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## Suggestibility and Test Anxiety

Lauren Martin<sup>12</sup>

*This paper aimed to test the power of suggestibility and how it affected college students' anxiety on tests. My hypothesis was that after students watch a motivational video, their anxiety about the test would decrease and their scores on the test would be better than participants who watched a video that did not have to do with motivation. Data from previous research shows that the higher stress levels one has, the lower their performance will be. I conducted an online survey with college students recruited from Lindenwood's Participant Pool and through Facebook and Twitter. Participants agreed to an informed consent form, answered questions about their anxiety, watched a video, completed a test with questions found on the Graduate Record Examination (GRE), and asked more questions about their anxiety. I found that there were significant differences in the motivation group and the neutral group when it came to feeling motivated, feeling good about their performance on the test, and feeling less nervous about the GRE.*

Many students suffer from test anxiety when they are in school. Wanting to succeed on a test for a class can put a lot of stress on one's academic performance. When someone is stressed he or she does not always put all of their focus on the task at hand. Motivation can also affect one's performance. When someone is motivated or feels more confident, he or she will perform better than someone who has higher stress levels. Suggestibility is where one is influenced by something. Watching a motivational video before a high stress event, such as taking a test, can influence a student and may alleviate one's performance on the test.

Hartman, Waseleski, and Whatley (2017) found that emotional dysregulation does influence performance on college students' academic GPAs. Emotional dysregulation can include not being aware, understanding, accepting, or controlling one's emotions. The researchers used data from 191 participants attending Valdosta State University. Participants

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completed the Difficulties in Emotion Regulation Scale (DERS) which measured their emotional regulation. They found that when a student is stressed they may not perform as well because they will not put all of their concentration on the test. They also found that students who have less emotional regulation strategies have lower GPAs. These results may show students that it is important to be confident in order to succeed (Hartman, et al., 2017).

Putwain and Aveyard (2018) found that when a student has a higher confidence level, he or she will do better on a test and will have lower anxiety levels. Their study had 270 participants from two different high schools in England. Without any incentives, students filled out two questionnaires about test anxiety and self-belief. They measured students' academic buoyancy, perceived control, and test competence. The researchers found that higher levels of self-beliefs led to higher test scores and higher levels of stress led to worse test scores (Putwain & Aveyard, 2018).

Hahn, Kropp, Kirschstein, Rücker, and Müller-Hilke, (2017) measured 48 medical students' psychological distress, heart rate, anxiety, blood pressure, and saliva. They took these measurements before the students took three tests required for medical school at the end of their second pre-clinical year. Their results found that the medical students had higher levels of anxiety before the oral part of the exam than their written exam. This confirmed their first hypothesis that the oral exam would induce more stress (Hahn, et. al, (2017). They also found that a lot of these students experienced depressive symptoms that decreased their confidence levels.

Hadjistavropoulos and Hadjistavropoulos (2012) used data from 107 older adults. The participants had an average age of 76.80 and were given \$25 for their participation. They wanted to measure anxiety and how it affected gait in elderly people. The participants were assessed by Medical Risk Factor Questionnaire and the Survey of Activities and Fear of Falling in the

Elderly. Their study found that if there was an increased fear of falling it affected how the participants walked on the different surfaces. If they were afraid, they walked slower and more carefully while multitasking (Hadjistavropoulos & Hadjistavropoulos, 2012).

Azimi (2016) also touches on anxiety during oral or speaking exams and how they are much higher than written exams. Students reported to their teachers and counselors that during oral exams, students forgot the answers to the test because of high levels of anxiety (Azimi, 2016). Azimi used two tests, the Cloze-test and the C-test, and an anxiety questionnaire to measure which test caused more anxiety in 60 female college students. These women attended a college in Iran, were junior level students, and were majoring in English translation. The Cloze-test is where students read over the passage where multiple words are left blank. The C-test is where every other word has half of the word deleted. They found that students experience more anxiety when they are taking tests with more guessing, the C-test, than ones that were over general English, the Cloze-test.

My hypothesis for this research is that the participants who watched the motivational video will have less anxiety than the group who watches the neutral video. The motivational video will make participants feel more motivated, so they will feel better about their test performance. I also hypothesized that the neutral video group will not feel less anxiety after the test. Finally, I hypothesized that the motivational group will have better test scores than the neutral video on the GRE test.

## **Method**

### **Participants**

The participants included in this study were recruited through Lindenwood's Participant Pool (LPP), Twitter, and Facebook. Only college students who were 18 and older were allowed to participate in this study, unless they had a parental consent form filed with the LPP office. The

LPP is available to students who are in participating general education classes at Lindenwood University. Students are encouraged to participate in online and in person studies. For my study there were 21 participants who agreed to participate and completed the survey. There were other students who agreed to participate but did not complete the survey, so their data was not included. Students who participated in my online survey study received one extra credit point for their class. Other Lindenwood students and other college students not recruited from the LPP did not receive any compensation for the study. Students who were not recruited through the LPP were invited to participate through a link on Twitter and Facebook. All of the participants agreed to participate in the study and chose that they were over 18. Out of the 21 participants who completed the survey, 17 were female, 3 males, and 1 who preferred not to answer. There were 6 freshmen, 4 sophomores, 4 juniors, and 7 seniors in the study. There were no Asian, Native American, or Pacific Islander participants in my study. The majority of participants were Caucasian. There were 17 who reported that they were White or Caucasian. There was 1 Black or African American, 2 Hispanic or Latino, and 1 Multiethnic participant. The survey asked if the students felt anxiety before taking a test. There were 9 who selected “Probably Yes” and 8 who selected “Definitely Yes.” When asked about taking the GRE, 7 selected “Might or Might Not,” while another 9 chose “Probably Not” or “Definitely Not”. Out of all 21 participants, only 5 had selected that they “Definitely Yes” or “Probably Yes” take the GRE.

### **Materials and Procedure**

My survey was created on Qualtrics and was administered online. Students were asked to have headphones, speakers, or earbuds for the survey, so they could listen to the online videos. Before students were allowed to participate in the study, they had to read the informed consent statement and electronically agree to participate. The informed consent form stated that

the participant would be taking a test over mathematics, vocabulary, comprehension, and then asked questions about their anxiety when taking a test. The form also let the participant know that he or she could choose to discontinue the study at any point and would not be penalized (see Appendix A). After agreeing to participate, students were led to the questions on the questionnaire. In the questionnaire, participants were asked demographic questions and questions about their levels of anxiety levels when taking tests or thinking about taking tests (see Appendix B). For this study, there were two groups who watched two different videos. One video was a motivational video (Believe in Yourself, 2014) with the purpose of making the participants feel more confident before they took the test. The second video was a neutral video (Best of Cute Golden Retriever Puppies Compilation, 2016) that did not give or take away any confidence. Qualtrics randomly administered the videos to each participant. The videos were similar in length, the motivational video was four minutes and nine seconds while the neutral video was three minutes and fifty-nine seconds long. Both groups were given the same 10-question multiple choice test (Free GRE Practice Tests, 2018) over mathematics, vocabulary, and comprehension (see Appendix C). The groups had a total of 30 min to complete the entire survey. Participants could finish the survey before the 30 min were up. There was also an option for participants to exit the test at any point without penalty. After the test, participants were given a survey over their anxiety (see Appendix D). I created the test anxiety survey questions and asked about participants anxiety levels and if the video that they watched had alleviated any of it. After the survey, participants were debriefed in the feedback letter (see Appendix E). This letter informed participants that this study was used to determine how anxiety and motivation affect performance. It thanked participants for participating in my study and gave them my personal contact information so if they had any questions they could email me or call my personal cell phone.

## Results

To determine if there were differences between the group who watched the motivational video and the group that watched the neutral video, I conducted independent samples t-tests. I hypothesized that the motivational video group would have less anxiety than the group who watched the neutral video. There were only three independent t tests that showed a significant difference. The students were asked different questions and scored the answers from 1 – strongly agree, 2 - agree, 3 – somewhat agree, 4 – neither agree nor disagree, 5 – somewhat disagree, 6 – disagree, and 7 – strongly disagree. The first independent t test was done to see if there was a difference between the motivational video and neutral video on feeling motivated after watching the video. The participants who watched the motivational video were significantly more motivated ( $M = 2.25$ ,  $SD = 1.05$ ) than the students who watched the neutral video ( $M = 4.78$ ,  $SD = 1.92$ ;  $t(19) = -3.86$ ,  $p < .001$ , one tailed). The next independent samples t-test was conducted to see if there was a difference between the motivational video and neutral video on feeling like they did well on the test. The participants who watched the motivational video felt significantly better about their performance ( $M = 3.12$ ,  $SD = 1.24$ ) than the students who watched the neutral video ( $M = 5.56$ ,  $SD = 1.74$ ;  $t(19) = -2.53$ ,  $p = .01$ , one tailed). The last significant independent samples t test was done to see if there was a difference between the motivational video and neutral video on feeling less nervous to take the GRE after the practice. The participants who watched the motivational video felt significantly less nervous to take the GRE ( $M = 4.08$ ,  $SD = 1.31$ ) than the students who watched the neutral video ( $M = 5.44$ ,  $SD = 1.74$ ;  $t(19) = -2.05$ ,  $p = .03$ , one tailed). There were no other significant relationships between the motivational video group and neutral video group.

## Discussion

My study revealed that there was a difference in the video groups and how they affected the students' anxiety levels. This supported my hypothesis that the motivational video would be affective in motivating students. The students who watched the motivational video felt motivated at a higher rate than the neutral video. The neutral video, the one about puppies, did not make the participants feel very motivated. The motivational video also made students feel better about their performance on the test than the neutral video did. Students who watched the motivational video reported that they felt less anxious to take the GRE after this practice than students who watched the neutral video. This supported my hypothesis that the motivational video would make students have less anxiety. There was not a significant difference between the scores of the test and the video that was watched. This did not support my hypothesis that students who watched the motivational video would perform better on the test.

Just like Putwain and Aveyard (2018), I also found that higher confidence levels led to lower anxiety levels. Unlike their study, I did not find a significant difference in test scores with the motivational and neutral videos.

There was a drop off in participants when the survey asked if the participants had headphones, earbuds, or a speaker to complete the study. Participants may not have read clearly enough and understood they could use the speaker on their computer or phone to hear the video. There was a higher amount of freshman 6 participants, than sophomores and juniors. This may have been because they were in participating LPP classes and wanted extra credit points. The majority of participants were seniors, 7 participants. This may have been because most of the people on my social media are my friends and are closer to my age and year in school. There are also mostly upper classmen in the Advanced Research Methods class who may have participated in my study through the LPP as participants rather than as researchers. The



majority of my participants chose that they “might or might not” or “probably not” take the GRE in the future. This may be because there are younger participants who may not have considered taking the GRE yet. Another reason would be that they are not planning to go to graduate school so they do not need to take the test. This may have caused students to not answer the questions or take them as seriously. The math questions were harder than normal math questions they may see since they were sample GRE questions. They were meant to be challenging and tricky. The comprehension and vocabulary questions used words that one may not always use in everyday conversation. I did not ask participants if English was their first language or if they were foreign students, so the questions may have been even harder to understand.

Some limitations that may have affected my study include time restraints and sample size. I might have had more time to collect data and recruit participants if my study had been up for a longer time period. I wish I could have gotten my paper work to the PPSRC and IRB quicker for approval. I also would have made sure that all of the required items were on IRB.net. If I were to expand on this research, I would add more questions to the demographic survey. More questions would include asking about learning disabilities, age, involved in sports or activities, had a job, were an international student, if English was their second language, and if they had ever been diagnosed with any kind of anxiety, depression, or mental illness.

Future research should focus on watching different videos or different ways of making students feel motivated. Watching a sad video may make students feel sad and not perform as well. Students could also take different tests that are easier or over certain subjects. The research should mainly focus on ways that effectively make students feel more prepared and confident before taking important tests.

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## Appendix A

**Informed Consent Form****Introduction**

The researcher who is conducting this project is an undergraduate student at Lindenwood University who is enrolled in the PSY40400: Advanced Research Methods course. The primary purpose of this class project is for the student researcher to learn how to design, implement, and analyze survey research through first-hand experience. The findings of this project will only be presented to the professor for the course, Dr. Michiko Nohara-LeClair, in the form of a written report.

**Procedures**

This survey asks you to respond to a few demographic items as well as questions asking about your level of test anxiety. Test anxiety refers to how stressed you feel when completing or thinking about a test. You will then be asked to take a 10-question test over math, comprehension, and vocabulary. This test has a time limit of 20 minutes; however, you can end early or chose to stop at any point. This questionnaire will be conducted with an online Qualtrics-created survey and should not take any more than 30-40 minutes of your time.

**Risks/Discomforts**

There are no known risks associated with this study. If you do not feel comfortable completing any part of this survey, you are free to skip any questions or withdraw without penalty.

**Compensation and Benefits**

By taking part in this study, you will earn 1 bonus point toward your LPP participating course. You will also gain experience taking part in a psychological survey project and potentially learn more about the field. If you are interested in learning more about this project or would like to learn about the results of this project once completed, please contact Lauren Martin at [lm552@lindenwood.edu](mailto:lm552@lindenwood.edu).

**Confidentiality**

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

### **Questions about the Research**

If you have questions regarding this study, you may contact Lauren Martin at [lm552@lindenwood.edu](mailto:lm552@lindenwood.edu) or direct your inquiries to the course professor, Dr. Nohara-LeClair at [mnohara-leclair@lindenwood.edu](mailto:mnohara-leclair@lindenwood.edu) or (636)949-4371.

**ELECTRONIC CONSENT:** Please select your choice below.  
Clicking on the "Agree" button below indicates that:

- You have read the above information.
- You voluntarily agree to participate.
- You are at least 18 years of age or you are a minor but have a signed parental consent form filed with the LPP Office.

## Appendix B

## Test Anxiety

Q7 I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

- Agree (1)**
- Do Not Agree (2)**

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

*Display This Question:*

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

Q8 How old are you?

- I am at least 18 years old (1)
- I am younger than 18 years old (2)

*Display This Question:*

*If How old are you? = I am younger than 18 years old*

Q9 Do you have a signed parental consent form filed with the LPP Office?

- Yes (1)
- No (2)
- I do not know (3)

*Skip To: End of Survey If Do you have a signed parental consent form filed with the LPP Office? = No*

*Skip To: End of Survey If Do you have a signed parental consent form filed with the LPP Office? = I do not know*

Q10 Are you a current student enrolled in a college or university?

- Yes (1)
- No (2)

*Skip To: End of Survey If Are you a current student enrolled in a college or university? = No*

Q33 Do you have your headset, earbuds, or speakers available so you can hear the audio that goes with the video you will be watching in this study?

- Yes (1)
- No (2)

*Skip To: End of Survey If Do you have your headset, earbuds, or speakers available so you can hear the audio that goes with... = No*

Q11 What is your sex?

- Female (1)
- Male (2)
- Prefer not to answer (3)

Q12 What year of school are you in?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)
- Graduate Student (5)

Q13 What is your race/ethnicity?

- Hispanic, Latino, or Spanish Origin (1)
- Black or African American (2)
- Asian (3)
- Native American or American Indian (4)
- Caucasian or White (5)
- Native Hawaiian or Other Pacific Islander (6)
- Multiethnic or Other (7)
- Prefer not to answer (8)

Q14 Do you feel anxiety before taking a test?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

Q15 Do you feel anxiety when thinking about taking a test?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

Q16 Do you plan to take the Graduate Record Examination (GRE)?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

Q17 Have you already taken the GRE?

- Yes (1)
- No (2)

## Appendix C

Q18 You now will be asked to complete a test with Graduate Record Examination (GRE) like questions. You can skip any questions or choose to stop the test at any time without penalty.

Q22 Find the shaded area when two squares with side 'a' intersect as shown in the figure below.

- A.  $\frac{1}{8} a^2$  (1)
- B.  $\frac{1}{4} a^2$  (2)
- C.  $a^2$  (3)
- D.  $\frac{1}{3} a^2$  (4)
- E.  $\frac{2}{5} a^2$  (5)

Q23

Which of the following two quantities is bigger?

Quantity A  
Circumference of a circle  
with radius of 3

Quantity B  
Perimeter of a square with  
each side equal to 4

- Quantity A is bigger (1)
- Quantity B is bigger (2)
- Both choices are equal (3)
- The relationship cannot be determined (4)

Q27 In a class of 30 students, 17 students like to play Cricket whereas 19 of them like to play Hockey. 2 students do not play any game. How many students like to play both Cricket and Hockey?

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Q25 Select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

As a teacher of young children, I always find the last few days before summer vacation trying, because the students are especially \_\_\_\_\_.

- Restive (1)
- Coordinated (2)
- Unruly (3)
- Ingenious (4)
- Abnormal (5)
- Charitable (6)

Q26 In recent years, the city has been plagued by \_\_\_\_\_, and the mayor's chances of reelection appear \_\_\_\_\_.

- Violence...Slim (1)
- Improvements...Likely (2)
- Visitors...Certain (3)
- Gardeners...Unlikely (4)
- Tourists...Grim (5)

Q27 Once we came to know Andreas better, it became clear to us that all of his stories of wealth and fame were just a \_\_\_\_\_.

- Biography (1)
- Lullaby (2)
- Ruse (3)
- Secret (4)
- Lunacy (5)

Q29 Thousands of \_\_\_\_\_ manuscripts were an unfortunate \_\_\_\_\_ of the region's latest conflict.

- Irreplaceable....Casualty (1)
- Modern.....Growth (2)
- Medical....Consequence (3)
- Paper....Admiration (4)
- Worthless....Addition (5)

Q25 He could hardly have imagined that he would be \_\_\_\_\_ into a scheme to outwit the government.

- Welcomed (1)
- Held (2)
- Journeyed (3)
- Pirated (4)
- Trust (5)



Q26

Select the two answer choices that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

The intrusion of big business into education has only \_\_\_\_\_ the problems facing educators in the United States.

- Compounded (1)
- Ameliorated (2)
- Benighted (3)
- Leavened (4)
- Exacerbated (5)
- Alleviated (6)

Appendix D

Q30 Please answer the following questions over anxiety that you may feel over taking tests.

	Strongly agree (1)	Agree (2)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Disagree (6)	Strongly disagree (7)
I felt anxiety while taking this test. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The video I watched affected my performance on the test. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watching the video before the test alleviated my anxiety. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The video made me feel motivated. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I did well on this test. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am less nervous to take the GRE after this practice. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to study more for the GRE. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix E  
Feedback Letter

Thank you for participating in this study. This test was used in order to determine how test anxiety and motivation affects performance.

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

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. My contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study at a later date, please contact me and I will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigator:  
Lauren Martin (816)-726-0426 (lm552@lindenwood.edu)

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