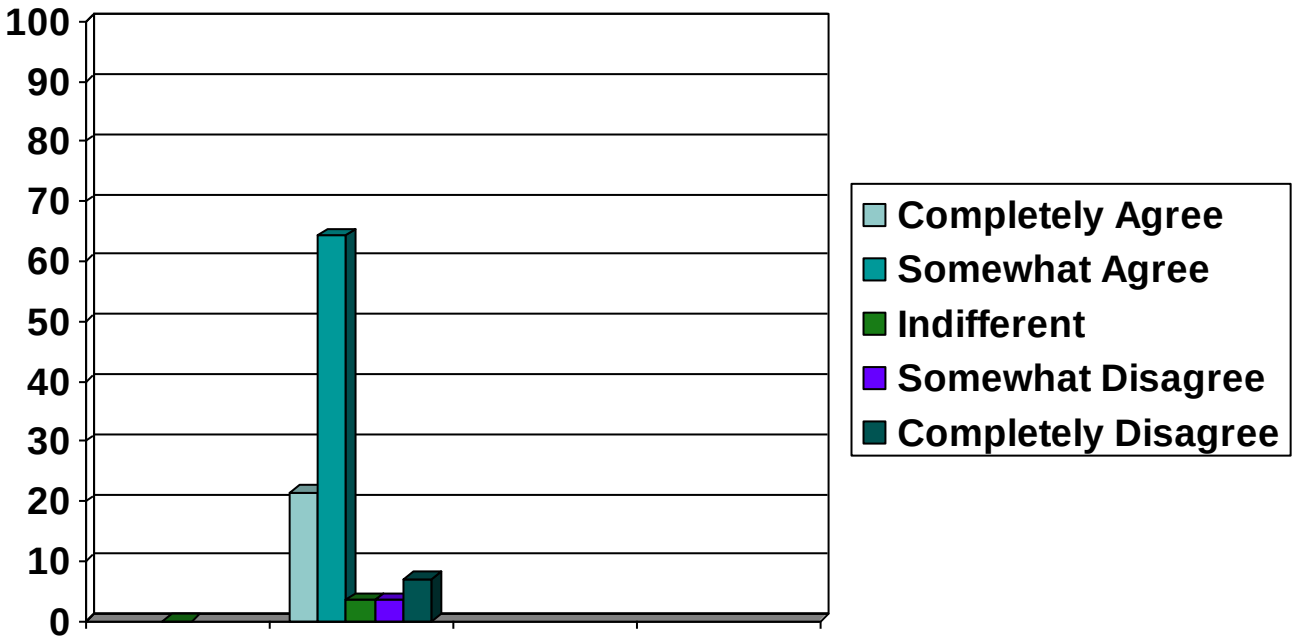


Figure 2

Time when performing a task

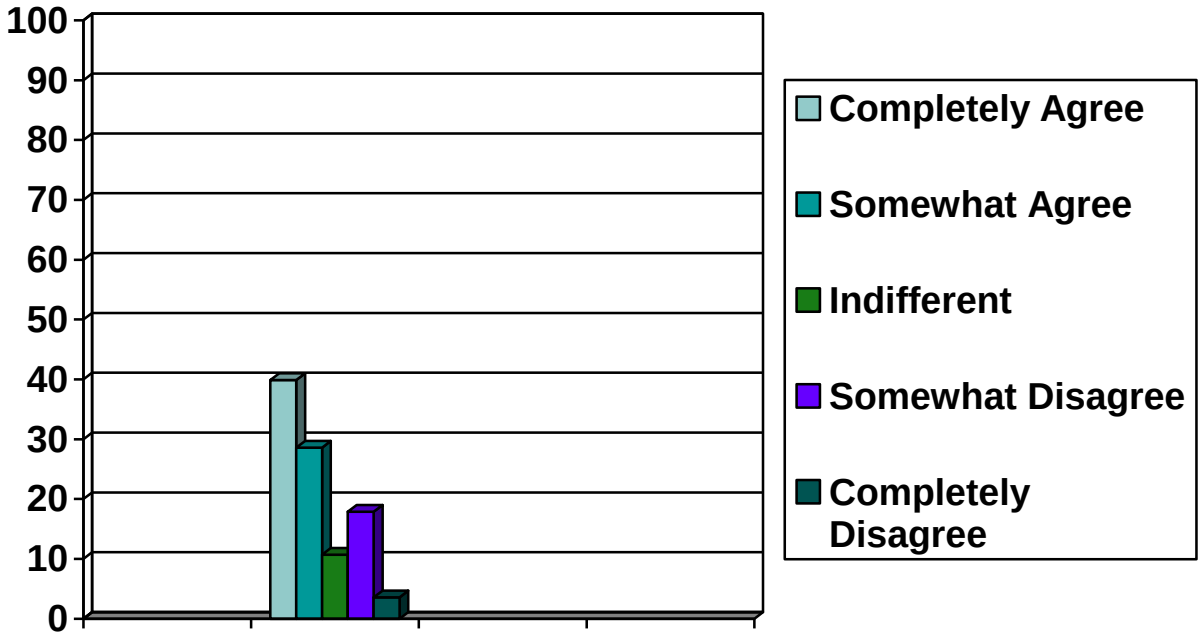


Figure 3

Concentration without knowledge of time

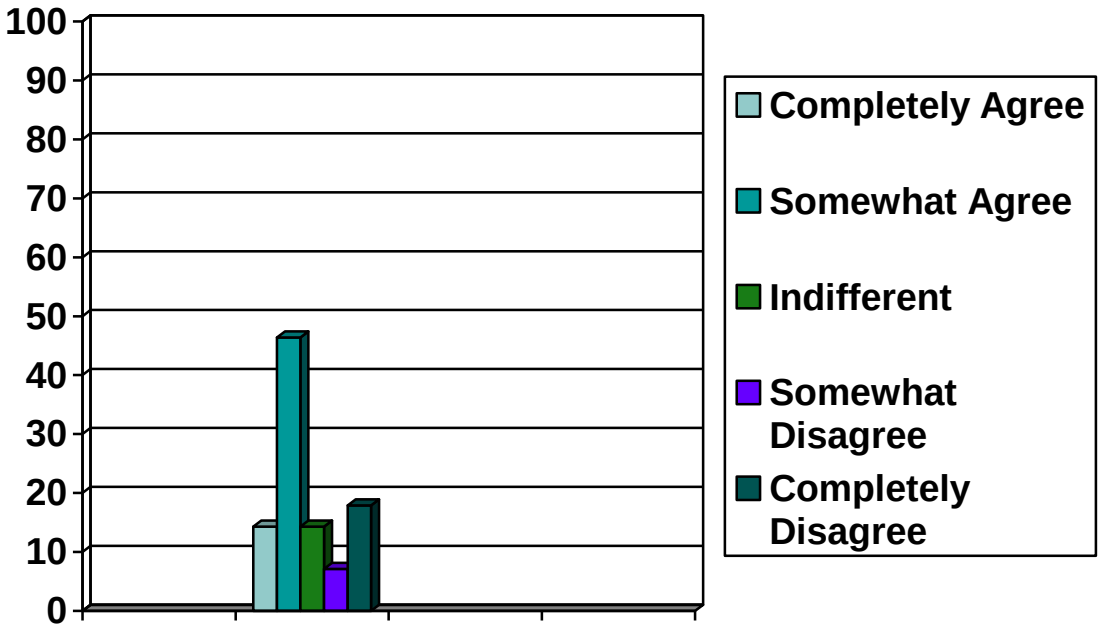


Figure 4

Enough time

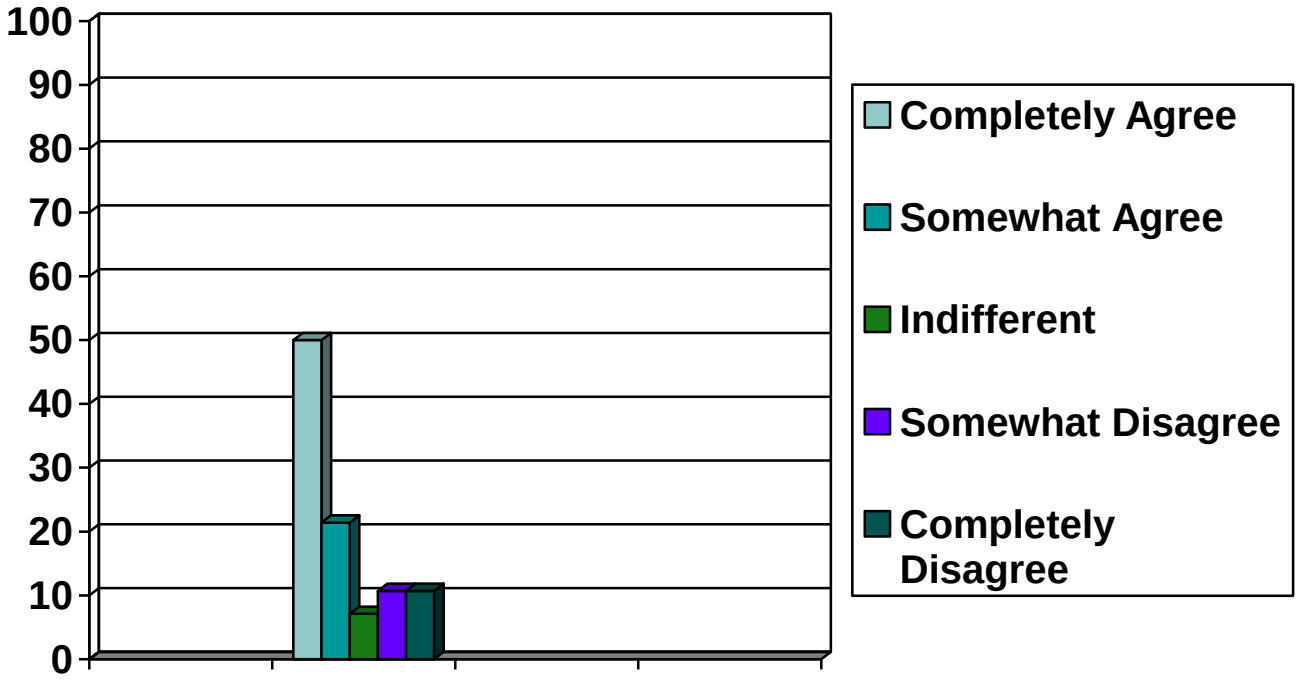
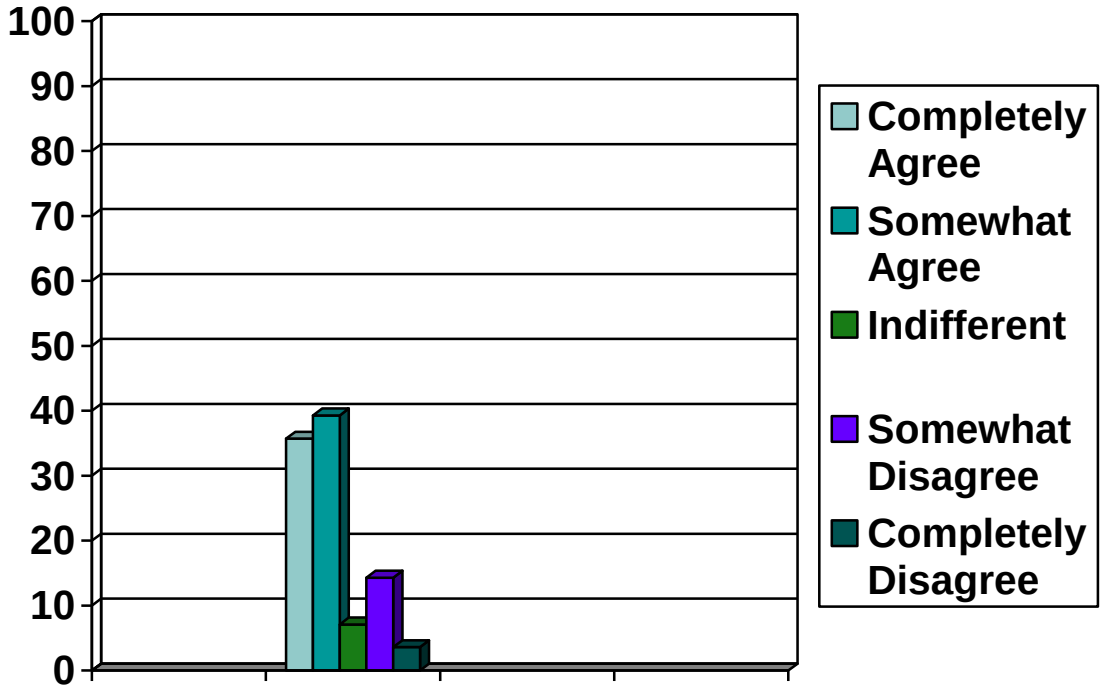


Figure 5

Concentration level affected



Appendix A

Eye exam

Individuals who wear glasses or contacts will be asked to read the letters below to ensure they are able to read the letters in the word find.

DKVJDKVLEOLS
KVKEOSVLEOSJA

Appendix B

Instructions 1

You will be given a word find to complete in ten minutes. I ask that you remove all timing devices from your body and view. I will tell you when to start and when to stop working. If you finish early, please tell me. Once the word find is over, you will be given a short survey to complete.

Instructions 2

You will be given a word find to complete in ten minutes. I ask that you remove all timing devices from you body and view. You will have a wall-clock placed in front of you, which will let you know exactly how much time you have remaining, at any one moment, to complete the word find. If you finish early, please tell me. Once the word find is over, you will be given a short survey to complete.

Appendix C

Word Find
Large Print Search and Find (2006)

DESK LUNCH
DISK MAIL
FIRE MEMO
FILE MEET
GLASS PAY
HIRE SUIT

C P F A T E M K E Y P W G L D
U L E W I N Y R S T B A E E O
K H I N U E S O I D N L E V U
K H I N U E S O I D N L P V U
K W K E S U G W V Y I D U E X
L A U N N A J L D F A S N L R
R A Y O D T R I A H C O K A K
J I B M F L H D S S H X P S W
X F V Y B U C A D P S E E B N
E S I A R O N E T S Z D C X H
Z B O R L U U I T H O I S S J
H K U Z E S L O O S X A S T J
B F B R M Y M S L N Y P O C Y
X F I J M E K I I V L K B A E
Z H R C M K E V A S H E P Y T
W W S D T M L T M S N S U I T

Appendix D

Questionnaire

Please rate your level of agreement based on a 1-5 scale.

1. Your every day life as a student requires you to worry intensely about time.

1 completely disagree
2 somewhat disagree
3 indifferent
4 somewhat agree
5 completely agree

2. When you perform a certain task, it is better that you know exactly how much time you have to complete the task at any specific moment.

1 completely disagree
2 somewhat disagree
3 indifferent
4 somewhat agree
5 completely agree

3. Students would be able to perform a task better if they did not know exactly how much time they had left to complete it in, so they could concentrate more about the task and less about the time.

1 completely disagree
2 somewhat disagree
3 indifferent
4 somewhat agree
5 completely agree

4. You had enough time to complete the task today.

1 completely disagree
2 somewhat disagree
3 indifferent
4 somewhat agree
5 completely agree

5. Your concentration level is affected if you know exactly how much time you have left to complete a task.

1 completely disagree
2 somewhat disagree
3 indifferent
4 somewhat agree
5 completely agree

Author Note

Psychology 404 students, Dr. Nohara-LeClair; Lindenwood University

I would like to thank your comments on earlier versions of this document.

Effects of Music on Emotional and Physiological Responses

Jenifer Fritz

Past research has suggested that music with fast tempos and rhythms have different physiological and emotional effects than music with slow tempos and rhythms. If these beliefs and studies are accurate, an individual will have physiological changes and report different emotions and moods after listening to music, and these changes will depend on the style of music that was heard. Twenty-nine participants were asked to report current emotions, moods, and musical preferences before and after listening to one of four musical selections: rock, rap, classical, and no music. Emotion and mood state were not affected by any of the musical conditions, but heart rate significantly increased for those in the rock condition.

Music, which is defined as the organization of sound that moves through time (Deckers, 2005), has been recognized through research to serve many important functions. Much of the previous research involving music has centered on the emotional and physiological effects of listening to music. Many of these studies have indicated that music can be arousing or relaxing, and evoke a wide range of emotions, including feelings of love, happiness, and warmth, as well as sadness, depression, anger, and restlessness. Individual elements of music such as mode (major or minor), tempo (speed), and texture (simple or complex harmonies) have different emotional effects. Minor modes, slow tempos, and complex textures have been associated with melancholy feelings, and major modes, faster tempos, and simple textures are associated with warm, happy feelings (Webster & Weir, 2005).

Music is designed to be either arousing or relaxing, to either heighten the senses or calm them. Arousing music increases physiological responses such as heart rate, blood pressure, muscle tension, and respiration, and calming music decreases these responses. The most important factors in the motivational or energizing quality of music are tempo, rhythm, and dynamic (loudness). When listening to music, a person's heart rate synchronizes with the beat of the music, so the faster the music, the faster the heartbeat. On the other hand, soft, slow music relaxes the body and slows the heart rate (Cole, 1993). Listening to music can be a helpful tool in coping with and reducing stress, aiding in relaxation, and calming anxiety.

A study by Burns, Labbe, Williams, and McCall (1999) tested the effects of four different types of music on relaxation: hard rock music, self-chosen relaxing music, classical music and silence. They hypothesized that classical and self-chosen relaxing music would have a greater increase on relaxation than hard rock music. Results showed that certain types of music produced self-reported feelings of greater relaxation, although there were no significant biological changes. The self chosen music and silence groups had the greatest increase in relaxation, and the hard rock group had the least amount of increase. Interestingly, this research concludes that listening to "relaxing" music is really not any more relaxing than just sitting in silence.

Some studies suggest that people have a biological predisposition to like music, and to prefer consonant sounds over dissonant sounds. Zentner and Kagan (as cited in Deckers, 2005) found that infants reacted positively toward melodic, musical sounds and reacted negatively toward dissonant, "noisy" sounds, indicating that there is a natural, innate tendency to like and enjoy music. Other biological and personality traits such as

sensation seeking, resting arousal, and musical preference also influence the emotional and physiological influence of music. McNamara and Ballard (1999) studied the correlation between these traits and also found a gender difference indicating that men and women high in sensation seeking and antisocial behaviors, as well as men with low resting arousal, are more likely to prefer highly arousing music like heavy metal and rap, but women with low resting arousal preferred less arousing music. Some people assume that highly arousing music such as rock and rap has direct effects on aggression, violence, drug use, and other delinquent behavior, but studies on this topic have shown no evidence of any such correlations. Instead, research has found that people who already portray these behaviors are more likely to prefer highly arousing music because it provides stimulation to high sensation seeking traits (McNamara & Ballard). Similarly, violent lyrics are believed to cause violent and aggressive behavior, but the majority of research has found no correlation between music lyrics and aggression. One study found significant evidence that aggressive lyrics influence aggressive and angry thoughts, but not necessarily behavior (Anderson, Carnegey, & Eubanks, 2003).

Familiarity and repeated exposure of music are also topics that have generated much research. Music that is unfamiliar is more arousing than music that is familiar, because unexpected music arouses suspense and excitement in the listener (Garver & Mandel, 1987). Repeated exposure to music that is initially liked or viewed as pleasant increases that positive view and music that is initially disliked or unpleasant is viewed as even more unpleasant with repeated exposure (Witvliet & Vrana, 2007). According to participant self-reports in a study by Witvliet and Vrana, highly arousing music is

generally liked more than low-arousal music, and negative, or unpleasant, music is more arousing than positive, or pleasant, music.

The hypothesis of the present study is that music with faster rhythms and tempos will increase heart rate and affect emotion, while softer, slower rhythms and tempos will decrease heart rate and relax the body, and also affect emotion. Personal preference for a certain type of music is also believed to have an effect on the physical and emotional responses to the musical conditions.

The purpose is to find out the effects of music on the physiological and emotional aspects of a person, and whether different styles of music produce different results in emotion and/or heart rate. The rationale of this topic is that music is a huge part of almost every society and culture in the world, but it does not appear to have any clear benefits to everyday life. If the proposed hypothesis is supported, this will show that music indeed provides important benefits such as mood regulation and relaxation assistance.

Method

Participants

Participants were 13 female and 16 male undergraduate students from Lindenwood University, ages 18-26, 20 of whom were recruited through the Human Subject Pool (HSP) and nine of whom were recruited through friends and acquaintances of the experimenter. Sign up sheets were posted on a bulletin board where students from the HSP could voluntarily sign up, and all HSP participants received extra credit toward a lower level undergraduate social science course for being a part of this study. The participants who were not recruited through HSP participated as a favor to the experimenter and did not receive any kind of compensation.

Materials and Procedure

Participants were randomly assigned to one of four experimental groups: no music (control group), hard rock music (Smells Like Teen Spirit by Nirvana), rap music (Hate Me Now by Nas and Puff Daddy), and classical music (Moonlight Sonata by Beethoven). There were seven participants in each musical group and eight in the control group. The musical selections were instrumental in order to control for any possible effects of lyrics. Once a participant arrived, they were told that this was a study involving the influence of music on certain physical and psychological factors, and that they would be asked to listen to a musical selection for five minutes, fill out two questionnaires about current mood states and musical preferences, and take their pulse. They were then given a consent form to sign, and the first questionnaire to fill out. They were instructed to find their pulse either in their neck or wrist, and count the beats while the experimenter timed them for 20 seconds and then recorded the number of heartbeats. A pair of headphones, which were plugged into an Apple ipod media player containing the musical selections, was given to the participant, and he/she was instructed to close their eyes and listen to the selected song (or sit in silence in the no music group) for five minutes. After listening to musical selection, the participant again took their pulse for 20 seconds and filled out the second questionnaire. Finally, the participants were fully debriefed and were given a feedback letter.

The dependent measures consisted of four positive affect traits (happy, joyful, pleased, and enjoyment/fun) and five negative affect traits (depressed/blue, frustrated, angry/aggressive, worried/anxious, and unhappy). The participant rated themselves on each of these traits on a scale of 1 (not at all) to 7 (extremely) both before and after the musical condition was presented. Four other factors (relaxed, restless, calm/peaceful, and

alert) were also self-rated on a scale of 1 (not at all) to 5 (very much). Musical preference was determined by providing a list of different musical genres and asking the participant to circle all the styles that they liked. The three experimental conditions, rap, rock, and classical, were included in the list, and only the answers for these three styles were examined. On the post-test questionnaire, the participant rated on a scale of 1 (not at all) to 5 (loved it) how well they enjoyed the musical selection, and this response was compared with their preference and whether or not this preference matched the condition group they were in.

Results

The means of the self-ratings of positive and negative affect from the second questionnaire were subtracted from the means of the positive and negative affect from the first questionnaire to find the changes in positive and negative affect. A 4 (musical condition) X 2 (affect change) multivariate analysis of variance (MANOVA) was then performed on the positive affect change and the negative affect change, but no significant results were found among any of these conditions.

For each of the four mood state changes, independent t-tests were conducted and there was no significance found. A one-way ANOVA was performed on the heart rate change for each condition, and significant results were found, $F(3,25) = 4.475$, $p < .05$. Post-hoc tests on these data revealed a significant increase in heart rate for the rock group compared to all other groups: rock and classical, $t(13) = 3.936$, $p < .05$; rock and rap, $t(12) = -3.361$, $p < .05$; and rock and no music, $t(12) = -2.390$, $p < .05$.

Preference of music had no significant effect on how well the music was enjoyed. However, for those participants whose musical condition did not match their musical preference, there was a significant increase in negative affect, $t(20) = -2.735$, $p < .05$.

Discussion

The hypothesis was partially supported in that music did have effect on physiological responses, and the music with faster tempo and rhythm (rock) produced an increase in heart rate as predicted. Contrary to the hypotheses, however, there were no significant changes in any emotion or mood state for any of the music groups. Participants showed significantly more negative emotion after hearing a type of music that they did not prefer, but there were no other effects of preference. These results are concurrent with past research findings that arousing music increases heart rate (Cole, 1993).

Alternatively, these heart rate change results could be due to the participants' nervousness during the experiment. Several individuals claimed to be nervous and unsure, and this could have caused an increase in heart rate. If this were the case, however, we would expect to see an increase in heart rate among all conditions and not just rock. Another possible explanation for the heart rate increase in the rock condition is that participants in this condition were moving around more than those in other groups. Although the experimenter asked all groups to sit quietly, those in the rock group were more likely to tap their foot and bob their head to the music, and were generally more restless and fidgety than all other groups. This could have caused an elevation in heart rate.

The statistically non-significant results for the effect of music on emotion and mood states could also be due to a number of other factors. The number of participants (n=29) was not large enough to sufficiently test the conditions. All participants were also recruited from the same institution, with the majority of them from the same types of classes, and all were between the ages of 18 and 26. This group is not representative of a general population, nor is it even representative of the student population. The scales used to measure positive and negative affect may not have been valid or reliable. The time each participant spent listening to the musical selection was only five minutes, which may not have been adequate time to have any emotional effect. Any further research on this topic should take all of these factors into account. It would also be interesting to test the different effects of music without lyrics versus music with lyrics.

As predicted in the hypothesis, listening to different styles of music does have an effect on physiological responses. The fact that these significant results were found after only five minutes of listening to a song leads one to wonder how much greater the effects would be with longer time periods. One interesting result is that the participants' musical preference did not significantly affect how well the experimental music was enjoyed. When asked how well they enjoyed the music they listened to in the experiment, 62% of participants reported that they liked it quite a lot or loved it, and 34.5% reported that they liked it somewhat. Only three people stated that they would not be likely to listen to the musical selection on their own, all others were either somewhat, moderately, or very likely to listen to that particular music on their own. Participants were also asked how much they believed music affects emotion and mood, and all but one person believed that it affects emotion quite a lot (51.7%) or completely (44.8%). So although there were no

significant effects of music on emotion found in this study, most participants strongly believed that music does indeed affect emotion.

In conclusion, this study shows that certain types of music can affect physiological arousal, which can often be beneficial, and it also strengthens the belief that people like and enjoy listening to music, even when it is not their preferred style of music.

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The Relationship of Work and Grades Among Undergraduate Students

Stefanie Thomas and Sarah Scaturro

Full-time undergraduate students take a minimum of 12 credit hours per week and several of them also work part-time jobs outside of school. If an inverse relationship exists between grades and work, it could potentially affect students' choices. In the present study, 84 participants filled out a survey with questions pertaining to the subject of grades and work, in addition to other variables like sex and grade status. We found a fairly strong inverse relationship existed between a student's G.P.A. and the number of hours a student worked outside of school. We found a strong relationship exists between the total number of hours a student works (including an outside job and work and learn program hours) and a student's G.P.A.

Full-time college students take 12 or more credit hours of each semester, and typically have more than 12 hours of homework in one week. On average, that is at least 24 hours of workload within a seven day period. What if a student also works while managing a full-time student workload? Does having a job outside of the time that school requires have any relationship on a student's grades? Knowing whether or not there is a relationship between working and students' grade point averages can help influence students' decisions about employment while in college.

According to Curtis and Williams (2002), 83% of the full-time undergraduate students they surveyed believed that their part-time job had caused a distraction, to some extent, from their studies.

In Hawkins, Smith, Hawkins II and Grant's (2005) study, "the average number of hours worked and perceived work interference with studies were statistically significant negative predictors of self-reported overall G.P.A." In the same study, men's school work was more greatly affected by part-time employment more so than the women that also worked part-time (Hawkins, Smith, Hawkins II & Grant, 2005).

If students do choose to work part-time, there is little, if any support for them through universities. A majority of universities do no offer support such as late night computer labs, email set ups for students to turn in papers later, late night study groups for working students, etc. Class times and facilities are not always available for students to easily make time for both school and work. In addition, many university faculty members do not even consider that there is limited support for working students that are attending school full-time. Some schools offer work and learn programs, that allow students to take money off of their tuition by working at the school or university, but many times it is not enough money for the student to pay for school or other expenses. Sometimes the pay is not high enough and/or not enough working hours are provided (Curtis, 2005).

In two states, Maine and Washington, the government has already limited the number of hours kids in high school can work to 20 hours. In a study done by National Research Council (1998) it was found that kids who worked in high school were likely to have more absences and more likely to be involved with drugs than kids who didn't.

In a self-reported study involving 20,000 randomly questioned groups of high school students, Steinberg (1998) also found that twenty hours was the cut off before students' school work became greatly affected. It has also been reported that working the

first semester has the most adverse affect on grades, more so than any other semester in college (Stinebrickner & Stinebrickner, 2003).

The purpose of this study was to find out if the average amount of hours a student works per week is related to students' G.P.A. This study consisted of 84 participants from Lindenwood University's Human Subject Pool. The students were asked to report their work hours on a survey which was then compared to their G.P.A.

We hypothesized that there was an inverse relationship between the number of hours a participant works and his/her G.P.A. We based this hypothesis on the idea that it would be more difficult for a full-time student to find time to successfully maintain their G.P.A. and also be employed. A full-time student spends numerous hours in class as well as doing homework, and may have a difficult time finding the free time to work a part-time job. It may also be that students with a poor G.P.A. may work as a back up in case they do not graduate.

Method

Participants

Eighty-four individuals volunteered to participate in our experiment through the Human Subject Pool at Lindenwood University. All participants were undergraduate students at Lindenwood University. There were 43 females and 41 males that participated in the study. All of the participants attend Lindenwood University and received extra credit points in a psychology, anthropology, or sociology course they were enrolled in by taking part in this experiment. Of the 43 females and 41 males that participated, 58.3 percent were freshmen, 23.8 percent were sophomores, 9.5 percent

were juniors, and 8.3 percent seniors. All of the participants were undergraduate students at Lindenwood University.

The questionnaire asked participants if they had a job outside of going to school full-time. Of the 84 participants, data was collected from 83 because one participant's data was not completed. Thirty-three participants had a job outside of school. Of the 33 who had a job, the mean hours worked was 21.5, the median hours worked was 20, and the mode hours worked was 15. The minimum number of hours worked by participants was five and the maximum was 40. The majority of students who worked were unable to do homework at their job, as seen in Figure 1.

G.P.A. was collected from 83 participants. One participant was excluded because they did not complete the question about G.P.A. Of the 83, the mean G.P.A. was 3.06. The minimum reported was 1.8 and the maximum was 4.0.

Materials

Surveys pertaining to the hypothesis were provided. These surveys (see Appendix D) included questions about variables such as sex, class status, and whether or not they participate in a part-time job. Consent forms (see Appendix B) and feedback letters (see Appendix A) was also be provided. Ink pens, two chairs, and a table were used in the experiment. We were assigned lab room D and B in Young Hall 105 to conduct our experiment, through the Human Subject Pool. The computer program, SPSS, was used to calculate results.

Procedure

Each participant was first asked to read and sign an informed consent form giving us permission to conduct the survey. The participants also filled out the experimenter's

list of participants and their receipt from the Human Subject Pool that acknowledges the participant's professors that they have earned extra credit towards their course. Next, the participants were given a short survey pertaining to job information such as how many hours they work in a week and their G.P.A. This data was later collected from the questionnaires and was analyzed using SPSS. After the participants completed their survey, they were debriefed and allowed to ask any questions, given a feedback letter with our contact information, and then were released.

Results

We hypothesized that there is an inverse relationship between the number of hours a student works and his/her G.P.A. To test this hypothesis we used the data obtained from the 33 participants who reported working outside of school, and used Pearson's r correlation. A moderately strong inverse relationship was found between the variables of work and G.P.A., $r = -.268$

The participants were also asked if they participated in Work and Learn, which is an on-campus program that offers students the opportunity to learn through various jobs on the college campus. As seen in Figure 2, the majority of participants did report having a job on college campus.

The Pearson's r correlation was then used to determine whether there was an inverse correlation between the variable of total hours worked overall by participants and the variable of G.P.A. A moderately strong inverse relationship was found between the two variables, $r = -.219$.

Discussion

As predicted, participants who worked more hours at a job outside school, tended to have a lower G.P.A. When examining the 82 participants who reported having a job at school, outside of school or both, their G.P.A. was inversely related to the total amount of hours worked.

An explanation of these results could be that students who work more do not have as much time as students who do not work to concentrate on their studies. Students may work more by choice or may work more because they are in need of financial support to pay for school and/or necessities.

An alternate explanation is that students that work more do so by choice because they do not enjoy school as much as the do work. If a individual enjoys working more than school, this could also potentially affect their studies. The fact that students feel that school is not enjoyable could affect the effort they put into their school work causing a decline in G.P.A. and a raise in hours worked.

Problematic Variables

The study was held in lab room D and B, which was assigned to us through the Human Subject Pool. Both labs that we used turned out to have many sound disturbances. Not only did the air conditioner cause noise that distracted our participants, other experiments were being held at the same time causing distractions such as talking. These distractions could have caused our participants to become unfocused on his/her answers to the questionnaire.

This study supports the idea that an inverse relationship does exist among students' G.P.A. and the amount of hours they work at jobs. This could potentially be

important information for undergraduate students in that it can affect the choices they make pertaining to school studies and job choices.

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Figure 1.

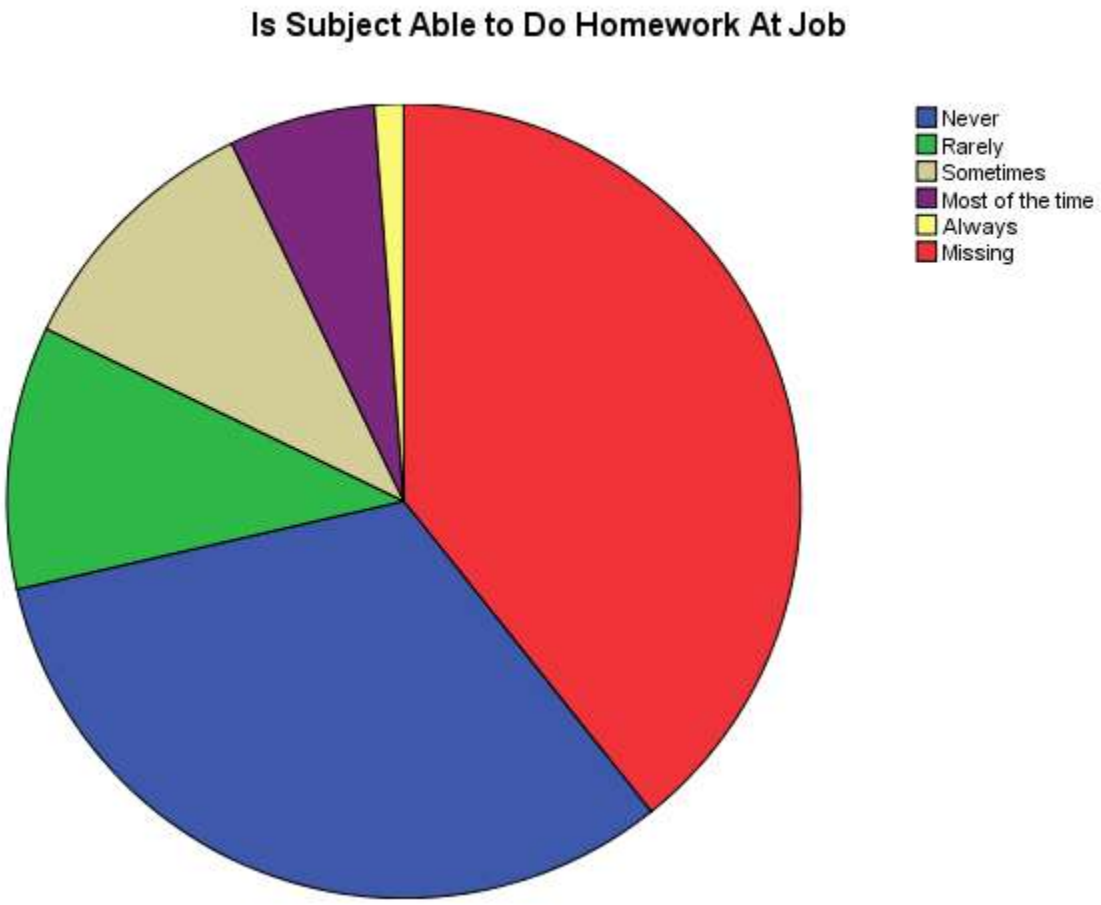
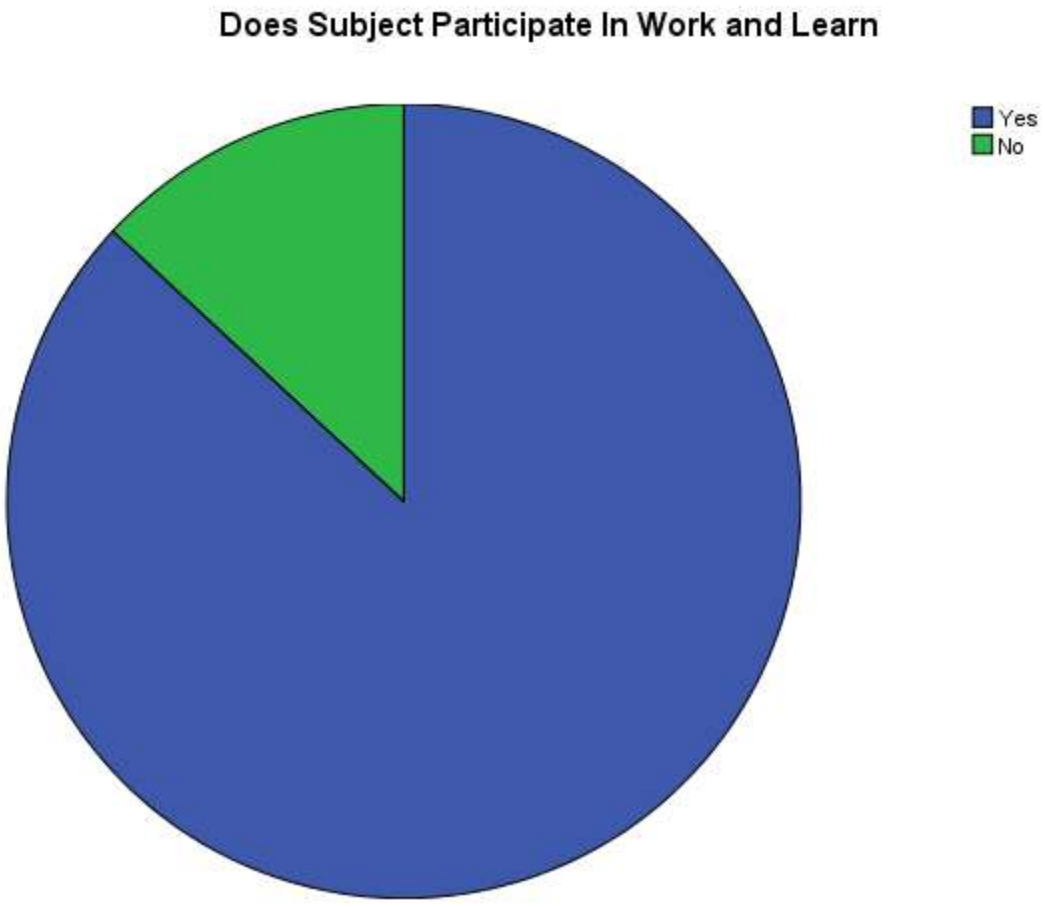

Is Subject Able to Do Homework At Job
Never
Rarely
Sometimes
Most of the time
Always
Missing

Figure 2.



Appendix A

Feedback Letter

Thank you for participating in our study. The questionnaire was used in order to determine if the number of hours a student works each week has any relationship with the student's GPA. The questionnaire was conducted in order to determine students average number of hours worked per week and the GPA that the student earns.

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

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. 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:
Stefanie Thomas (314) 397-0270 sct566@lionmail.lindenwood.edu
Sarah Scaturro (314) 606-1678 sas375@lionmail.lindenwood.edu

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

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 short questionnaire asking about my current GPA and my employment. I understand that I should be able to complete this project within 5 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 HSP 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)

Stefanie Thomas
(314) 397-0270
Sct566@lionmail.lindenwood.edu

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

Sarah Scaturro
(314) 606-1678
Sas375@lionmail.lindenwood.edu

Appendix C

Questionnaire

1. Male or Female

2. What is your class status? (please circle the one that applies to you below)

Freshman Sophomore Junior Senior

3. What is your current GPA? _____

4. Do you take part in the work and learn program at Lindenwood University? Yes or No

(if yes continue to question 5, if no then continue to 6)

5. Do you complete the 10 hours per week number? Yes or No

6. Do you have a job outside of school? Yes or No

(if yes then continue to 7, if no then questionnaire is complete)

7. How many hours a week to you work on average? _____

8. How often are you able to do homework at you job?

Never Rarely Sometimes Most of the time Always

9. How does having a job affect your grades in school?

Romance in College: Effects of Relationship Stress and Commitment on Scholastic Performance

Lauren Alderson and Kate Gruenloh

Due to the increased number of observed college students involved in romantic relationships, we decided to conduct a study to see if any correlation existed between those involved in romantic relationships and the students' academics. In addition to this hypothesis, we were also interested in the varying levels of stress and commitment of a romantic relationship and their influence on academic performance. However after surveying 66 college participants regarding their feelings and opinions about their current or past relationships, our statistical findings did not support our initial research hypothesis.

College can be a severely conflicting period in a young adult's life. During college we all take on a handful of different roles such as the girlfriend or boyfriend or the co-chair of an organization in addition to being a student, and all of them seem to conflict at some point in time. In their research on types of stressors, Serido, Almeida, and Wethington (2004) defined this type of conflict as a chronic stressor "whose one source may be the strains associated with the interaction of the individual and conditions in carrying out the responsibilities of major social roles" (p 18). Instead of focusing on all of the different types of social roles a college student could take on, the primary purpose of our study is to research two of the roles a young adult can encounter during their college years, a student vs. a girlfriend/boyfriend, and determine if there is any correlation between these two roles in regards to stress and academic success.

In his dissertation, Sgobbo (2000) recruited 50 male students from the Western Connecticut State University in order to answer a questionnaire regarding the costs and benefits

of dating in college. The questionnaire incorporated non-standardized questions the researcher had created in addition to standardized rating scales from Cohen's Couples Satisfaction Inventory. After the raw scores were analyzed, Sgobbo found that the men reported dating to have more benefits then costs. Stress was found to be a cost in regards to having a relationship, but surprisingly over 60% of the participants' proposed alternative ways from which to reduce the stress. Overall, the research results seemed focused on the positives of dating and how it provided an opportunity for social interaction, satisfied Maslow's proposed need of emotional fulfillment, was related to higher self-esteem, and helped students with their creativity with time management and listening skills (two factors that could be beneficial correlated with academics).

Meanwhile on the opposite end of the spectrum, Kopfler (2003) hypothesized that students who were involved in romantic relationships would not perform well academically in undergraduate courses. Unfortunately after calculating the data from this survey, the results did not support his hypothesis. However, a relationship was observed between participants involved in romantic relationships and higher levels of stress.

While looking into college academics and relationships, Mosher and Danoff-Burg (2007) became interested if gender can also play a role in the way college students prioritize where their academics lie. This can also depend on what intimate relationship means to a specific individual. Researchers gave a questionnaire that measured different aspects of a given relationship to 237 undergraduate students' ages 16 to 25 years old. While both men and women reported high ratings for individual achievement and intimate relationships, approximately 61% of males and 51% of female chose the relationship over career and education related goals. The article states, "The boys and men were particularly more likely to swap a career and/or education for a

'charming companions'" (p.31).This reports that college males in this particular study found romantic relationships to hold more priority over their careers and education.

A study done by Pistole and Vocaturo (1999) focused more specifically on the romantic relationships of college students and not just their academic success pertaining to their romantic relationships. Pistole and Vocaturo (1999) found that "Commitment in college students' romantic relationships is of concern because forming a central, committed relationship to anchor life and career is a major development agenda for young adults and clients in college counseling center frequently struggle with issues related to romantic relationships" (p.716). They discussed how since divorce rates are so much higher than years ago; being in a committed relationship has more importance. Researchers distributed a 60-item Commitment Inventory to 135 undergraduate participants to help define what type of commitment level their relationship was at. The three types of commitment were secure attachment, dismissing-avoidance and preoccupied. The results of the study found there were no significant differences between commitment level for sex and ethnicity, although there was a significant difference found between relationship status and personal dedication. This study helped ook at the research being conducted and how we need to breakdown the different components of a relationship, such as commitment level, and examine how those additional factors play a role in grade point averages (GPA).

Another variable that also could be looked at regarding college academic success and romantic relationships are the individuals distance. "It is a common occurrence that students enter college while still engaged in a romantic relationship that began in high school. Going away to college creates geographical distance between individuals involved in the relationship, and now these individuals have to deal with the problems associated with being in a LDR (long

distance relationship" (Shumway, 2004, p.2). This statement is very true and can definitely make an impact on a relationship; especially while in college. The researcher interested in the differences in long distance relationship and proximal relationships with relation to the factors of intimacy, passion, commitment and satisfaction. Shumway (2004) hypothesized that participants in long distance relationships would have lower levels of these variables that those in proximal relationships. However, results found that there was no significant difference in satisfaction, intimacy or passion. Shumway's study focused on long distance and proximal distance and their level of commitment, passion and intimacy and even though there was no significant difference found in the study, it can definitely seem like an aspect of a college individual's life that could affect their academic success.

The purpose of this study was to research if there is a correlation between romantic relationships and college academics defined by the students' cumulative grade point averages (GPA). In the studies explained above, the results varied from one study to the next in relation to the effect romantic relationships can have on college academic. In addition to this, a few of the researchers took their interest in romantic relationships one step further to order to discover the different aspects of romantic relationships. Therefore using past research as a foundation, we wanted to investigate the components of stress and commitment levels of romantic relationships as reported by college students. In addition to this researchers also hypothesized if an individual is involved in an understanding, loving relationship with their partner that involves a limited amount of stress, they will have a higher G.P.A than a student who is in an unstable, stressful relationship.

Method

Participants

Sixty-six undergraduate students from Lindenwood University were recruited through the Human Subject Pool (HSP) and two upper division psychology courses taught by Dr. Bruce B. Kelly. The students from the Human Subject Pool are students who are currently enrolled in a 100 Psychology, Sociology, or Anthropology undergraduate course. The combined sample of students was comprised of 26 men and 40 women consisting of 22 freshman, 10 sophomores, 16 juniors, and 18 seniors.

The participants who were recruited through the Human Subject Pool (HSP) received the promised bonus points for their participation that could be used toward their respective courses and a hearty thank you, while those who participated from Dr. Bruce Kelly's Social Psychology (PSY334) and Health Psychology (PSY220) classes received a gracious thank you for their time and patience. At the IRB application process of this study, the researchers were going to give out Hershey kisses as a gesture of gratitude, however due to a few unforeseen circumstances the researchers did not have the kisses for the first group of participants; therefore they could not be used as compensation.

Materials

A computer printer and copy machine were used to make the 200 plus copies of the required informed consent form (Appendix A), an additional informed consent form (Appendix B), appropriate HSP documents (participant receipts, feedback letters, and participant sign up forms)and survey (Appendix C) for the subjects. In addition to the standard informed consent form, the researchers made an additional form from which participants were given the option of allowing researchers to verify their cumulative grade point averages. However due to a time

restraint, these forms were discarded. The survey had ten questions regarding age, gender, class level, in addition to questions regarding their current relationship status and opinions regarding factors relating to romantic relationships and academics.

After all of the appropriate copies had been made, researchers gained permission from the Dean of Science, Dr. Marilyn Abbott, to facilitate room 301 of Young Hall for the distribution of surveys to the HSP recruits. The room consisted of 40 desks arranged in stadium style seating with one large table and podium in the front of the room.

Dr. Bruce Kelly's Health Psychology class was held in room Young 404. This room held 45 desks in rows of 5 with one large desk and podium at the front of the room. Meanwhile, Dr. Kelly's Health Psychology class was held in Young 301, the classroom held the same properties and characteristics from the time it was used for the Human Subject Pool recruits.

Participants used a pen or pencil to indicate on a ten question survey (Appendix C) their current relationship status and feelings regarding romantic relationships and stress levels. The format of the survey consisted of multiple free response and rating scale questions in order to gather the most information regarding the participants' beliefs and opinions. A few of the questions were directed towards individuals currently in a involved in a relationship and their self-reported level of stress and commitment. However if the participant was not in a relationship, if they were asked to express their opinion on whether they believed a relationship would effect their academics in some manner.

Procedure

The participants recruited from the Human Subject Pool were required to sign up on the Human Subject Pool Board for one of 15 spots in a designated 15 minute time slot. At their designated times, subjects were required to come to Young 301 and sit down wherever they

wanted, the participants in Health Psychology and Social Psychology also chose from the available seating in their classroom. All students were first given the same two informed consent forms, one for the researchers' records and one for their own records, from which they could sign to acknowledge they understood and fully agreed to participate in the experiment. The participants were told that if at any time they wished to not participate in the study they would not be penalized. In addition to this, participants were given an additional informed consent form concerning the release of their correct grade point averages before taking the survey, however these were later discarded. After those forms were filled out, the students then took the survey concerning romantic relationships and stress levels. Following the completion of the survey, the participants were thoroughly debriefed and told if they had any questions or concerns regarding the study could contact us at any time. After the surveys, consent forms, participant receipt form were completed, the participants who were recruited through the Human Subject Pool were told to turn in their participant receipt to the Human Subject Pool office. Meanwhile, those participants who were not recruited through the Human Subject Pool turned in their surveys and appropriate consent forms and then were given a gracious thank you for their participation in our study.

Finally, after all of the completed surveys were organized and collected, an identification number was assigned to the survey in correspondence with the participant who completed the survey. When all identification numbers were assigned, the data from each participant was then inputted into SPSS program and the data were analyzed to find if the hypothesis of whether being in a romantic relationship is correlated with college academics and grade point average.

Results

College Academics and Relationships

One hypothesis of this study was that grade point averages are correlated in some manner with undergraduate students who were in a relationship. More specifically, those students who were currently in a relationship were more likely to have a grade point average that is affected by their relationship.

However, the correlation between cumulative grade point average and level of commitment was not fount to be significant (n=44, r=.030, p>.05. In addition, the correlation between cumulative grade point average and level stress also did not find significance, r=.076, p=.05. The first variable the researchers examined was the sample size and how many were involved in a romantic relationship. Out of the 66 participants, only 44 of the participants were in a romantic relationship. Then of those 44 participants involved in a relationship, 1.5% reported they were in a relationship but it was not committed, 7.6% reported they were in a 'somewhat committed' relationship, 22.7% reported they were in a 'committed' relationship and 34.8% reported they were involved in a 'very committed' relationship.

Additionally of the 44 participants who were asked about their level of stress in a relationship 22.7% reported there was 'no stress' in their relationship, 36.4% reported they were 'somewhat stressed' in their relationship and 7.6% reported being 'stressed' in their relationship. There were no reports of being 'very stressed' from any of the 44 participants that were currently involved.

Researchers assigned a rating scale of 1 thru 4 in relation to the various levels of stress and commitment. A rating of 1 represented the levels of no stress and no commitment. 2 was concurrent with the self-reported levels of 'somewhat committed' and 'somewhat stressed'. 3

was assigned to the levels of 'committed' and 'stressed'. While 4 represented a rating of 'very committed' and 'very stressed', as a result the mean analyses of level of commitment was 3.36, while the mean analyses of level stress was 1.77.

The lengths of the relationships ranged widely from the shortest relationship being one month and the longest relationship being six years, additionally the grade point averages ranged from a cumulative of 1.8 to a 4.0. Prior to starting the study, the researchers had an additional optional consent form asking participants for their permission to retrieve their official grade point average from the registrar. Conversely, due to lack of time during study, the researchers were unable to receive those official grade point averages.

Relationship Factors

In the survey, an open-ended question was directed toward the individuals currently involved in a relationship, which asked "Do you feel a relationship is related to the level or outcome of your academics? If yes, please explain. The majority of the participants reported they did feel a relationship was related to the outcome and gave explanations ranging from a relationship can place excessive stress on academics to the time needed to maintain a relationship can affect time needed for scholastics. Then when asked a second open ended question regarding what factors from their relationship they believed played a role in their academic. Participants reported factors including stress, grade improvement, problems with time management, and an improvement in prioritizing, just to name a few. Meanwhile 19.7% of the participants in a relationship reported that being in a relationship has no outcome on their academics.

Lastly, there was an open-ended question asked to the 22 participants that were not involved in a relationship as to whether they believed if they were in a relationship would it relate to their academics. The surveys reported that 22% participants believed that it would not

have an effect. However for the 78% of participants who believed it would have an affect, their answers surrounded the idea that they would have to learn to juggle and balance their school work and relationship.

Discussion

Unfortunately, after analyzing our statistical data, the present findings fail to support the non-directional hypothesis that romantic relationships correlated with self-reported G.P.A's. However, the study did show that despite the individuals' different grade point averages and varying opinions, the subjects held the belief that a relationship did have some sort of influence, positive and/or negative, on academics.

Therefore one issue could be that our questions regarding the opinion of the subjects were too open-ended and needed to be more specific. For instance, after asking the participants who were in relationship whether romantic relationships and academics were related. We could have just asked them to answer the question with a simple yes or no response, then in correspondence with those who believed there was a relation we could have had them chose whether they believed the relationship between the two variables was positive or negative. Then for the next open ended question concerning relationship factors that affected academics, we would recommend to change the format to a multiple choice answer structure including several positive and negative factors as reported in Sgobbo's (2000) dissertation. Also, as a side note in order to provide the participants with additional clarification we should have provided the definitions for what we meant by commitment and stress.

However there are several alternative explanations as to why we obtained the results that we did. Even though we asked participants to sign an additional consent form concerning the release of their cumulative G.P.A we found ourselves pressed for time and were unable to obtain

them and discarded the forms. Therefore, since we were unable to determine their precise G.P.As, our collected finding related to the student's estimated G.P.As could be a misrepresentation of the actual G.P.As. As a result, we would recommend putting aside an appropriate amount of time to allow for the verification of the subjects cumulative G.P.As.

In addition to this we could also question as to whether the subjects answers on the surveys provided an accurate representation of their true feelings. Even though we asked participants to be as honest as possible, some could have entered responses they believed we would expect to receive or tried to follow a popular response pattern. Some could have stated they were in a relationship, when in fact they were not or else they could have been overwhelmed by the broad degree of the questions, again leading us to believe we should have restricted the types of responses. Finally, a larger sample size would have helped us gain a more representative sample of college students. By limiting our data collection to the undergraduate population in the science division, we could have created an unintentional bias. Perhaps all of the students who we surveyed had a certain principle instilled in them by their particular science classes and thereby this created a biased sample. Also taking this one step further, perhaps Lindenwood's curriculum is bias and for future studies researchers should attempt to include subjects from other colleges in order to gain a more representative sample of collegiate students.

In conclusion, despite the lack of significance found from our correlational analyses perhaps by altering the format of the questions asked on the survey and clarifying the particular variables future researchers would be able to replicate our study and find some sort of significance.

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APPENDIX A

Informed Consent Form

I_____(print name), understand that I will be taking part in a research project that will require me to fill out a survey regarding personal information about me, my current relationship status, and several aspects about my college career. I understand this survey will take at the most 15 minutes to complete. Also I am aware that my participation in this study is totally voluntary and if I feel uncomfortable with any aspect of the survey I may choose to discontinue the survey and withdrawal from the study without any penalty or prejudice.

I understand that the information obtained from this survey will be kept confidential and no personal information about me (including my name, any demographic information, and G.P.A) or any answers given will be disclosed in the final results. The results will be used for educational services in order to better future generations of society in general.
I will not hesitate to contact the experimenters regarding any questions I may have in the future. I verify that I am at least 18 years of age or older.

_____ _____

(Signature of participant) (Date)

_____ _____

(Signature of researcher obtaining consent) (Date)

Lauren Alderson 314-566-2774 Supervisor: Dr. Michiko Nohara-LeClair
Course Instructor
Kate Gruenloh 314 324-7683 (636) 949-4371

APPENDIX B
Additional Consent

I _____give my consent to have my cumulative grade point average verified by the experimenter's instructor and presented to the experimenters anonymously. I also comprehend that once the experiment has been completed all records concerning my grade point average will be destroyed accordingly.

Finally I recognize that if at any point in time I feel stressed or concerned over this issue I can contact the experimenter and express these concerns or questions.

Participant's Signature _____ Date: _____

Researcher's Signature _____ Date: _____

Student ID # or SSN: _____

(SSN # is needed for the researcher's instructor to get correct G.P.As regarding participants.)

APPENDIX C
SURVEY

SUBJECT ID NUMBER: _____ (Assigned by Researcher)

9) Are you MALE FEMALE?

10) Are you involved in a romantic relationship (defined as dating, engaged, boyfriend/girlfriend) at this point in time?

YES NO (skip to #8)

11) How long have you been in this relationship?

12) Rate the level of commitment in your relationship

1	2	3	4
Not committed	somewhat committed	committed	very committed

13) Rate the level of stress in your relationship

1	2	3	4
no stress	somewhat stressed	stressed	very stressed

14) Do you feel a relationship is related to the level or outcome of your academics? If yes, please explain.

15) What factors in your relationship (dating, engaged, boyfriend/girlfriend) do you believe play a role in your academics?

16) What grade level are you:

FRESHMAN SOPHOMORE JUNIOR SENIOR OTHER/UNKOWN

17) What is your current G.P.A (Cumulative)?

10) For those not in a relationship, do you think that if you were in a relationship, would it relate to your academics?

Authors Note

This research project would not have been possible without the assistance and guidance provided by several different individuals.

First, we would like to thank the IRB board for their helpful comments and assistance in regards to our IRB proposal.

Next, we would like to offer an additional thank you to Dr. Bruce B. Kelly for taking time out of his busy schedule and allowing us to distribute surveys in his classes. He was incredibly sweet and even offered us to survey another one of his classes when we were unable to gain the sample size we wanted

In addition to those individuals, we would also like to thank the participants who signed up from the Human Subject Pool. We would not have been able to collect any of our data without you.

Finally last, but certainly not least. We have to offer an un-speakable amount of gratitude to Dr. Nohara LeClair. She provided us with the appropriate tools and materials to guide us along this past semester.

So thank you again to everyone who aided us along our journey. We appreciate it more than we could ever express.

Sleep Soundly

Mike Browne and Adam Saito

College students are constantly torn between a social life and an academic life. The erratic and crazy lifestyle that they live is one of a kind, and the things they do can greatly affect their grades. One of the things that many people believe is that better quality of sleep can lead to better grades in school. Through this experiment we tried to find statistical significance to support the hypothesis that lower sleep debt would relate to a higher GPA. We analyzed the surveys of 68 students, 39 women and 29 men, to rate sleep debt and record their associated GPA. After collecting the data we conducted a four-way ANOVA and failed to reject the null. We were unable to find a positive correlation between good sleep hygiene and GPA.

There is no doubt that college student's work on an extremely erratic and normally unstable schedule during both the week and the weekend. Unfortunately, many people today, including the college student population, are not aware of how important it is to maintain good sleep hygiene. Sleep hygiene is commonly described as exhibiting behaviors that promote attaining healthy amounts of sleep and works to avoid situations that would conflict with attaining sleep (Mastin, Bryson, & Corwyn, 2006). Since awareness of sleep hygiene can be extremely important, it is something which should be emphasized more in our society today. The general population suffering from sleep deprivation is known to fall victim to accidents on the job site, loss of jobs and an incredibly increased rate of accidents in automobiles, as opposed to those without sleep deprivation (Brown, Buboltz, & Soper, 2006). Inadequate sleep hygiene is defined as a, "sleep disorder due to the performance of daily living activities that are inconsistent with the maintenance of good quality sleep and full daytime alertness," (Mastin et al., 2006, p.

223). Obviously this becomes a problem when the lifestyle of a typical college student is brought into perspective.

Student life across the country is typically recognized as one involving late nights, binge drinking and unhealthy sleeping patterns paired up with high levels of anxiety and stress (Brown, Buboltz, & Soper, 2002). This stereotype is supported by recent findings which suggest that poor sleep quality can lead to significantly higher levels of psychological distress (Brown, et al., 2002, p. 33). Examples include symptoms such as depression, anxiety, reduced physical health, difficulties carrying out simple mental processes and drug abuse (Brown, et al.). All of these variables are capable of affecting student performance, but even more factors weigh against a student's favor. From puberty into a person's early twenties, about 9.2 hours of sleep is needed every night to sustain a healthy sleep debt (Sadd, 2007). Unfortunately, in a recently performed study, only 11% of students surveyed met the criteria for good sleep quality, the rest of the sample had moderate-to-severe sleep complaints (Brown, et al.).

Moving forward, the question of what can be done to fix this problem quickly arises. Perhaps the highest priority of all sleep problems is variable sleep schedules, which account for the greatest amount of variance in grades when compared with mood, stress level, social support, hours worked, gender, and age (Brown, et al., 2006). It seems that a lack of information may also be playing a large role in the problem. Many have the misconception that one can make up missed sleep during the weekend, or those eight hours of sleep is equally sufficient regardless of when it occurs, this is not true; waking up at the same time every morning can prove very beneficial with regards to good sleep hygiene (Brown, et al., 2002). Findings suggest that sleep practices (i.e. routines) are strongly related to overall sleep quality. These same findings also support the notion that knowing what to do is only half the battle, actually using the information

proves to be more difficult and more important (Brown, et al., 2002). Overall, the best approach to attacking sleep problems should be a psychoeducational process, followed up by using a formed routine. Psychoeducation is a process where people are involved in a group, or one on one, meeting where general thoughts, facts and situations are discussed regarding a topic. The purpose of the meeting is to gain knowledge and gain a better understanding on a topic. Although knowing what to do is half the battle, following through on the information and using it is equally, if not more, important.

The use of proper sleep hygiene seems to have a positive effect on a student's academic career as well as health in general. According to previous research, when subjects who received little sleep were compared to those with more sleep they tended to be less psychologically healthy (Kelly, 2004). Also, those who claim to have less sleep, report less creativity and lower grade-point averages than those who report longer periods of sleep (Kelly). Also, the time periods in which students are sleeping seems to have an effect on their performances. In one study, students with later wake up times in the morning were reported as having lower average grades in the first year of their college career (Banitt, 2002). Keeping this in mind, it does not take much critical thinking to relate grades to sleep patterns; one problem that many students are constantly battling is time management. With a routine and proper sleep cycle where you are waking up earlier, more time is available to study. It was found that studying has a very causal effect on student grade performance. It has been found that an increase in study effort of one hour per day caused first semester grade point averages to increase by .356 (Stinebrickner, 2007). Other activities that are made possible by early wake up and routine may also prove to be beneficial to grades in school. In one study a positive association was found between strength

training and GPA (grade point average) and also the following of spiritually-oriented subjects (Banitt).

The effect that a routine and a proper sleep cycle have on academic performance brings us to the purpose of our study. The purpose of this study is to record the sleeping habits and GPA of students on Lindenwood campus in order to determine whether or not there is a correlation between the two variables. A previous study conducted within the graduate students at Ohio University found that when hours of sleep are increased, GPA also increases (Kandell, 2004). Additionally, when hours of sleep decreased, GPA also decreased (Kandell). We plan on surveying students on a wider range than just hours of sleep alone, and further supporting Kandell in his research. Through this extensive survey we predict that there will be a positive correlation between good sleep hygiene and Grade Point Average. We are investigating further into whether or not there is a correlation because we notice that many students lack efficient sleep, and/or complain about not getting enough. Keeping this in mind it could prove valuable to find any correlation that may be between this and GPA.

Method

Participants

For this study, we obtained participants from the Human Subject Pool at Lindenwood University. Since we did not collect enough participants through the HSP alone, we went to two different classrooms at the start of class to collect data from those students in the course. The participants who were recruited through the HSP received a receipt obtain extra credit for volunteering for our study in their psychology, sociology, and anthropology classes. The participants surveyed from classrooms did not collect any compensation for participating. We collected data from 68 participants. Thirty-nine were women and 29 were men. Another

demographic we obtained was class standing, with 26 freshmen, 18 sophomores, 13 junior, and 11 senior. Four surveys had to be discarded from being analyzed due to the fact that those four participants were in their first semester at Lindenwood University and did not have a GPA.

Materials

A questionnaire (see Appendix A) was used in our research. The questionnaire was a standardized survey that was used in a previous study by Stanley Coren (1996). The survey asked about the participants' sleep patterns and how they felt when they woke up in the morning. We added additional questions to the questionnaire in order to obtain data about the participants' GPA. Two, informed consent forms were given to each participant as soon as they sat down for the survey. They were instructed to read over the form and sign both copies. One form was kept for our records and the other the participant kept for their records. We conducted the surveys in the psychology lab located in the basement of Young Hall. Two different rooms were used and they both contained two chairs and a table.

Procedure

The participants met the researchers in the psychology lab. Upon arriving the subjects were told about the research that was being conducted and the purpose. They also filled out consent forms stating that they are willing to participate in the study. Since no participants were under the age of 18, we did not need to obtain consent from a legal guardian, although the HSP does have signed parental consent for students that are under 18 years old. After completing the necessary paperwork to conduct the study, the participants were given the survey and as much time as needed to complete it. After a relatively quick process of completing the survey, the subjects were then debriefed about the study. The surveys were then taken by the researchers and scored according to the system used by Coren (1996). The system required the researchers to

count the number of, "yes," responses which correlated to the different levels of sleep deprivation. The levels ranged from, "none" to "severe." Each participants score was then compared to their grade point average.

Results

The means (M) score for sleep habits was, 8.29, with a standard deviation (SD) of, 2.516. The mean score for sleep can be described as the average participant having large sleep debt. The mean for GPA was, 3.1215, with a SD of, .51020.. The results were run using a Pearson Correlation and a one tailed test was done to find a significance between sleep debt and GPA ($r=-.108$, $n=68$, $p<.05$, sig. 1-tailed= .190). An inverse relationship was found.

Discussion

The results from our experiment failed to support our hypothesis. Originally we predicted that there would be a positive correlation between good sleep hygiene (i.e. low sleep debt) and grade point average. Although there was a weak correlation between the two, we failed to find significant statistical evidence supporting our hypothesis. In actuality we found a negative correlation between good sleep hygiene and grade point average, the poorer the sleep hygiene of a subject was the higher their GPA was.

These results contradicted previous findings which supported the idea that good sleep habits have a significant and direct correlation to GPA (Kandell, 2004). This may suggest that there are more specific details which attribute to sleep health and sleep patterns which can affect grade point average and effectiveness in the academic setting. Further studies may also want to look into specific sleep habits such as pre-bedtime rituals or post-sleep rituals.

Unlike previous sleep debt studies, we used a standardized sleep debt survey which did not record actual sleep time. On the opposite end of the spectrum, maybe sleep and grade point

average have a much simpler link to one another as opposed to more detailed. Perhaps specific sleep habits have nothing to do with it, and as long as you are attaining a certain average amount of sleep daily, academics do not suffer. It is possible that poor sleep habits at night, supported by napping throughout the day is equally as sufficient as proper sleep at night. This would support pervious research which reported that individuals who reported fewer hours of sleep also reported overall low grade point average and less creativity (Kelly, 2004).

One of the previously supported theories which our experiment contradicts is the idea that a variable sleep schedule is the worst possible scenario in relation to performance. Through our survey, variability and quality of sleep were two of the main factors while measuring sleep debt. Contrary to other resources, sleep variability does not seem to play a large factor in the academic setting or with GPA, which was proposed by Brown et al (2006).

Our research seems to work against many previous notions and concepts of sleep and mental abilities, which obviously brings about the idea that perhaps there are some flaws. First and foremost a wider variety of subjects would have been better suited for our study. Many students were those seeking extra credit in classes, which would most likely bring studious subjects to our survey. Studious people are already inclined to having good grades, so perhaps all of those students with poor grades did not find it worth their time to come out and take the survey. This would definitely affect the results of a study like ours, greatly influencing the average GPA. Another problem that seemed to arise during the process of surveying was the questionnaire itself. We used a previously created standardized test, slightly modified. While testing several subjects they mentioned that some of the questions could not be answered with a simple yes or no. This could have of course greatly affected our results.

Overall we learned a lot from the project, including how to improve it at a later point in time. With additional research and some adjustments to the survey, perhaps more accurate results could be collected. The theory that sleep greatly affects grades in school is yet to be proven or disproved, and until a perfectly designed research experiment can be put forth, we will not be able to tell for certain which are the best sleep habits for attaining the best grades.

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Appendix A

Survey

1. Do you usually need a loud alarm clock to wake up in the morning?

   Yes No

2. Do you usually hit the snooze button to get a few extra minutes more of sleep when the alarm goes off in the morning (or simply turn off the alarm and try to catch a bit more sleep)?

   Yes No

3. Do you find that getting out of bed in the morning is usually a struggle?

   Yes No

4. Do you sometimes sleep through the alarm?

   Yes No

5. Do you sleep longer on the weekends than you normally do during the week?

   Yes No

6. On vacations and holidays do you sleep longer than you normally do on regular workweeks?

   Yes No

7. Do you often feel that your "get-up-and-go" has gotten up and gone?

   Yes No

8. Do you find that it is more difficult to attend to details on routine chores than it used to be?

   Yes No

9. Do you sometimes fall asleep when you had not intended to?

   Yes No

10. Do you sometimes find yourself getting very sleepy while you are sitting and reading?

    Yes No

11. Do you sometimes find yourself getting very sleepy or dozing off when you are watching TV?

    Yes No

12. When you are a passenger in an airplane, car, bus or train and the trip lasts over an hour without a break, do you commonly find yourself getting very sleepy or dozing off?

    Yes No

13. Do you tend to get sleep when you are sitting quietly at a public meeting, lecture or in a theater?

    Yes No

14. Have you sometimes found yourself getting extremely sleepy with the urge to doze off when you drive and are stopped for a few minutes in traffic?

    Yes No

15. Do you drink more than four cups of coffee or tea (containing caffeine) during the day? (Remember to count refills; also count extra large take out cups as two cups.)

    Yes No

16. What is your current GPA here at Lindenwood University?

._____.

17. What is your sex?

MALE FEMALE

18. What year are you here at Lindenwood University?

Freshman Sophomore Junior Senior Graduate

Work Ethic in America: Urban vs. Rural

Lindsey D. Geeding

The present study was conducted in order to see if there were any differences in work ethic between urban and rural areas in America. The subjects were recruited from Lindenwood University Human Subjects Pool. The subjects were given a questionnaire created by the researcher, and a survey created by Mirles and Garrett (1997). As the results showed, there were not enough participants gathered to show predicted trends. However, the results did show that International students have a stronger work ethic than American students.

The idea of studying work ethic in modern times was not developed until around the turn of the twentieth century when Max Weber came to America to study Industrialization. Max Weber believed that there was a correlation between the Protestant Religion, Work Ethic and Industrialization in America. As Weber states in his thesis, tireless labor was urged as the best way to have confidence of being one of God's chosen who would get into heaven. They believed that there was a list of people that would be chosen to go into heaven and these were the people who were happy. They noticed that the happy people were the ones who had monetary wealth. So in order to get on this list, the Protestants believed in working hard to gain this wealth and in turn they were working hard to gain entry into heaven. However, all of their monetary wealth was not used upon themselves, they could only use their excess money towards economic investments, therefore recycling their money back into the economy and allowing the economy to grow bigger (Weber, as cited in Baehr & Wells, 2002).

After publishing his work, other people became interested in seeing if this connection between industry, religion, and work ethic were true for people in any country. McClelland

(1961) ended up coming up with a hypothesis pulling away from the religious aspects of Max Weber's study, yet keeping the main component of the correlation between strong work ethic and economic growth. McClelland hypothesized that the need for individual achievement was part of the reason why we have economic growth. Out of this hypothesis he formed the N-ach, the Need for Achievement scale. He believed that some people more than others have a need for achievement and this is what boosts a society's economy (McClelland).

Another prominent psychologist to use the protestant work ethic as a starting point for research was Bellah. Bellah was interested in studying the Tokugawa Religion and its effects on the Japanese society as a result. In his studies he found similarities between the Zen Buddhists and the Protestant Work Ethic of Max Weber. Through this research it is suggested that this correlation between religion and economy might be found in other areas as well (Bella, 1957).

My research comes out of the research conducted by Wentworth and Chell in 1997. They did a study to see if there was a difference in work ethic ideals between Undergraduate students and Graduate students. Wentworth and Chell hypothesized that graduate students would have a stronger work ethic than undergraduate's. However, the results of their study showed the opposite to be true. In their discussion of the research both authors mention demographic research to be a good thing to further study in comparison to this study (Wentworth & Chell, 1997).

As a result I chose to study the demographic work ethic between rural and urban areas based on the environmental differences and the jobs that are available because of this. For example, there are many more technical, computer orientated jobs in a city versus a country town. Likewise there are more physical labor jobs, like farming, mechanics, landscaping, in country towns versus a city. Just as Furnham (1987) was able to predict, I hypothesized that

there will be a difference between the two demographic regions based on the cultural differences of these two areas and the research that has been conducted before me.

Method

Participants

The group of participants involved in this study came from the Lindenwood University Human Subject Pool (HSP). They were students registered in general education courses in anthropology, sociology, and psychology. The students that wanted to participate received one HSP credit per 30 minutes of participation and the professor of their class decided how much the credit was worth in their class. If the students do not wish to participate, then HSP gave them the option of an alternate writing assignment for the same amount of extra credit. This eliminated any coercion. 76 subjects signed up for the study, 26 were International students, and 50 were American students.

Materials

The 19 questions from the survey were taken from the Protestant Work Ethic Scale by Mirels and Garrett (1971). These questions were designed to evaluate a person's opinion of hard work, spending money, and leisure time and how it should be spent. The format of the responses is as follows; 1 strongly disagree to 6 being strongly agree (see Appendix A). I did have to change a few of the questions because they were gender bias.

Out of a possible 114 points, if the person scored high on the work ethic scale, between seventy-five or higher, then they agreed strongly with the Protestant Work Ethic. The participants were also asked to answer a short questionnaire about their gender, work status and leisurely activities (see Appendix B).

Procedure

The survey and questionnaire were given out in the psychology labs on the first floor of Young Hall. There was enough room to seat three subjects at one time. The participants were kept anonymous. If they desired to know the results of the study, they received those answers as aggregate data when the report was finalized.

To start, the participants were asked to read and sign a consent form, so that they would understand that if they did not wish to continue the study, they could terminate at any time with out penalty or prejudice. The next thing that they were given was the questionnaire, followed by the survey on work ethic. After they had completed the survey they were given a copy of the consent form they signed as well as a feed back letter with the researcher's contact information on it, and their credit slip for participation.

Results

When I looked at how many Rural and Urban American students I had, I realized that in order to perform any analysis I needed to add a third demographic. This ended up being the addition of a suburban population. I was able to define the category of each subject's demographic location by looking at the web site that each town had. Most of these web sites said whether or not the place was rural or urban or suburban. After separating the three groups I ended up with 18 urban, 17 rural, and 15 suburban subjects. I did not use the International students to conduct this part of the research.

A one-way ANOVA was conducted using SPSS and did not find a strong enough significance ($F_{2,47} = 2.537$, $p=.090$). Upon examination of the mean scores, it revealed trends in the predicted direction; Rural = 79.06, Suburban = 73.87, and Urban=74.41.

The next calculation that I performed on my data was to compare the scores of the International students with that of the American students. I only had 26 International students and all but a few were urban, so I decided to only compare them to the urban and suburban American scores. I performed an independent t-test and did find significance ($t(56)= 1.981$, $p=.05$). The data was in favor of my prediction, and supported Wentworth and Chell's (1997) findings, that International Students have a stronger work ethic than American students.

Discussion

Although I was not able to reject my null hypothesis regarding the work ethic of urban populations versus rural populations, the work is promising in the fact that I did not have 30 subjects in each group to obtain a normal curve. This study will be followed up with research done using the same instrument in the demographic area of each group, instead of the Lindenwood HSP.

With the questionnaire, I realized that the International students may have not put down the correct town they were from. They may have not realized that I needed the exact location of where they live. I believe that instead some may have put the closest big city that they were from. This could be the reason for all the International students that came up as urban. I realized that if I was in another country and someone asked me were I was from I would say St. Louis. However, my home town is actually two hours northwest of St. Louis. Also, when I do this study again, I also plan to change the questionnaire to determine the person's economic status, because I believe that this can also have an effect on a person's work ethic.

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Appendix A

Questionnaire

SUBJECT ID NUMBER_____(Assigned by Researcher)

1.) Are you MALE FEMALE?

2.) What is your age?

_____

3.) What is the name of the town that you are from?_____

4.) What is the name of the State (Provence) that you are from?_____

5.) What is the name of the Country that you are from?_____

6.) What is your occupation (If you do not have a job, but play a sport in an athletic program, that is okay as well.) and what does it involve? (e.g. personal relations, maintenance, answering phones)

_____

_____

_____

7.) What do you do to relax?

_____

_____

8.) What do you do for fun? (Please be as specific as you can)

_____

_____

9.) Do you think that you will have any problems understanding the survey that follows?

Appendix B

Survey

Please circle the number that corresponds to the word you agree with.

1.) Most people spend too much time in unprofitable amusements

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

2.) Our society would have fewer problems if people had less leisure time.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

3.) Money acquired easily (e.g., through gambling or speculation) is usually spent unwisely.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

4.) There are few satisfactions equal to the realization that one has done his best at a job.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

5.) The most difficult college courses usually turn out to be the most rewarding.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

6.) Most people who don't succeed in life are just plain lazy.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

7.) The self-made man is likely to be more ethical than the man born to wealth.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

8.) I often feel I would be more successful if I sacrificed certain pleasures.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

9.) People should have more leisure time to spend in relaxation.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

10.) Any man who is able and willing to work hard has a good chance of succeeding

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

11.) People who fail at a job have usually not tried hard enough.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

12.) Life would have very little meaning if we never had to suffer.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

13.) Hard work offers little guarantee of success.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

14.) The credit card is a ticket to careless spending.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

15.) Life would be more meaningful if we had more leisure time.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

16.) The man who can approach an unpleasant task with enthusiasm is the man who gets ahead.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

17.) If one works hard enough he is likely to make a good life for himself.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

18.) I feel uneasy when there is little work for me to do.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

19.) A distaste for hard work usually reflects a weakness of character.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

Author Note

I would like to thank all of the people that helped me complete this study. First and foremost to I would like to thank Dr. Nohara-LeClair for helping with analyzing the results. Next I would like to thank Diane Wentworth for getting me the question's for the survey done by Mirles and Garrett (1971), since our library did not have the article that it was published in. I would also like to think Dr. Scupin for his guidance and help with finding the right materials. Finally, thanks to all the HSP students who participated. Without their interest I would not have been able to conduct this research.

If you are interested in this study and would like to contact me, my e-mail address is lindg83@yahoo.com.

Men and Women: Preferences in Description

Christopher H. Cook, Debra Leek, and Stefanie Sutton

With many observable differences between men and women, this study tires to identify preferences in description of specific colored shape stimuli. We hypothesized that men would more likely describe the stimuli by naming its shape while women would most likely identify the color. Our study found significant difference between men and women's descriptions, but not in a way to support our hypothesis. Undergraduate students recruited through the Lindenwood University Human Subject Pool for this experiment showed that men mostly described the stimuli using "other" phrases (like stop sign or sun) while women mostly identified stimuli by shape. However, women described the stimuli by color for all pink and green cards.

While we know that men and women vary in many ways such as how they cope with depression, choose their favorite professors, recall and describe vivid memories, and with both the content and emotion linked with color description, this study sought to find if there was a gender-related difference among participants between shape and color when asked to describe an object (Arthur, Johnson, & Young, 2007; Basow, Phelan, & Capotosto, 2006; Daughtry & Paulk, 2006; Niedzwienska, 2003). Given that people have been shown to act in ways that are classified as either masculine of feminine on an Extended Personal Attributes Questionnaire in different situations, we can see that a typically male, or typically female, response are affected by situations and stimuli (Vonk & Ashmore, 1993). A possibility of this could be that people are acting in ways that they think are socially acceptable; a form of this thinking is what we were trying to capture here. According to the findings in the previous study, if we present our

participants with stimuli, they should project their own masculinity or femininity into the description of that stimulus.

In a recent study, significance was found showing adolescents were more likely to choose candidates who expressed strong stereotypical gender qualities associated with each participant's gender while young adults chose candidates mostly by looking at his or her professional qualities (Lobel, Nov-Krispin, Schiller, Lobel, & Feldman, 2004). Most of the participants who took part in our study would have been classified by the last experiment as adolescents; this may suggest that when presented with the stimuli in our experiment, the participants would also describe the objects in ways that are either stereotypically masculine or feminine. In addition, while the stimuli presented here were not being asked to be judged on merit, we assumed that even the young adults that took part in our experiment gave descriptions analogous to ones that would coincide with his or her gender.

When asked to describe the ideal person for professional activity, it was found that both men and women would tend to assign that person more masculine traits rather than when asked to describe the ideal person for close personal relationships (Echabe & Castro, 1999). Also, it was found that prototypically popular men disliked school subjects and students who did not correlate with the mainstream male stereotype (Kessels, 2005). Not only are there differences in the types of classes and people preferred by those who are prototypically masculine or feminine, but that general levels of intelligence differ between the sexes in that women achieve more detailed interpersonal relationship knowledge while men achieve higher cognitive skills (Raty & Snellman, 1992).

An interesting article suggests that there may also be evolutionary benefits that would promote a greater ability for women to distinguish and notice color and for men to be perceptive

of more complex shapes (Alexander, 2003). These neurological evolutions that promote specific color/shape recognition difference between the sexes could be because of added chances in survival. The study suggests that men greatly identify and recognize forms (shapes) that elicit some possible forms of motion (Alexander, 2003). For example, a circle could be seen to men as a ball that could be set into motion. The evolutionary advantage here for men comes from being able to recognize an object and see how it would go into motion, then later relating that form and motion recognition into life skills like hunting. Also, the study suggests that women have an evolutionary predisposition to color discrimination/recognition (Alexander, 2003). The evolutionary advantage for the women here is that they will be able to discern flora better when gathering food or be more responsive in the care of infants.

As previous research clearly states, the differences between men and women are very complex and almost infinite. Pertaining specifically to our experiment of men and women's description differences between shapes and colors, there is evidence supporting an evolutionary neurological predisposition to be more discriminatory between the two that exists between the sexes (Alexander, 2003).

The rationale driving our experiment was to see if yet another sex difference, that between color and shape description, significantly occurs. Our hypotheses for this experiment include, if men are presented with a stimulus and asked to describe it with one word, then they will be more likely to give preference towards a shape description. Also, if women are presented with the same stimuli and asked to describe it with one word, then they will be more likely to give preference towards a color description. These hypotheses were somewhat reached from the review of the previous literature in the field, especially the neurological study presented by

Alexander, however, the hypotheses were mostly concluded by face-value validity seen in everyday interactions.

Method

Participants

Participants were 32 undergraduate students from Lindenwood University (8 men and 24 women) who took part in the study to earn optional extra-credit points in their social science classes. The students were recruited via Lindenwood's Human Subject Pool, which consists of students in introductory level psychology, anthropology, and sociology courses. The students received extra credit for those courses listed above for their participation in the experiments. Students were able to participate by signing up for the study on the HSP board located on the fourth floor of Lindenwood's Young Hall.

Materials

The materials used in this experiment were: chair; desk; pen; data recording sheet (for experimenters); survey questionnaire with questions of: "Are you?" with answer choices of: male or female; a free-response question of "Are you color blind?"; a free-response question of "Do you have a favorite color?" ; a free-response question of "If yes to the previous question, what color?" ; a free-response question of "Do you have a preference for a shape?" ; and a free response question of "If yes to the previous question, what shape?" (Appendix A); sixteen 3"x5" flash cards containing pictures of white shapes outlined thinly with black, colored shapes outlined thickly with black, or colored shapes not outlined at all, there were also flash cards of objects like cars and animals (Appendix B); informed consent form (Appendix C); and feedback letter (Appendix D). The cards of objects like makeup and cars were added to counterbalance the effect of seeing very similar stimuli many times; some cards were outlined to see if a specific

black outline would influence descriptions in color or shape. The study was conducted in the basement of Young Hall in room Y105. The room was small, normally lit, and contained a desk and chairs at which the experimenters and participants sat; the temperature of the room was at standard room temperature. The SPSS computer program was used to run a chi-square analysis of the data

Procedure

When the participants arrived, they were greeted and told to come inside the laboratory room and have a seat at the desk and chair. The participants were given the lab receipt, which was how they received their extra credit, and told to fill it out and return it to the HSP office so they would receive their extra credit. Next, the participants were told to read and sign the consent form and they were given their own copy. The participants were also informed that if for any reason they wished to stop the experiment it would be fine and they would be free to leave while still collecting extra credit. The participants were then instructed to fill out a six-question survey (Appendix A). After the participants took the survey, the experimenter collected it and then the participants were instructed about what would happen next. The participant was told that he or she would be shown 16 different flashcards and that he or she was to describe the items on the cards using only one-word phrases. They were told to say the first word that came to their mind after seeing the card first followed by any other one-word phrases the felt necessary to describe the item. They were told to do this for every flashcard until finished. The words each participant used to describe the items on the cards were recorded in the same order that participants gave them and were coded with a 1 for shape, 2 for color, and 3 for an "other" response. An answer yielding a score of 1 would include giving the name of a color as the description, for example: blue or green. An answer earning a coded score of 2 included giving

the name of a shape as the description, for example: triangle or hexagon. An answer that would earn a coded score of 3 included giving a response that would be classified as "other" (here, these "other" answers were actual object or symbolism drawn for the stimuli) for example: sun or breast cancer. The data was recorded and kept by the experimenters in their own houses in a private file used to store all of the experimental data. After the experiment had been conducted, the participants were debriefed and finally given a feedback letter, and verbally told that they could contact any of the experimenters for results, questions, or concerns at a later time.

Results

From the data coded and entered into the computer software program SPSS; a chi-square analysis was done on all of the data. It was found that overall men gave a majority of "other" responses for nearly every stimulus while women gave responses of shape for nearly every stimulus except those that were pink or green to which they reported color. The percentages shown represent the most frequently used description of each sex. For the black and white hexagon 62.5% of men described as other while 41.7% of women described as shape; χ_2^2 =5.147, p=.076. For the red triangle 62.5% of men described as other while 54.2% of women described as shape; χ_2^2= 8.015, p< .05. For the pink outlined hexagon 50.0% of males described as other while 75.0% of females described as color; χ_2^2 = 8.178, p< .05. For the black and white trapezoid 50.0% of men described as other while 45.8% of women described as shape; χ_2^2 = 3.623, p > .05. For the pink hexagon 50.0% of males described as other while 75.0% of females described as color; χ_2^2 = 9.881, p< .05. For the outlined orange circle 37.5% of men described both shape and other equally while 50.0% of women described as shape; χ_2^2 = 6.174, p< .05. For the Green trapezoid 75.0% of males described as other while 70.8% of females described as color; χ_2^2= 10.163, p< .05. For the black and white circle 62.5% of males described as other and

79.2% of females described as shape; $\chi_2^2 = 4.848$, $p < .05$. For the black and white triangle 62.5% of men described as shape while 79.2% of women described as shape; $\chi_2^2 = 1.111$, $p > .05$. For the outlined green trapezoid 87.5% of males described as other while 54.2% of females described as color; $\chi_2^2 = 9.067$, $p < .05$. For the outlined red triangle 62.5% of males described as other while 54.2% of females described as shape; $\chi_2^2 = 19.000$, $p < .05$. For the orange circle 62.5% of males described as other while 45.8% of females described as color; $\chi_2^2 = 8.222$, $p < .05$ (refer to Table 1).

Discussion

Other than what was predicted, we found that every time a man described a card, neither color nor shape description was used more than a response classified as "other". This other category would contain things like "sun" when seeing the orange circle, or "stop sign" for the hexagon. As unpredicted, it was shown that women mostly described the cards by using shape descriptions, except when the colors were green or pink. When the cards depicted shapes that were colored with either green or pink, women described them by using color rather than shape. The responses of color from women when describing green and pink were analogous to the findings of Vonk & Ashmore (1993) where typically masculine or feminine responses can be related to stimuli. Pink was most listed by the women as their favorite color and was the most gender-specific color towards women, possibly prompting them to describe the card using color rather than shape. However, green is most likely gender-neutral, and perhaps a closer look at the correlation between the color green and the aspect femininity can be taken.

This sample rejects the notion presented by Alexander that men will be more geared towards identifying forms (shapes) while women will identify color. With such a small sample

size, the reason the hypothesis presented by Alexander was rejected here was most likely due to inadequate amounts of data.

Men most frequently described every stimulus with an "other" response; this suggests a tendency towards abstract thinking in this sample. This possibly could be due to males trying to give more masculine answers or possibly because females tired to keep their answers simple and to the point. Either way, there is a great difference between attributing the stimuli to symbols or objects for males, while females kept it to just the color and shape.

As we predicted, there were significant differences between the responses given by men and women when describing the stimuli. Two of the most statistically significant results came from the descriptions of the pink hexagon and green trapezoid, both of which were not outlined in black. This is interesting because not only are these the two colors that were found to be overwhelmingly used by women but these were the two most complex shapes, as opposed to circle and triangle.

The results from this study show that there is a difference in the descriptions given by men and women to certain stimuli. Factors such as outline, color, and shape all seem to be prioritized differently between the genders.

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Table 1

Stimulus	Computed χ^2 Value	Statistical Significance; p = .05
B/W Hexagon	5.147	.076; p< .05
Red Triangle	8.015	.018; p< .05
Pink Hexagon W/ outline	8.178	.017; p< .05
B/W Trapezoid	3.623	.163; p > .05
Pink Hexagon	9.881	.007; p< .05
Orange Circle W/ outline	6.174	.046; p< .05
Green Trapezoid	10.163	.006; p< .05
B/W Circle	4.848	.028; p< .05
B/W Triangle	1.111	.574; p > .05
Green Trapezoid W/ outline	9.067	.011; p< .05
Red Triangle W/ outline	19.000	.000; p< .05
Orange Circle	8.222	.016; p< .05

Appendix A

Questionnaire

1. Are you?

   Male Female

2. Are you colorblind?

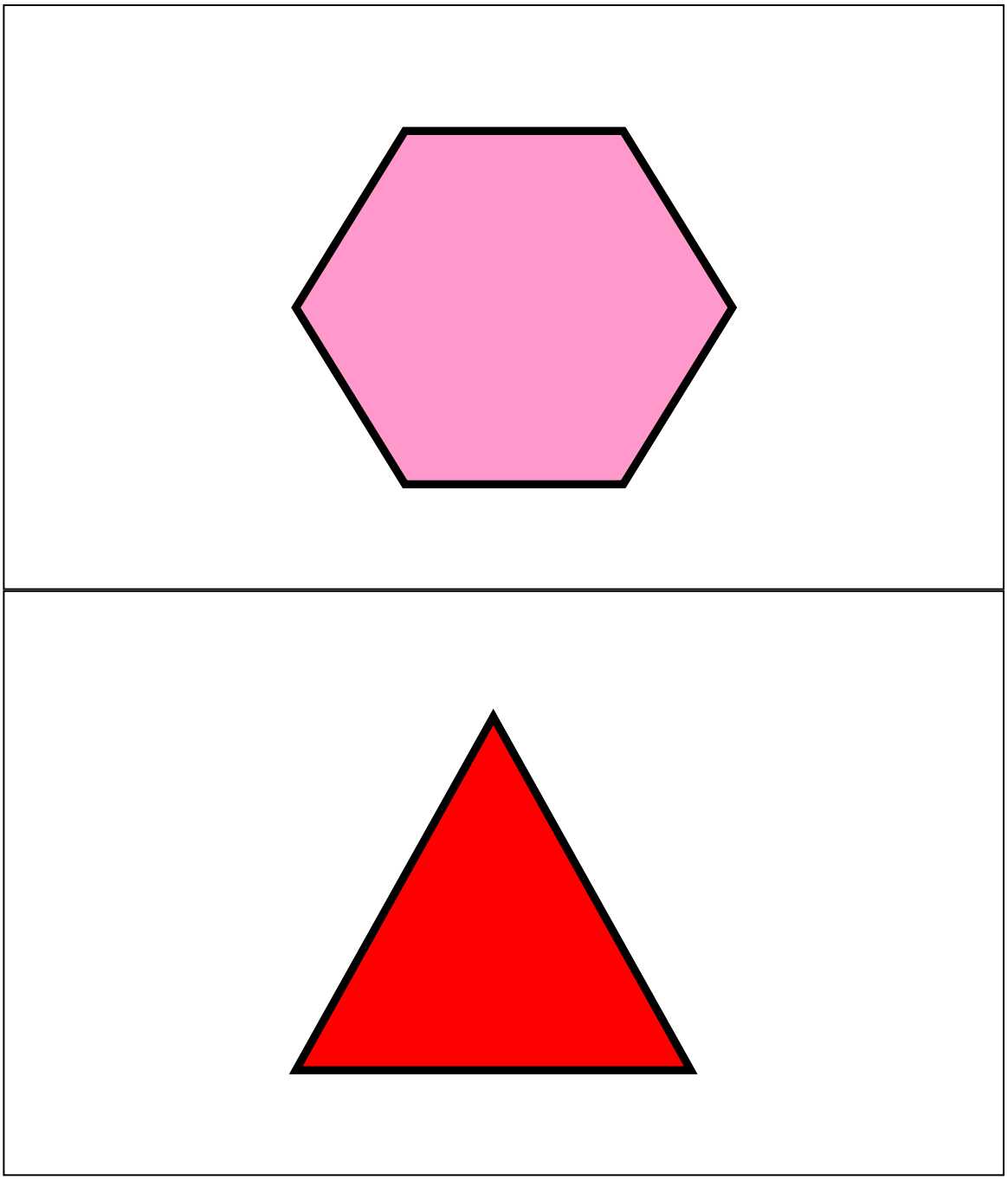
3. Do you have a favorite color?

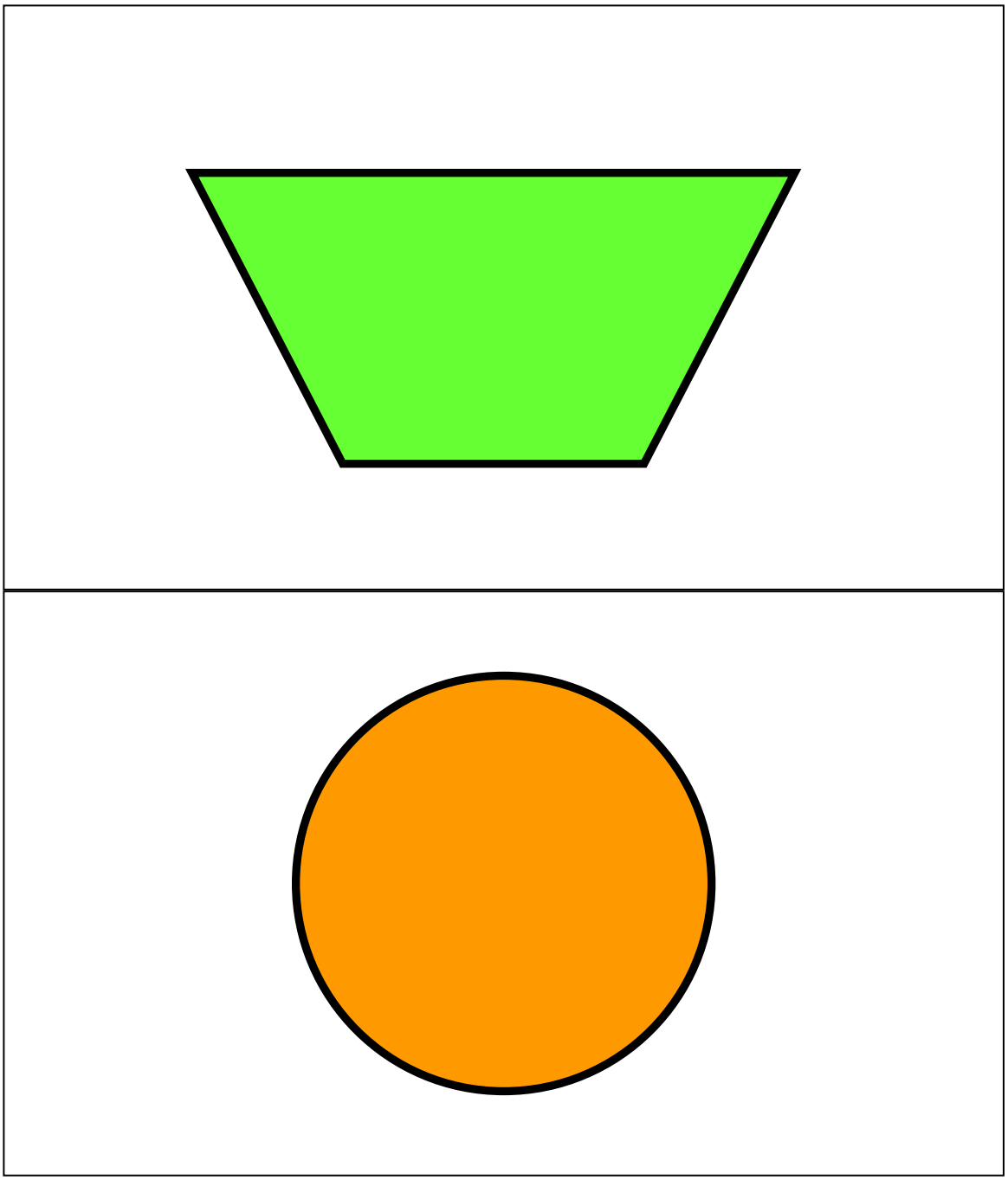
4. If yes to number 3, what color?

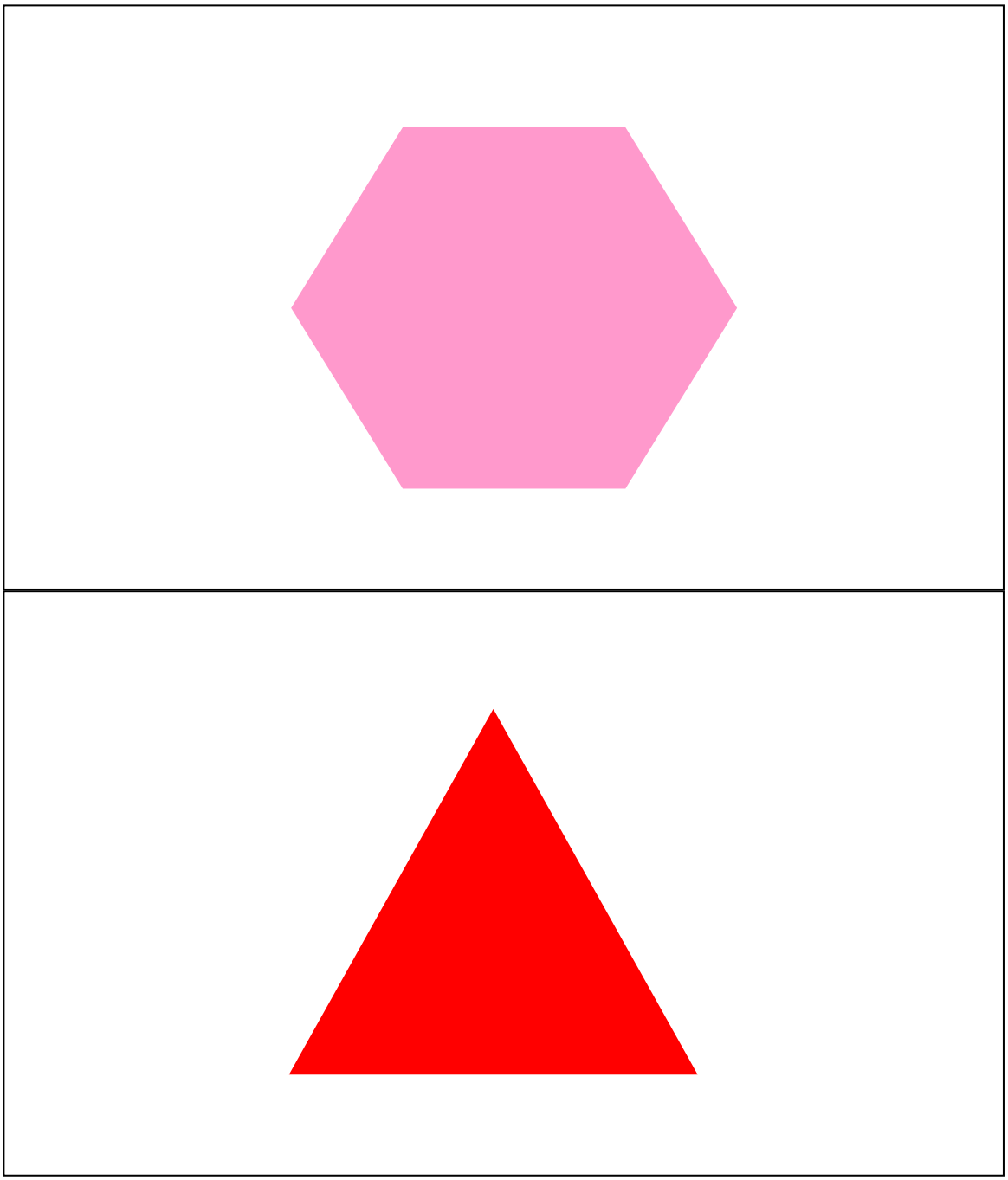
5. Do you have a preference for a shape?

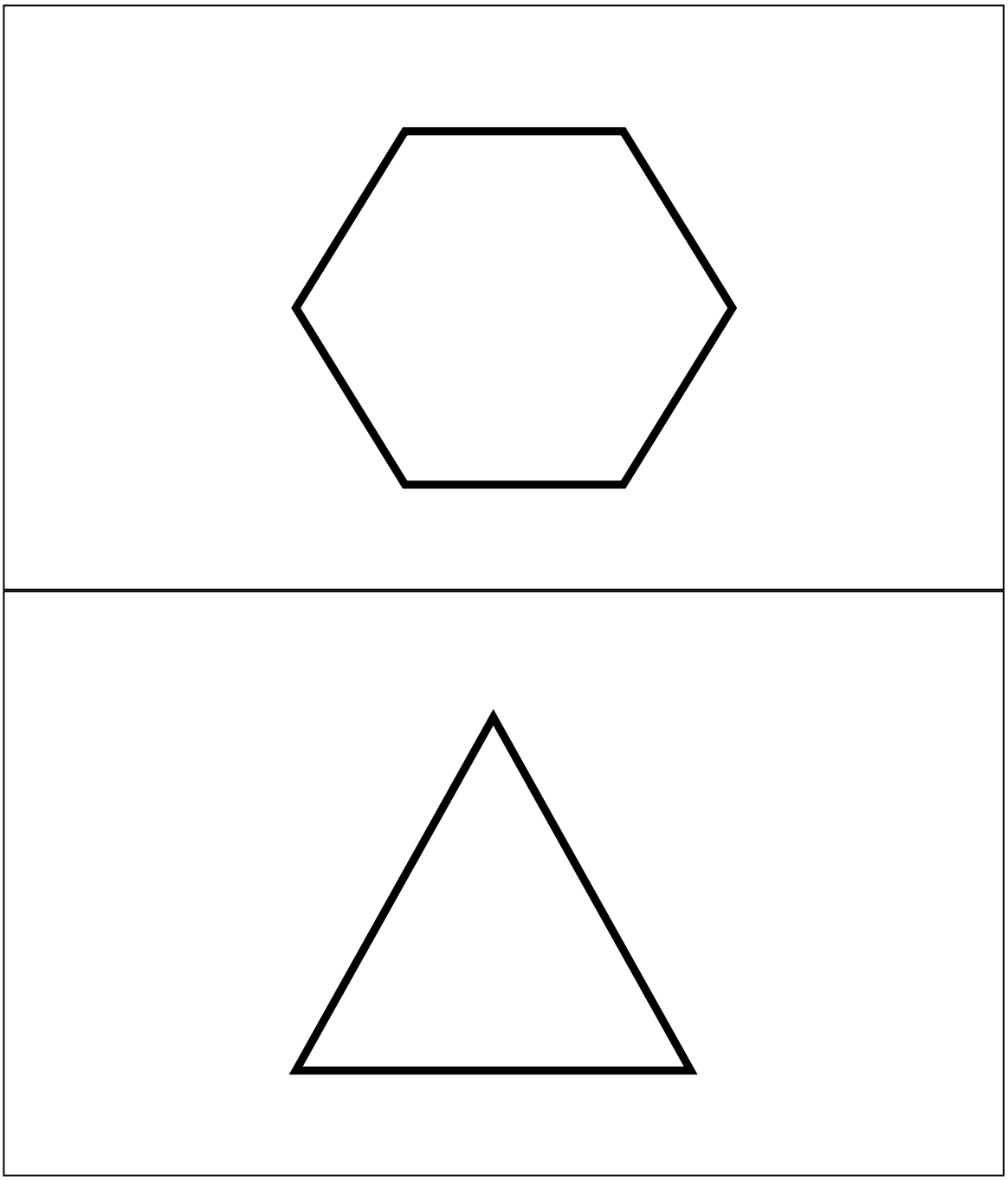
6. If yes to number 5, which shape?

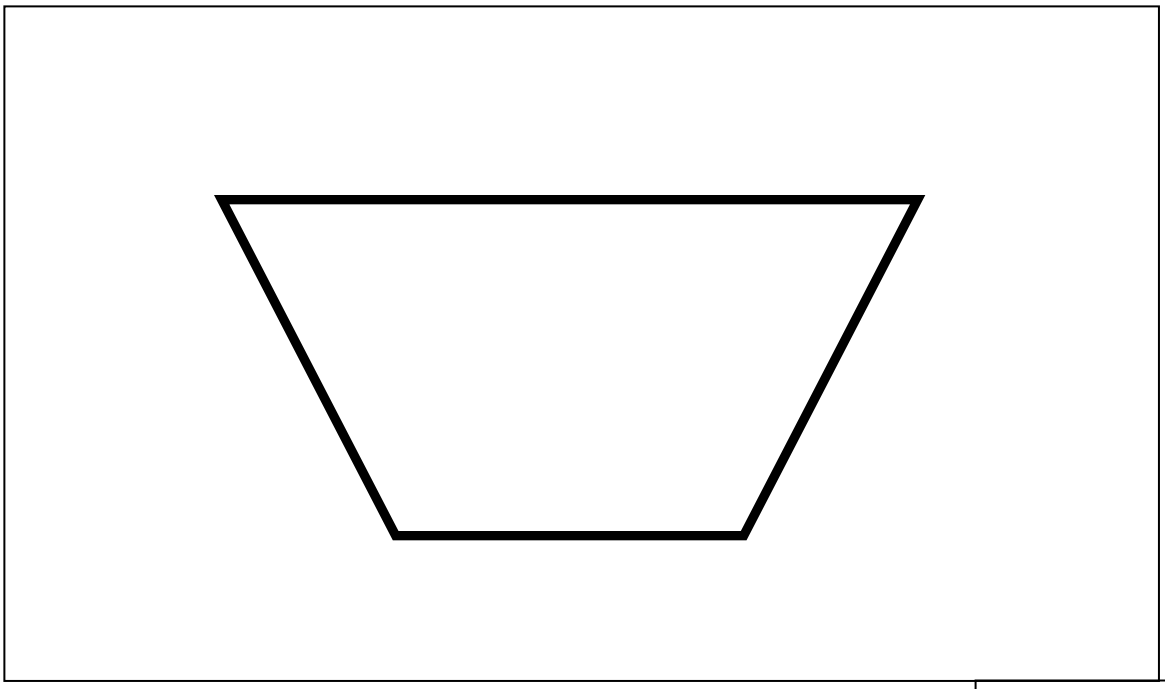
Appendix B

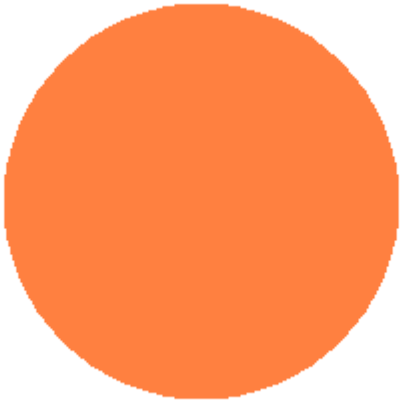


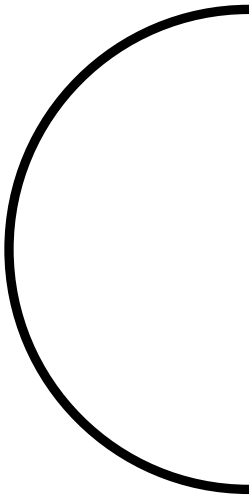












Appendix C

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete a short questionnaire asking about my gender and color preferences and participate in an experiment requiring me to describe objects on flashcards. To the best of my knowledge, I do not have any disabilities that may hinder my ability to see color or objects on flashcards. 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 HSP 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 E-Mail:
Chris Cook cc671@lionmail.lindenwood.edu
Stefanie Sutton srs564@lionmail.lindenwood.edu
Debra Leek dcl506@lionmail.lindenwood.edu

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

Appendix D

Feedback Letter

Thank you for participating in our study. The questionnaire was used in order to determine people's beliefs about whether or not objects and color play a gender specific role. We hypothesized that men and women would describe shapes and pictures differently. The flashcards were used in order to determine people's priorities based on color and shapes. We think our study could result in more effective advertisements for companies.

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:

Chris Cook cc671@lionmail.lindenwood.edu
Stefanie Sutton srs564@lionmail.lindenwood.edu
Debra Leek dcl506@lionmail.lindedwood.edu

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

Stereotyping, Racism, and the College Student

Martha Tarnowski

This experiment intended to study how college students use racism and stereotyping in judging new people as well as how influential these assumptions can be. It will also examine whether women are more likely than men to use stereotypes as a basis for their opinion and whether the severity of the stereotype has anything to do with the amount of influence it has on a person's judgment. Participants will be given a questionnaire regarding demographics and their personal opinions on racism and stereotyping as well as a short scenario with questions regarding their reaction to what they read. The study found significance regarding each of the hypotheses.

Most people are not willing to admit it but a certain amount of judgment occurs when meeting someone for the first time. While many believe that race and stereotyping are not as influential as in years past, it seems to still play a prevalent role in society. When meeting someone new, most college students will most likely make some sort of snap judgment about the person based on their physical appearance. The question is how much this will affect their opinion of the person.

In a study by Peruche and Plant (2006), participants were shown a picture of either a White or Black college man along with a picture of either a neutral or sports-related object. They found that when the picture depicting a Black man was shown, participants were more than likely to identify sports-related objects as neutral and neutral objects as sports-related. However, when the man in the picture was White, this did not happen. This may show that people rely on the stereotype that Black men may tend to be more athletic than White men.

In another study conducted by Izumi and Hammonds (2007), individuals were given descriptions of a Korean, Mexican, or Jewish individual that were either stereotypical or nonstereotypical. The stereotypical descriptions of the Jewish and Mexican individual were linked with less favorable ratings while this was not the case with the description of the Korean individual. This could be due to the fact that Jewish and Mexican stereotyping is more prevalent in the United States and, therefore, would be more likely to have an effect on the participant's opinion.

Marcus, Mullins, Brackett, Tang, Allen, and Pruett (2003) conducted a study about students' observations of racial discrimination on a college campus. They found that Black students saw more of a racial bias in how Non-blacks acted than White students saw in the actions of Non-white students. Students also reported a lower level of racial bias in regards to the campus than the instructors. Marcus et al. indicate that this shows that students would be more susceptible to covert discrimination than overt. It also indicated students would be more likely to feel discrimination in class than on campus.

A study by Hall and Closson (2005) studied White graduate students at historically Black colleges or universities and Black students at traditionally White campuses. This study found that Black students were actually more well-adjusted than White students and that the White students actually felt a larger sense of exclusion. It also showed that the White students did not want to accept the fact that there were Black students who may have better skills than their own. Another interesting finding from this study had to do with a Black faculty member and the White students. Even after being told straightforwardly that the Black faculty member did not like White women, the White students showed reluctance to attribute his behavior to racial feelings and instead tried to offer other reasons such as role, gender, or personality.

Finally, in a study by Merrit and Harrison (2006), participants were given two scripts about a person named Chris that were neutral in terms of gender and ethnicity. The study found that European Americans would most frequently identify Chris as European American while attributions by African Americans were more diverse and more likely to identify Chris as a person of color, not necessarily African American, rather than European American. This may be due to the fact that European Americans show an automatic preference for their own ethnicity. The study also revealed that African Americans would be more likely to make attributions based in ethnicity while European Americans were more likely to make gender attributions.

The current study was designed to examine not only how college students use racism and stereotyping in their judgments of new people but also how influential these assumptions can be. The purpose was to see how much college students let stereotyping and racism affect their opinions of strangers. The study also examined whether women are more likely than men to use stereotypes as a basis for their opinion about someone and whether the severity of the stereotype (i.e. racial versus physical appearance such as clothing) has anything to do with the amount of influence it has on a person's judgment.

Method

Participants

There were a total of 69 participants. However, due to fact that any foreign exchange students were excluded from analysis, the final number of participants was 47. Out of these 47, there were 29 women, 18 men. Thirty-four of the participants were Caucasian, seven were African-American, two were Hispanic/Latino, one was Asian, and three qualified themselves as other. There were 15 freshman, 20 sophomores, seven juniors, and five seniors. Ages ranged from 18 to 27 years old. All participants were recruited through the Human Subject Pool at

Lindenwood University which is comprised of all students in general education psychology, anthropology, and sociology courses. In return for participation in experiments, subjects received extra credit in whichever of these courses they were enrolled.

Materials

There was a questionnaire regarding racism and stereotyping (see Appendix A) as well as two versions of a short scenario with corresponding questions (see Appendix B). The questionnaire consists of questions regarding demographic information about the participant as well as how questions regarding racism and stereotyping. Questions regarding racism and stereotyping asked how often the participant felt as though they were the subject of stereotyping and racism, how often they used stereotyping and racism in their judgments, and how prevalent they believed racism and stereotyping are in society. The scenario portion had one version with a Caucasian man and one with an African-American man. They were both the same in every other aspect of description. The first few questions following the scenario asked about the reactions and assumptions the participant felt and made. There was also a second set of questions that gave minor changes to the scenario, that is, opposite race or different age, and asked whether that would change the participants original reaction.

There was also an informed consent form and feedback letter that participants were given. There was an extra credit slip and experimenter's list of participants that participants were asked to fill out. Other materials included a manila envelope for all completed paperwork and a pen. Young Hall 105 Lab A was used for the majority of the experiments. This room contained a desk, two chairs, a computer, and a television cart. Young Hall 105 Lab B was also used for a small portion of experiments which contained three chairs, a desk, a table, and a computer. The door was kept closed during experiments in both labs.

Procedure

Participants were tested individually. They were asked to sit on one side of the table while the experimenter sat on the opposite side. First, they were asked to fill out the extra credit form and experimenter's list of participants, followed by two copies of the informed consent form. The participant kept one copy of the informed consent form and the other went to the experimenter. The participant was then given one of two versions of a short scenario and asked to read it and respond to the questions following. Once finished with the questions, they were then given a questionnaire to fill out. During this time the experimenter left the room and closed the door. Once they were finished with the questionnaire, participants were given a manila envelope and told to seal the scenario and questionnaire inside. They were then informed that the envelope would not be opened until the experimenter had finished gathering data that no answers could be associated with them. They were then given a feedback letter, told what the study was regarding, and thanked by the experimenter.

Results

To determine the participant's judgment rating, the score from their initial reaction to the scenario was combined with the score of how uncomfortable they would feel in the given situation. To determine the severity rating, it was counted how many times a participant answered "yes" to the seven questions following the initial reaction ratings. Regarding the hypothesis of whether the severity of a stereotype has an influence on the person's judgment, a relatively strong correlation was found: $r = 0.504$. It was also interesting to note that only five of the forty-seven participants admitted that race would be a factor in their reaction. As for the hypothesis regarding a sex difference in a stereotype's influence in judgment, significance was

also found: $t_{(45)} = -3.855$, $p<.05$. And finally, regarding the hypothesis concerning sex differences in the influence of a stereotype's severity, significance was also found: $t_{(45)} = -3.087$, $p<.05$.

Discussion

Overall, this study did reveal significance regarding the influence of stereotyping and racism on college students. It was found that the more severe a stereotype is, the more likely a person will be influenced by it when making judgments about new people. It was also found that women are more likely than men to be influenced by both the stereotype alone as well as its level of severity. Overall, women reported being more uncomfortable and intimidated by the given scenario then men did. This result could be due to the fact that women are much more wary of their surroundings and are more likely to be intimidated by a male when they are walking alone at night.

In terms of how their initial judgments were influenced, students who responded "yes" to the question concerning the subject's appearance commonly stated the fact that a more well-dressed individual was more likely to be successful or more well-educated and therefore would seem to pose less of a threat. The people who answered "yes" to the question regarding race stated reasons such as growing up in a rough neighborhood where people would rob you or it would depend on the location or statistically more crimes are committed in the city and the majority of people there are black. In terms of having more people with them, the majority of people stated they would feel safer because there is safety in numbers. Those who answered "yes" to the question regarding whether their reaction would differ if the situation were to occur during the day stated that the fact that it was light out and there are usually more people around to act as witnesses would make them feel more secure. Regarding the question of whether a woman in the scenario instead of a man would make a difference, most people responded that

they would feel safer because they felt as though they could hold their ground better against a woman than a man.

This study did have a few limitations. The main limitation seemed to be that, due to the sensitive nature of the topic, it could be that participants were wary of answering completely truthfully and instead answered in ways that they believed were socially desirable. Also, due to the fact that exchange students were excluded, there was a very uneven amount of men and women and there was a smaller group overall than was originally intended. A solution to this would have been to either include exchange students or to survey classes rather than rely on individuals signing up. Another issue that should have been addressed would have been to ask whether participants had ever been in a situation similar to what was given in the scenario. A woman who had been mugged, for example, would be much more likely to have a strong reaction compared to someone who never experienced a similar situation.

As for future directions, it would be interesting to conduct a study either solely focused on exchange students or comparing them to native students. It is possible that there could be significant differences found between the two groups due to the fact that exchange students are minorities and that would make them more likely to be exposed to the issues. It would also be interesting, although difficult, to study differences between college students and the opinions of their parents. It seems as though the influence of stereotyping and racism has decreased from one generation to the next and that college students are more open to different types of people than the generation of parents that may have grown up during the time of extreme racial tensions.

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Appendix A

Questionnaire

1. Circle one: Male Female

2. What race are you: Caucasian African-American Hispanic/Latino

Asian Native-American

Other: _____

3. What year were you born? _____

4. What year did you graduate high school? _____

5. What year are you in college?

Freshman Sophomore Junior Senior

6. How often do you think you are the subject of a stereotype?

(1= never and 5= always)

1 2 3 4 5

6a. How so?

7. How often do you think you are the subject of racism?

(1= never and 5= always)

1 2 3 4 5

7a. How so?

8. How often have you let stereotypes affect your judgment of someone?

(1= never and 5= always)

1 2 3 4 5

8a. How so?

9. How often have you let racism affect your judgment of someone?

(1= never and 5= always)

1 2 3 4 5

9a. How so?

10. How prevalent do you think racism is in society today?

(1= not at all and 5= extremely)

1 2 3 4 5

11. How prevalent do you think stereotypes are in society today?

(1= not at all and 5= extremely)

1 2 3 4 5

Appendix B

Scenario:

You are walking alone at night and an overweight, middle-age African-American [stated as Caucasian in second scenario] man approaches you. He is dressed in baggy jeans and a loose-fitting t-shirt and, at a glance, seems unruly and as though he could cause trouble.

Questions:

1. What is your initial reaction?

1 = not at all intimidated and 5 = very intimidated

1 2 3 4 5

2. How would this make you feel?

1 = not at all uncomfortable and 5 = very uncomfortable

1 2 3 4 5

3. What judgment would you make about the person?

4. What would you decide to do based on the judgment in 3?

5. Would you react differently if:

If yes please specify how so

A. he was dressed neatly in a shirt and tie?

YES NO

B. he were Caucasian but dressed the same way given in the scenario?

YES NO

C. you were with someone else or a group of people?

YES NO

D. this happened during the day?

YES NO

E. the person was a female?

YES NO

F. he was your same age?

YES NO

G. he was of average weight?

YES NO

Author Note

The author would like to give tremendous thanks to Rachel Rogers for going out of her way to help with the entering of data and analysis. Without her, it would have never been finished on time. A big thank you also to Dr. Nohara-LeClair for all of her help hammering out the details of the survey and scenario as well as the time she spent reviewing the final results. The author would also like to thank all the students who took the time to participate in the experiment.

Differences Between Races During Questioning by the Police

Amy Barron

This experiment was conducted with 100 volunteers from Lindenwood University (20 staff and 80 students). There were 56 male and 44 female participants. Each participant took a survey pertaining to their past encounters with the police. The researcher was trying to determine if there was: a) a difference between races in the amount of people who had been questioned by the police for looking suspicious, b) the reason why the people who had been questioned felt they had, c) if there was a difference between sexes and questioning for looking suspicious and d) if any sex and race combination was more likely to be questioned for looking suspicious (e.g., African American males). A Chi Square analysis was conducted and the results of the first two analyses revealed there were promising trends, they did not reach significance. The last two analyses showed strong significance between the groups.

When determining if a person looks suspicious, is skin color a factor that plays a role in fitting the mold of a criminal? Are certain races more likely to be questioned by the police for simply "looking suspicious"? If law abiding citizens of a certain race are questioned more by suspicious police, what other factors besides racism could play a role? These are all very serious questions that are current issues between minority U.S. citizens and the police.

The purpose of this study is to see if there is, in fact, a racial difference in the amount of people who are questioned either for looking suspicious, or for fitting the description of a perpetrator. One hundred participants were surveyed to determine what race and sex were more commonly approached by the police under these circumstances. Those who reported they had

been in either of these situations were called for a telephone interview to gather specific information about the incident and the feelings of the "suspect" on the situation.

This study was inspired by the researcher's Criminal Justice professor. The professor asked his class who had been questioned by the police for looking suspicious or fitting the description of someone wanted for a crime. In response, four African American males raised their hands while no other students of any sex or race raised theirs. Racial profiling is not a new topic to the Criminal Justice field. Several studies have been done in the past to see if minorities are targeted by the police for crimes as minor as traffic stops. Ridgeway (2006) conducted a study utilizing only moving violations and mechanical/registration violations to see if there in fact was a difference between race and amount of times each was pulled over. The researcher used only these violations because, unlike felony and misdemeanor stops, the police were allowed to use discretion when pulling these people over. The study also noted, "these are the type of discretionary traffic stops that are commonly associated with the issue of racial profiling (p.13).. While Ridgeway's results did not show any significant differences overall, he did note that different regions show much greater differences when pulling over "blacks" than "white" citizens. Another study by Lundman and Kaufman (2003) found that African Americans are more likely to be stopped and that both African Americans and Hispanics are less likely than Whites to be stopped for legitimate reasons. In these situations, the officers did not pull the African American drivers over for traffic violations, but instead because someone in the car was said to be participating in suspicious behavior.

Traffic stops are not the only instances where racial profiling is rumored to be prominent. Racial profiling in shopping centers had also been a common topic of interest when the effects of racism are studied. Lee (2000) conducted research on the experiences of seventy 75 residents in

five predominately black neighborhoods in New York and Philadelphia. His research showed that black men were treated with more suspicion than any other sex or race. Gabbidon and Higgins (2007) found in their study that "African American individuals compared to other races are more than ten times as likely to perceive themselves as having experienced CRP (consumer racial profiling)" (p.5).

Since several studies had been done to show racial profiling is a significant issue within the police force, two officers were interviewed to get their opinions as to why these events may be occurring. Both of the officers wished to remain anonymous but offered that one worked at Wentzville, Missouri Police Department and the other at the Hazelwood, Missouri Police Department. The Wentzville officer reported that when questioning a person because of fitting the description of a suspect they are looking for, the police are justified in their actions. "We are given a description of the person to look for and we do it. We are given less descriptive options when looking for a black person though. With a white person, you have hair color and eye color options. With a black guy, we only have hair style and that their eye color is brown" (anonymous, personal communication January 23, 2008). On the other hand, two African American participants in the study separately reported they had previously been questioned by the police because the suspect the officers were looking for was a "black man wearing a white shirt". While both of the participants reported they were wearing white, they were offended by the fact that that was the only description given to the police. A police officer from Hazelwood reported that he always tried to avoid racism, but, "whether we like it or not, it still happens. Some of my coworkers are racist and they don't even realize it. On the other hand though, some try so hard to not be racist they let minorities off on things they would cite a white guy for" (anonymous, personal communication, February 12, 2008). Neither of the officers were able to

offer reasons that would account for the differences between races concerning questioning for "looking suspicious".

It seems that most people today agree racism is a serious issue, but how much of these accusations can be statistically backed up? Is it possible that minorities mistakenly assume they are being victimized when in fact the person questioning their behavior is justified? This survey will not only tell what races, if any, are targeted more, but also give the people who feel they are victimized a chance to explain what reasons they feel caused them to be questioned by the police. The researcher hypothesized that on study 1), that African American participants would be questioned more than any other race group, on study 2), that African American participants who had been questioned for looking suspicious would be more likely to attribute the reason for the questioning to race, on study 3), that men would be questioned by the police more for looking suspicious and on study 4) that African American men would be more likely than any other race/sex group to be questioned for looking suspicious.

Method

Participants

Forty-four women and 56 men voluntarily participated in this experiment. Twenty participants were faculty or staff at Lindenwood University and 80 participants were Lindenwood Students. Ages of the participants ranged between 18 and 68. Of the participants, 51 were White (non Hispanic), 32 African American, 6 Asian, 8 Hispanic, and 3 were Multi-Racial (see Figure 1). Some of the participants were recruited through the Human Subject Pool at Lindenwood University. These participants were awarded extra credit points in either a psychology, sociology or anthropology class for participation in the study. All participants who did not receive extra credit were rewarded a piece of candy for their participation. The student

participants that were not part of the Human Subject Pool were recruited either from general education classes at Lindenwood University or from the Black Student Union at Lindenwood University. The faculty/ staff participants were randomly selected to participate and were visited during their office hours by the researcher.

Materials and Procedure

The researcher was assigned a room in the Psychology Lab at Lindenwood University to conduct the experiment with Human Subject Pool participants. The lab contained two desks and two chairs. One desk also contained a computer; this desk was used as the researcher's desk. Two classrooms were also used. Classrooms of Professor Witherspoon (Criminology) and Professor Mueller (Inter-Cultural Communication) used to obtain other Lindenwood participant's data. In these rooms there were several chairs, all facing the same direction with about two feet between participants. One of these rooms was in Roemer Hall and the other in Young Hall. The remainder of the Lindenwood participants were recruited through the Black Student Union (B.S.U.). These students took the survey in one of the classrooms in the Spellman Center. First all participants were asked to read and sign an informed consent form granting the researcher permission to conduct the study and ensuring that that their rights were understood. Along with the consent form, all participants were verbally reminded they would need to put their telephone number on the survey in case they qualified for a follow up interview. Next, a survey was given to all participants questioning previous involvement with the police and demographic information (see Appendix A).

Upon completion of the survey, participants were given a feedback form explaining the reasoning behind the study. All participants were also verbally debriefed following the survey. After the surveys were completed, those who answered "yes" to having been questioned by the

police because they "looked suspicious" were called for a follow-up interview held over the phone. The follow-up interview was conducted one week after all surveys were completed. The follow up interview can be found in Appendix B. A pen or pencil was used to record all data and a computer was used to graph answers and keep all information on file. The program, SPSS, was used to analyze all data.

Results

A Chi-square analysis was performed on all of the participants' responses to determine if there was a relationship between a person's race and whether they were questioned or not. The results revealed that the two effects were not related, $X^2_4 = 8.206$, p=.084. While significance was not reached, the results were nearing significance. This did not support the researcher's hypothesis that African Americans would be more likely to be questioned by the police for looking suspicious.

The respondents' belief of the reason why they were questioned was compared to their race. The results of this study revealed that the two were not related, $X^2_4 = 10.754$, p=.550. While significance was not found, results were nearing significance when comparing races to the reason why they felt they had been questioned by the police. This also did not support the researcher's hypothesis that African American participants would be more likely to attribute the reason for questioning to their race.

The next analysis was to see if men or women were questioned more by the police for looking suspicious. This result supported the researcher's hypothesis, $X^2_4 = 22.955$, p<.001. This showed strong significance, revealing that men were questioned more than women for looking suspicious.

The final analysis compared a person's race combined with their sex to police interaction. The results of this study revealed that the two were related, $X^2_4 = 39.922$, p=.002. This supported the researcher's hypothesis that African American men would be questioned more by the police for "looking suspicious".

Discussion

In this study trends were found showing that African Americans were questioned more for looking suspicious but the results had not quite reached significance. Other results showed definite relation between sex and police interaction and African Males and police interaction. As with any study, more participants will always give a more accurate result. In order to receive a more accurate result, a greater sample size and a more diverse sample would be ideal. More participants of minority races would help the researcher receive more representative sample. In this study, only 6% of the participants were Asian, 51% White, Non-Hispanic, 32% African American, 8% Hispanic, and 3% multi racial. Out of all of the participants, 47% had been questioned by the police merely for looking suspicious. These percentages are very uneven. Perhaps with an equally divided sample, results would reach significance. Perhaps if the study were done at another campus a more diverse sample could be obtained. Lindenwood University's ethnicity chart can be seen in Table 1.

Because the researcher needed more African American participants in the study, the study was also conducted at a Black Student Union meeting held on the Lindenwood campus. This may have skewed the results since the rest of the participants were either from the Human Subject Pool, faculty/staff, or General Education classes.

Participants were also questioned in the original survey to determine whether the general population believed certain races were targeted by the police or not. The results showed that 39%

believes African American's are targeted, 26% believes a combination of African Americans and Hispanics are targeted, and only 20% reported they felt that no race was targeted by the police. Participants who reported they had been questioned for looking suspicious were also asked why they felt they had been questioned. Only one person reported they were actually participating in suspicious (but legal) behavior. Only 6% reported that they felt their race was the reason they were questioned. Two of the participants who had reported they chose "Other" for their belief as to why they were questioned because they felt they had only been questioned because they were in a group of African Americans. The woman who reported "other" reported that she was with two African American men and the police man pulled up to her and asked "Mam, are you alright?", when nothing out of the ordinary was going on. The man who had chosen "other" reported that he was the only white person in a car with all African Americans and felt he had only been questioned because the others were. After conducting the experiment, the researcher noted that it seemed males were more likely than females to be questioned by the police for looking suspicious. This may be an interesting topic to look into at a later time.

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Figure 1

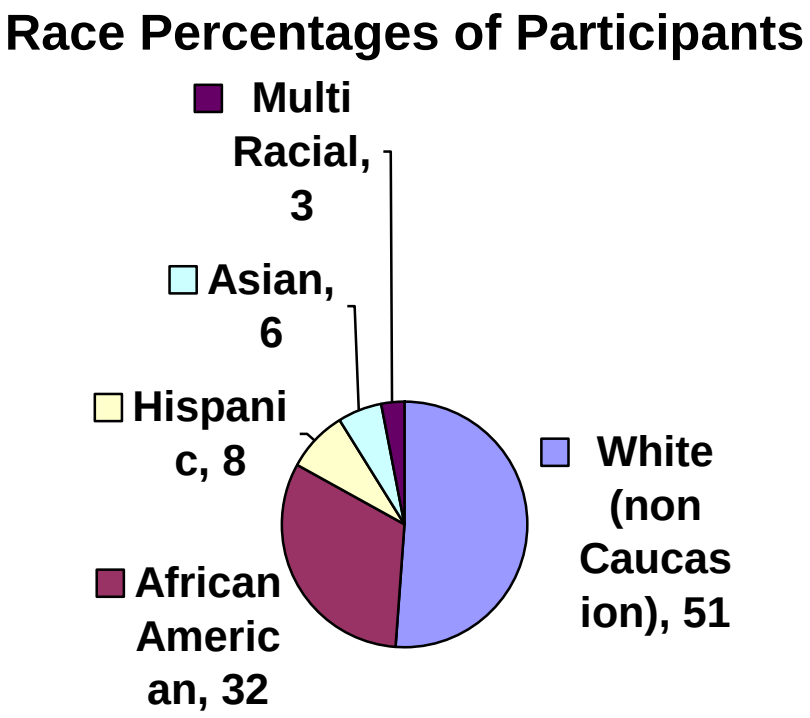
Race Percentages of Participants
Multi Racial, 3
Asian, 6
Hispanic, 8
African American, 32
White (non Caucasion), 51

Table 1

Total Male Students = 3,618		**Full time**	**Part time**
Total Female Students = 6,015	**Student Total**	**Instructional Staff**	**Instructional Staff**
Men & Women			
Non resident alien	711	0	0
Black, non-Hispanic	1530	4	10
American Indian / Alaska Native	7	1	2
Asian / Pacific Islander	73	10	3
Hispanic	99	1	15
White, non-Hispanic	6454	172	358
Race / ethnicity unknown	740	0	0
Total	9633	188	391

Appendix A

Criminal Justice Survey Part I

What is your… Phone Number

1) Age*

2) Sex*

3) Race: Please check all that Apply.*

Black, Non Hispanic_____
Pacific Islander_____
Asian_____
White, Non Hispanic_____
Hispanic_____
Multiracial _____ & _____
Other: (please specify) _____

4) G.P.A (last year of schooling)

5) City and/or Country you have lived in a majority of your life

6) Number of years of schooling you have received?

7) Have you ever been arrested or taken into custody? (with or without prosecution)

8) Have you ever been convicted of a crime? (this includes crimes such as speeding)

9) Have you ever been questioned by the police simply because you "looked suspicious"? *

10) Have you ever been questioned by the police because you "fit the description" of a person they suspected of committing a crime"

THANK YOU FOR YOUR PARTICIPATION

*** Only questions 1, 2, 3, and 9 were used in this study. The rest were filler questions.**

Appendix B

Criminal Justice Phone Interview

1) How many times have you been questioned by the police because you simply "look suspicious"?

2) THE MOST RECENT: Do you believe the police questioned you because of:

a) You really looked suspicious

b) the amount of people you were with

c) your race

d) the time of night or location

e) other

_____

_____

3) What was (were) the race(s) of the officer who questioned you? (please list each instance separately) (most recent incident).

THANK YOU FOR YOUR PARTICIPATION

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