6-1-2016

Perceived Task Difficulty and Procrastination in College Students

Max Hebing
Western Oregon University

Perceived Task Difficulty and Procrastination in College Students

By

Max L. Hebing

An Honors Thesis Submitted in Partial Fulfillment
of the Requirements for Graduation from the
Western Oregon University Honors Program

Dr. Jaime Cloud
Thesis Advisor

Dr. Gavin Keulks,
Honors Program Director

Western Oregon University

June 2016

Abstract

The present study examined the potential effects of task difficulty on the level of procrastination in college students. I hypothesized that an increase in the perceived difficulty of a task would increase procrastination. Participants were randomly separated into two groups. While both groups took the same “test”, each group received a different description of the test prior to being sent the link through e-mail. One group received a description of an easy task, while the other group received a description of a difficult task. Procrastination was measured as time taken to initiate the test (Time A), time taken to complete the test (Time B), and Total Time. Time A was significantly longer for participants in the “difficult” group, $t(41)=-2.286$, $p=.027$, $r^2=.1182$. Total Time was also significantly higher for this group, $t(41)=-3.028$, $p=.039$, $r^2=.1903$.

Keywords: Procrastination, Task Difficulty, Students, College

The Effects of Perceived Task Difficulty in College Students

Procrastination can be defined in multiple ways. It can include behaviors such as the avoidance of important tasks, the delaying of less pleasurable activities through participating in more pleasurable ones, or working on less important tasks before more important ones to remain "productive" while still avoiding difficult tasks. Regardless of the exact definition, procrastination is a clear problem experienced regularly by many adults (Ferrari, 1995). Among adults in the U.S., high levels of procrastination are related to lower salaries, shorter durations of employment, and higher levels of unemployment (Nguyen, Steel, & Ferrari, 2013). The present study focuses solely on college students, which is a demographic that has been commonly studied in relation to procrastination. Previous large-scale research has found that between 46% (Solomon & Rothblum, 1984) and 94% (Ellis & Knaus, 1977) of college students have engaged in some form of procrastination behavior during their collegiate lives. Additionally, previous research has found that academic procrastination can have significant and negative effects on academic performance. A study on the relationship between procrastination and academic performance found that higher levels of procrastination were negatively correlated with academic success as a whole (Kim & Seo, 2015). Further research has been conducted in specific areas of academia, with another study finding that academic success in writing assignments was negatively correlated with higher levels of procrastination (Fritzche, Young, & Hickson, 2003). With the prevalence and negative effects of procrastination being well known, research into possible causes and "cures" could be important for many people.

Previous research into the potential causes of procrastination have often looked into individual personality factors as a cause. Janssen and Carton (1999) observed the effects of task difficulty and locus of control on procrastination. It was found that participants with an external locus of control were more likely to procrastinate than participants with an internal locus of control, regardless of the difficulty of the task. Additional research has also observed the effects of modern technology in education, notably in online college courses. Elvers, Polzella, and Graetz (2003) found that the effect of procrastination on academic performance varied between online and in-class courses, and that procrastination was more likely to negatively impact grades for students in an online course. While procrastination was not significantly different between the online and in-class courses, the fact that online course procrastination had a more negative impact for students is an important finding with the increased usage of online courses by universities.

One of the most commonly studied causes of procrastination is self-efficacy, with multiple studies reaching similar conclusions. One study found that students with higher perception of their own self-efficacy were much less likely to engage in procrastination behaviors (Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014). Other studies have found that self-efficacy may work with other factors in predicting procrastination. Strunk and Steele (2011) found that both self-efficacy and self-regulation play a large role in procrastination, while Katz, Eilot, and Nevo (2014) found that while self-efficacy can be a significant predictor of procrastination, autonomous motivation may play a more central role.

For the present study, I wanted to further delve into the realm of self-efficacy, and observe a related concept that could be more easily manipulated. To do this, the present study observed the effect of perceived task difficulty on procrastination. Perceived difficulty and

self-efficacy are related concepts, but are slightly different. While self-efficacy is a broader concept that may affect many areas of an individual's life, perceived difficulty is isolated to specific tasks or situations. Still, while self-efficacy has been found to be the stronger predictor of behaviors, perceived difficulty can be an effective predictor as well (Rodgers, Conner, & Murray, 2008). Additionally, due to the nature of perceived difficulty (being more related to specific situations or tasks) it can be more easily manipulated. Participants who signed up for the study were emailed an initial description of the test they would take along with a consent form. Half of the participants received a description of a relatively easy test, while the other half received a description of a more difficult test. The actual test that participants took was the same across both groups. Participants were also informed in the email that to begin the study, they would simply need to respond with their completed consent form, and would be sent the test. Procrastination was measured in both time taken to "begin" the study (completing and submitting the consent form), the time between submitting their consent form and completing the test, and the total elapsed time of the study. All times were measured in minutes.

I hypothesized that participants who received the "high difficulty" description of the test would take longer to submit their consent forms, complete the test after submitting the consent forms, and take longer to complete the study from start to finish. In other words, "high difficulty" participants would procrastinate more.

Method

Participants

Seventy-one participants consisting of students attending Western Oregon University signed up for the study through email. Of these 71 students, 41 completed the study. Twenty-five of these final participants were female, while 14 were male. Participants had a mean age of 24.21 years. Participants who completed the study were given extra-credit for relevant classes.

Materials

Participants were emailed a link to a test on SurveyMonkey. The test was made up of ten random "brain teasers" from mensa.org.uk (see Appendix). After completing the test, participants completed a basic demographics survey, asking for their age, gender, and race/ethnicity.

Procedure

Participants interested in the study signed up using their student email address. Students were randomly assigned to one of two groups, and were sent an initial email containing one of two descriptions of the study, along with a consent form. All participants were informed the purpose of the study was to measure the effects of logic testing on deductive abilities. The email received by Group 1 (easy) described the test as "a sample of ten questions from a logic test designed for high school seniors in the US". The description received by Group 2 (difficult) explained that the test was "a sample of ten questions from a logic test designed by Harvard to test the deductive abilities of graduate law students". Participants were informed that to begin the study, they would simply need to respond to the

email with their completed consent form. Once participants had done this, they were emailed a link to the test.

The test received by participants was identical for both groups, so that the actual difficulty of the task would be unchanged. Additionally, the questions on the test were not true "logic problems" but simply a selection of 10 Mensa "brain teasers". Throughout the test, participants were informed and reminded that if a question was too difficult, or they were unable to solve a problem in a short enough time, that they were free (and encouraged) to simply take their most educated guess, and move on to the next problem.

Upon completion of the test, participants completed a short demographics survey. The final page of the SurveyMonkey link contained an "individual completion code" (which would in actuality be identical for all participants) that participants were told to email to me to confirm completion of the study and to receive extra credit. The time of this email was used to measure each participant's final completion time. After participants sent their "code", they were emailed a debriefing form. Time was measured from when the initial email was sent to when participants submitted their consent form (Time A), time between submitting their consent form and submission of their code (Time B), as well as the total time from the first email to completion of the test (Total Time). All times were measured in minutes.

Results

To test the hypothesis that Time A, Time B, and Total Time would be higher for the "high difficulty" participants, a series of Independent Samples *t*-tests were performed. As hypothesized, Time A was significantly higher among the "high difficulty" participants (M = 5682.47; SD = 4530.85) compared to "low difficulty" participants (M = 2888.05; SD =

3269.69), t(41) = -2.286, p = .028, r^2 = .1182. Total Time was also significantly higher among "high difficulty" participants (*M* = 7921.68; *SD* = 4466.21) compared to "low difficulty" participants (*M* = 4164.64; *SD* = 3470.37), t(41) = -3.028, p = .004, r^2 = .1903. However, analysis found no significant difference in Time B between "high difficulty" participants (*M* = 2239.21; *SD* = 1628.86) and "low difficulty" participants, (*M* = 1276.59; *SD* = 1712.35) with only a possible trend, t(41) = -1.836, p = .074, r^2 = .079.

Discussion

My hypothesis for the study had three predictions, two of which were supported by the data analysis. As predicted, Time A (the time elapsed between participants receiving their initial email and submission of their consent form) was significantly higher for "high difficulty" participants compared to "low difficulty" participants. The same was true of Total Time, which is expected, as Time A was a large component of Total Time. The one part of my hypothesis that was not supported was Time B (time elapsed between participants submitting their consent form and completing the test). However, while not significant, the result were in the predicted direction.. In general, the hypothesis that procrastination would be higher when task difficulty was higher was supported.

To adequately equate "procrastination" with these times, it is important to look at each time individually. When it comes to procrastination, Time A may be the most important. When participants received their email, they had all the information they needed about the test they would take, and were informed that all they had to do to begin the study was submit their consent form to receive the test link. Thus, waiting longer to initiate the test

portion of the study may be more indicative of procrastination than Time B, since procrastination often involves completely delaying the initiation of a task until a later time.

Time B, which had no significant difference between groups, may be more indicative of the actual time spent working on the test. While participants may have submitted their consent forms and still procrastinated to begin the test, the amount of time actually spent working on the test is less relevant to actual procrastination. For example, a participant may have spent a very long time in Time B not because they were procrastinating, but simply because the test was very difficult for them.

This leads to one of the potential limitations of the study. Individual differences between participants could have affected the time each participant took in each segment of the study quite a bit. Since this study was conducted solely online, participants were essentially unsupervised. This is where differences between individuals in the study could become amplified. For example, all of the participants were college students, and the schedules of college students can vary drastically. A student could be taking only 12 credits and have no other responsibilities, and another could be taking 17 credits and have a job. The second student may have a higher amount of more “important” duties than participating in an extra credit psychology study in comparison to the first student. Due to this, that second student may be putting off the study because they genuinely have more important things to do at the moment. Something like this could have the potential to greatly influence the times for a participant.

Another limitation with the study was the difficulty of knowing exact times, and how the times were measured. The participant tracking features in SurveyMonkey were somewhat lacking. Because of this, I had to use email timestamps to keep track of the times, so I only

knew the exact time that emails were received or sent. I had no way of knowing when an email was first opened or read, or when each participant actually started the test after receiving the test email link. This could have resulted in a large amount of noise being included in the data, and is perhaps the most significant limitation of the study.

Despite these limitations, the results of the present study fit in well with previous research relating to the causes of procrastination, particularly in the area of self-efficacy as a predictor. There is a good body of research showing a relationship between low self-efficacy and an increase in procrastination behaviors (Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014; Strunk & Steele, 2011), as well as research finding that perceived task difficulty can be a similar predictor of behavior (Rodgers, Conner, & Murray, 2008), if not quite as strong. The results of this study may not only build on previous research into causes of procrastination, but also add perceived task difficulty as a predictor of procrastination.

There is still much room for improvement for this study, as well as other future directions. As mentioned in the limitations, individual differences could create a large amount of variability in how much time participants take to complete each portion of the study. With this particular study design, repeated measures would not be possible, but a large increase in the number of participants could help to reduce the effect of individual differences. I would be interested in finding a way to conduct a large scale version of this study, using a program such as Mechanical Turk. Additionally, using a different program that better allowed for tracking of individual participants (and more specific times) throughout the course of the study could reduce the noise from the potential inaccuracy of time measurement.

This study was also conducted using solely college students, and procrastination covers a much larger span of humanity than just that. College students are also unique in that they have very set routines with their college coursework and tests, but also very individual schedules. It would be interesting to look at other specific demographics such as high school students or adults working regular schedules. Elementary school students could also be observed to potentially see how early task difficulty or self-efficacy could begin to affect procrastination. This is an area of research that affects many people, and still has much room to grow.

References

Ellis, A., & Knaus, W. (1977). *Overcoming procrastination: Or how to think and act rationally in spite of life's inevitable hassles.* New York: Institute for Rational Living

Elvers, G. C., Polzella, D. J., & Graetz, K. (2003). Procrastination in online courses: Performance and attitudinal differences. *Teaching of Psychology, 30*(2), 159-162. doi:10.1207/S15328023TOP3002_13

Ferrari, J. (1995). *Procrastination and task avoidance: Theory, research, and treatment.* New York: Plenium Press.

Fritzche, B. A., Young, B. R., & Hickson, K. C. (2003). Individual differences in academic procrastination tendency and writing success. *Personality and Individual Differences, 35*(7), 1549-1557. doi: 10.1016/S0191-8869(02)00369-0

Janssen, T., & Carton, J. S. (1999). The effects of locus of control and task difficulty on procrastination. *The Journal of Genetic Psychology: Research and Theory on Human Development, 160*(4), 436-442. doi: 10.1080/00221329909595557

Katz, I., Eilot, K., & Nevo, N. (2014). 'I'll do it later': Type of motivation, self-efficacy and homework procrastination. *Motivation and Emotion, 38*(1), 111-119. doi:10.1007/s11031-013-9366-1

Kim, K. R., & Seo, E. H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences, 82*26-33. doi:10.1016/j.paid.2015.02.038

Nguyen, B., Steel, P., & Ferrari, J. R. (2013). Procrastination's impact in the workplace and the workplace's impact on procrastination. *International Journal of Selection and Assessment, 21*(4), 388-399. doi:10.1111/ijsa.12048

Rodgers, W. M., Conner, M., & Murray, T. C. (2008). Distinguishing among perceived control, perceived difficulty, and self-efficacy as determinants of intentions and behaviours. *British Journal of Social Psychology*, *47*(4), 607-630. doi:10.1348/014466607X248903

Solomon, L.J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 31*(4), 503-509. Doi: 10.1037/0022-0167.31.4.503

Strunk, K. K., & Steele, M. R. (2011). Relative contributions of self-efficacy, self-regulation, and self-handicapping in predicting student procrastination. *Psychological Reports*, *109*(3), 983-989. doi:10.2466/07.09.20.PR0.109.6.983-989

Wäschle, K., Allgaier, A., Lachner, A., Fink, S., & Nückles, M. (2014). Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. *Learning and Instruction*, *29*103-114. doi:10.1016/j.learninstruc.2013.09.005

Appendix

Pre-Test Description Differences

Low perceived task difficulty: For this study, you will take an online test consisting of a sample of ten questions from a logic test designed for high school seniors in the US.

High perceived task difficulty: For this study, you will take an online test consisting of A sample of ten questions from a logic test designed by Harvard to test the deductive abilities of graduate law students.

Test questions

1: Which of the following letters is the odd one out?

A F H K L N Y Z

2: What number should replace the question mark?

5,7,2,6,8

9,3,4,7,9

2,5,8,9,6

7,4,5,8,?

3: Mr McHale joins a line with six people in front of him.

There are two people between Mr McHale and Mrs Douglas.

Mrs Edwards is ahead of Mrs James.

Mrs O'Dowd is behind Mrs Douglas but in front of Mr Baker.

Mr Brady is behind Mrs James.

What is the order of the seven people in line?

4: What letter should appear next in this sequence?

W U Q O K I ?

5: What number should replace the question mark?

42 - - - 170

93 - - - 840

18 - - - 26

54 - - - 274

67 - - - ?

6: If Neil and Diane grow leeks,

Alec and Lisa grow carrots

and Jacob and Chloe grow beans.

Do Hans and Philip grow spinach or onions?

7: Which of the following numbers is the odd one out?

198 497 132 561 275 352

8: Assume you are using a basic calculator and press the numbers in the order shown, replacing each question mark with a mathematical sign.

Plus, minus, multiply and divide can each be used once only.

In which order should they be used to score 24?

2 ? 8 ? 6 ? 9 ? 3 = 24

9: What number should appear next in this sequence?

2 3 10 12 13 20 ?

10: For each of the following, find a word beginning with ‘R’ with the opposite meaning.

A. Verify

B. Fragile

C. Boring

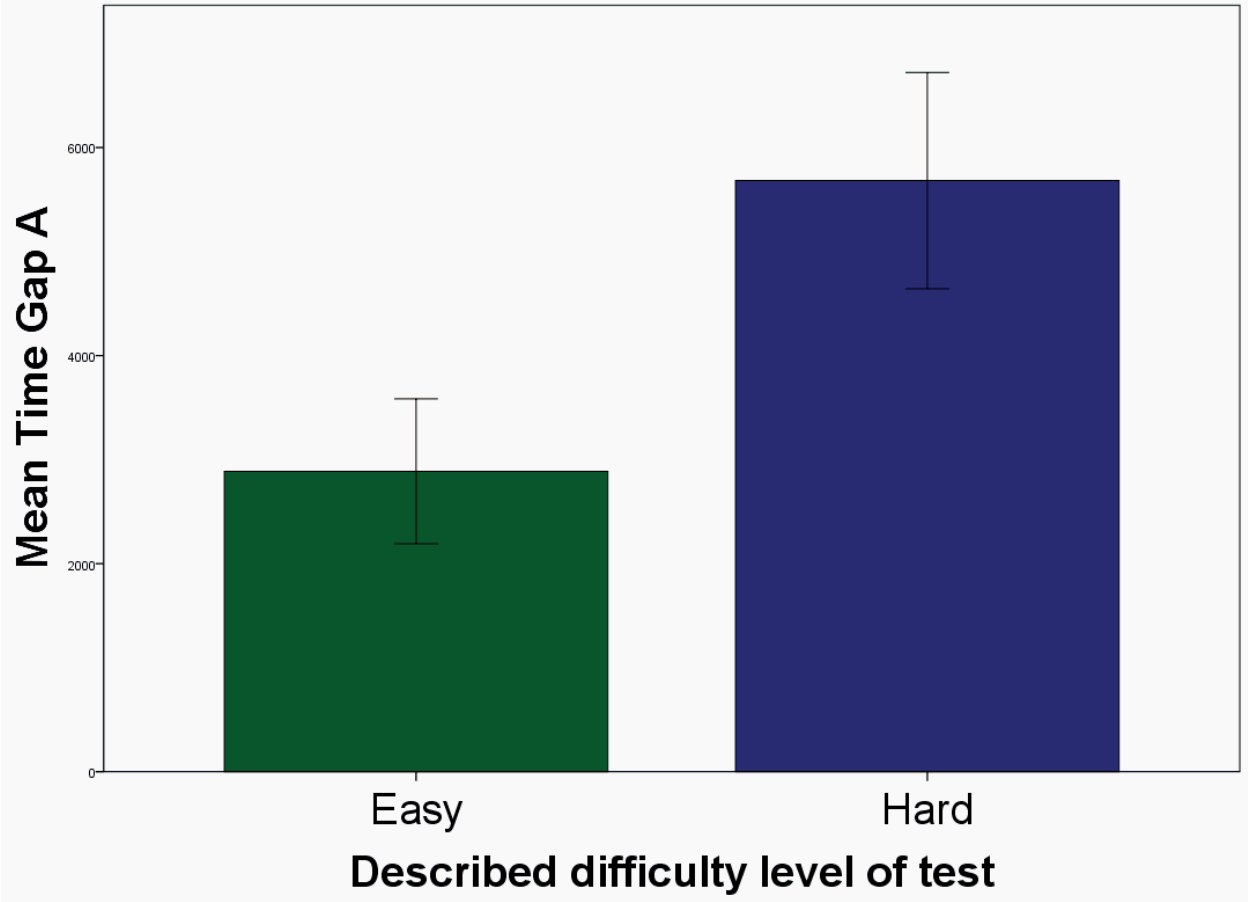

Figure 1. Mean time spent in Time A for each group in minutes. Standard errors presented in the figure by error bars attached to each column.

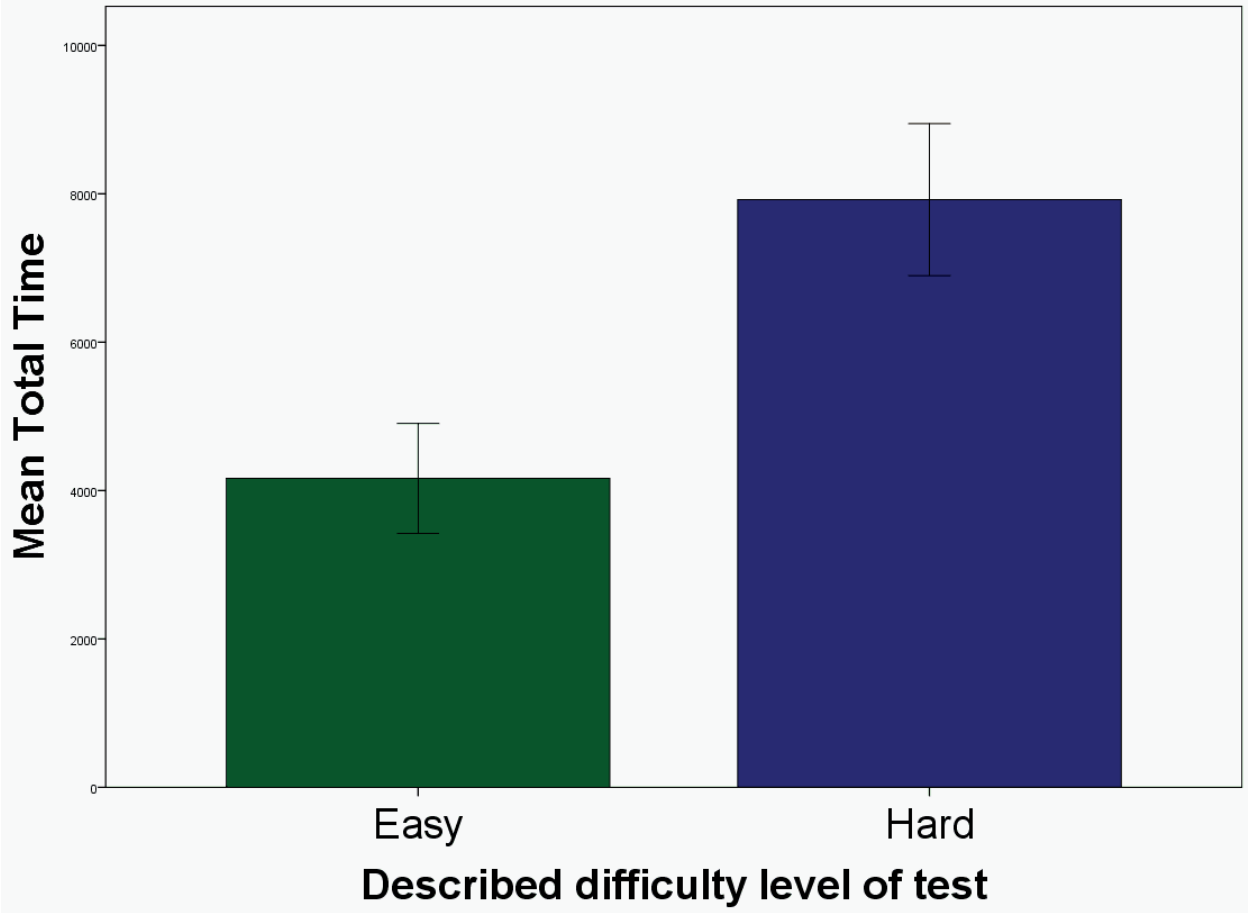

Figure 2. Mean time spent through the Total Time of the study in minutes. Standard errors presented in the figure by error bars attached to each column.