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Academic Cheating and Stressors at the University Level

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Abstract

The purpose of this study was to examine why academic cheating occurs. Prior studies have investigated students' reasons for their academic cheating, and this study aimed to further this research by trying to determine variables that might influence the behavior. A total of 56 Assumption University undergraduate students participated. Self-report measures included the Survey on Academic Dishonesty (SAD) (McCabe & Trevino, 1997), the Perceived Stress Scale (Cohen et al., 1983), and a measure of self-control (Tangney et al., 2004). In addition, a novel probability discounting task was created as a second measure of academic cheating. This task assessed participants' likelihood of cheating across various probabilities of getting caught, in both a classroom and an online setting. The results showed a significant positive correlation between academic cheating and stress and a significant negative correlation between stress and self-control. There was also a significant correlation between the classroom probability discounting task and academic dishonesty, self-control, and the online probability discounting task. These results suggest that stress is an important factor in academic dishonesty. The data also support use of the novel probability discounting task as a measure of academic cheating in university settings.

Keywords: stress, academic cheating, self-control, GPA

Academic Cheating and Stressors at the University Level

Academic cheating plagues colleges and universities. The issue of cheating is continually combated in schools. Schools implement rules and guidelines to prevent academic cheating; however, students always seem to find a way around them (Lang, 2013). While it may be important to understand the methods used in cheating, it is also important to understand why students cheat in the classroom and if there is a relation between cheating and stress. These stressors could be caused by upcoming exams, projects, papers, or other assignments. In addition to stress, another factor that could influence cheating is self-control (Yu et al., 2021). Understanding the relation between academic ability, stress, and self-control could be the first step to finding a solution to decrease academic dishonesty. The first purpose of this study was to determine if there is a correlation between GPA and cheating on exams. The second purpose of this study was to examine the relationship between stress and cheating on exams. Finally, the third purpose of this study was to identify and understand the relationship between self-control and academic cheating.

Academic cheating, or academic dishonesty, can be defined as any action or behavior that results in an unfair advantage to one student (Daty, 2022). Janke et al. (2021) found that 71.4% of students at United States colleges and universities have reported cheating at some point in their post-secondary education career. Some common forms of cheating include plagiarism, copying, and collusion (Surahman & Wang, 2022). As a result of the Covid-19 pandemic, many schools shifted to online learning (Daty, 2022). Now, even with the return to in-person courses, online formats are still being used for exams and homework. Thus, it is worth investigating whether cheating behavior differs in the two environments.

Janke et al. (2021) asked participants about their cheating behavior during on-site, or in-person, tests versus during their online tests. The study used self-reported data that were collected via surveys and found that 31% of respondents admitted to cheating in a classroom whereas 61.4% admitted to cheating (i.e., using some form of proscribed assistance) when online. Similar results were found by Malik et al. (2023). In that study, 60% of students admitted to cheating online most of the time, and 30% admitted to cheating once online. Malick et al. also examined exam grades and found that grades on online exams were higher than those on in-person exams, suggesting that cheating is more common online than in the classroom.

Academic dishonesty tends to have negative consequences long after the education process. For instance, students who committed academic dishonesty while in college and entered the business world after graduation were more likely to commit unethical business practices than those who did not engage in academic dishonesty (Brodowsky et al., 2020). Through surveying both male and female business students about their tolerance for unethical business practices and academic dishonesty, Brodowsky et al. (2020) found that male students were more likely to cheat than their female counterparts, who tended to be less tolerant of the behavior. The behavior of academic dishonesty has a lasting effect on an individual, which can lead to unethical decisions that could negatively impact a student in their future career (Daty, 2022). Moreover, students who cheat may go into other professions, such as medical professions, or graduate without proper knowledge of their field. This is problematic as it could create motivation for more dishonest behavior or harmful behavior (e.g., the person makes a serious error that endangers others).

Given the potential negative impacts of cheating, it is important to have clearer understanding of the reasons students do and do not cheat. One major deterrent to cheating is an

honor code. College campuses with honor codes have reported a lower level of academic dishonesty or cheating behavior (Lang, 2013). However, some honor codes feature a clause stating that other students are responsible for turning in academically dishonest students. This is a drawback for an honor code because it requires students to report on each other. Students worry about getting one another in trouble or fear that they will report someone who was not cheating (Lang, 2013). Lang (2013) believes that it is not the honor code itself that helps prevent academic cheating, but rather, it is the vocalization and discussion of the behavior that decreases it. For instance, the active discussion of academic dishonesty tends to bring awareness to the subject, which may serve to deter the behavior. In terms of online learning, academic dishonesty can be immediately combatted with a long-term approach put in place. An immediate solution to reducing academic dishonesty online could include any form of a program that checks for plagiarism. For example, this can reduce instances of students copying and pasting answers from the internet into their assignments. Other immediate solutions to online academic dishonesty include online proctoring and oral assignments (Surahman & Wang, 2022). Immediate solutions coupled with an open discussion about academic dishonesty could be the solution to an overall decrease in academic dishonesty.

Academic dishonesty can be decreased by identifying the factors that influence it and working to change those factors. Students have claimed that academic dishonesty occurs as a result of laziness, an influence of friends or other situational factors, and a lack of ability (Surahman & Wang, 2022). Moreover, many students do not realize that their behavior is, in fact, academically dishonest, or they may claim it was necessary to complete the task that was assigned (Waltzer & Audun, 2022). According to Waltzer and Audun (2022), many students thought poorly of cheating, and the students who did cheat or plagiarize thought that their actions

should be considered exceptions to the rule. For example, students may rationalize their behavior by saying that cheating was a function of stressors pushing them towards an academically dishonest alternative. In a separate study, participants were asked to imagine hypothetical learning scenarios and report their likelihood of cheating (Wenzel & Reinhard, 2020). For instance, one question the study asked was, "How likely is it that you would use your crib sheet to cheat in the exam?" (Wenzel & Reinhard, 2020). In this scenario, a crib sheet is referring to a cheat sheet or a piece of paper that the student has written notes on for an exam. The results indicated that difficult tasks could lead to cheating behavior.

Wenzel and Reinhard (2020) found that long-term learning is better reinforced through exams rather than other types of knowledge checks. The troubling aspect of this is that students are more likely to cheat on this form of knowledge check (Wenzel & Reinhard, 2020). This suggests that the most effective form of learning (i.e., effortful testing) also is the one most likely to induce academic cheating. Thus, while an exam may be the strongest method of encouraging a student's learning, it is also the method on which a student may be more inclined to cheat.

There are a few other contributing factors to student academic dishonesty, such as major or discipline studied. For example, one study discovered a higher rate of academic dishonesty among criminal justice majors (Daty, 2022). However, it is important to note that this study was conducted with undergraduate students from only one institution and the data has not been peer reviewed because they are part of an unpublished dissertation (Daty, 2022).

Another factor that contributes to academic dishonesty is gender. Whitley et al. (1999) found that males tended to have a more favorable attitude towards academic dishonesty than females. In addition, male students reported to having cheated in the past slightly more than female students (Whitley et al., 1999).

Academic cheating can also be analyzed in terms of antecedent events and consequences (Cooper et al., 2020; Skinner, 1953). From this perspective, the behavior of academic cheating would be influenced by situational factors (antecedents), reinforcers, and punishers (consequences). For example, cheating may result in the test or exam becoming easier, which may serve to reinforce the behavior of cheating. Alternatively, cheating may be reinforced by an overall reduction in anxiety felt during an exam. Potential punishers for cheating include getting caught, which may lead to expulsion or failing the class. However, these punishers are not guaranteed to occur (i.e., the student may not get caught) and are more delayed compared to the potential reinforcers for cheating. The literature indicates stress and self-control are both variables that influence academic cheating (Wenzel & Reinhard, 2020). These situational factors function as antecedents and set the occasion for the cheating behavior. Next, these factors are explored in more detail.

Stress and Cheating

Stress can be defined as a state of mind in which an individual has worry or strain caused by a difficult situation (World Health Organization, 2023). This is something college students know all too well. Whether it be social or academic, stress accompanies all students through their academic careers. Stress can cause an individual to have difficulty relaxing or concentrating, and can sometimes cause headaches (World Health Organization, 2023). Stress can also cause a loss of appetite and in some cases a decrease in mental health (World Health Organization, 2023). A key instance of stress that all college students face is during an academic exam. Stress can occur whenever an individual experiences something challenging or difficult, if they see themselves as unable to complete the presented task, or if an individual anticipates failure from a task (Sarason & Sarason, 1990). All of these could result in cheating on an exam (Wenzel & Reinhard, 2020).

Stress comes from situations that create demands that the individual must react to. These are called stressors (Baghurst & Kelley, 2014). While stressors are common among people of all ages, certain stressors may plague college students. These stressors include a newfound autonomy, leaving home, needing to become self-sufficient, questions about gender identity, and potential career choices (Baghurst & Kelley, 2014). These stressors can easily overwhelm a student and if left unchecked, can create other issues. These symptoms include hypertension, anxiety, depression, interpersonal problems, a decrease in immune system functioning, and ineffective cognitive processes (Baghurst & Kelley, 2014).

The symptoms of stress are caused by the "stress process." (Harvard Health, 2020). This process begins when an individual encounters a stressor. This stressor then triggers the amygdala, a structure in the brain involved in emotion processing. From there, the hypothalamus triggers a fight or flight response (Harvard Health, 2020). The hypothalamus sends a signal to the adrenal glands through the central nervous system, which begins to pump epinephrine into the blood (Harvard Health, 2020). This process causes the immediate symptoms of stress, such as an increased heart rate (Harvard Health, 2020). However, if this process continues for extended periods, these initial symptoms can cause longer-lasting, more serious symptoms, such as depression, hypertension, and lower cognitive processing (Baghurst & Kelley, 2014).

Stress has been found to be a byproduct of some academic work. Wenzel and Reinhard (2020) found that while tests and exams may be the most efficient at creating long term memory of the material, they do create stress, anxiety, and pressure that the student may experience. In fact, it was found that pressure caused by academic work can lead to academic cheating (Conner et al., 2009). Conner et al. examined students from seven different schools and asked them open response questions on why certain things (e.g., schoolwork, homework, tests, grades) may cause

them stress. Responses were compared to self-reported cheating, and the results indicated that students who are feeling stress or pressure from school were more inclined to cheat (Conner et al., 2010).

Self-control and Cheating

Self-control can be defined as the ability to regulate a behavior, emotion, or impulse (Sussex Publisher, 2009). Yu et al. (2021) compared the self-report of academic cheating to the results of a survey that assessed self-control and found that there was a direct relationship between lack of self-control and academic cheating. The study found that a strong sense of self-control can decrease academic cheating. This result is supported by the results of Waltzer and Audun (2022). If a student is treating their academic cheating as though they should be the exception, then this would increase their likelihood of cheating on exams in the future. This would show a lack of self-control and in turn show greater levels of academic cheating.

Self-control can be defined more behaviorally, such as the ability to delay gratification, or to respond in such a way as to delay immediate reinforcement in favor of delayed, but better, reinforcement (Odum, 2011). This conceptualization of self-control can be measured using a delay discounting task. A delay discounting task involves offering an individual a choice between a small, immediate reward and a larger, delayed reward. Over the course of multiple trials, the choice is offered repeatedly with different reward values and delays. This technique has been used to measure impulsive behavior regarding both real and hypothetical monetary rewards and food rewards (Kirby & Guastello, 2001; Odum, 2011). As an example, a participant could be given a choice between $200 now or $500 in one month on one trial. Then, on subsequent trials, the delay to receiving $500 is varied such that it could be one day, one week, one year, etc. By completing a series of questions like this, a “discounting rate” can be

determined. A high discounting rate means that as the delay to receiving the money increases, the value of the money decreases, and it decreases relatively more with short delays and progressively less as delays lengthen. The discounting rate can be determined by fitting obtained data to a quantitative model, and there are several quantitative models that have been used in the literature (Odum, 2011; Rachlin, 1991). However, most often the data are described best by the "hyperbolic" discounting model (Mazur, 1987). Using money as the reward, stable discounting rates have been found in situations in which both tangible rewards and hypothetical rewards have been used. It was discovered that high discounting rates have been correlated with other measures of impulsivity or risky behavior (Odum, 2011).

Kirby and Guastello (2001) investigated participants' ability to increase self-control in delay discounting tasks for both monetary and food incentives. For both tests, they presented a smaller, sooner reward and a larger, later reward and established a baseline of impulsive behavior. Next, to improve self-control, baseline choices were used to pair smaller, sooner rewards with larger, later rewards until the participant switched to choosing the larger, later reward. Using this technique, Kirby and Guastello (2001) were able to increase the participants' self-control. The results indicated that a majority of participants were able to improve their self-control and indicated that they would rather have the larger, delayed reward. This indicates that self-control is something that can be enhanced through a treatment or plan.

Hayashi et al. (2016) used a delay discounting task to judge risky behavior in relation to texting while driving. Undergraduate student participants were asked to indicate whether they read, open, or reply to text messages sent to them while driving. In addition, Hayashi et al. created a delay discounting task in which participants were given a scenario that asked them to imagine that they were driving and received a text message. Using a slider scale that ranged from

0 to 100, participants were asked about their likelihood of responding to the text message right away (i.e., while they were driving) or waiting to respond until they arrived at their destination. The scenario indicated how long it would take to get to their destination, and across trials the arrival time was varied. Hayashi et al. (2016) compared discounting rates on the texting while driving discounting task to scores on a separate discounting task for hypothetical monetary rewards. They found a correlation between the hypothetical monetary task and the texting while driving task, suggesting that texting while driving is a risky behavior that is related to the ability to delay gratification (or show self-control).

Overall, the literature indicates that the delay discounting task is good measure of a person's ability to delay gratification. Low measures of self-control on this task have been correlated with a variety of risky behaviors in addition to texting while driving (Hayashi et al., 2016), such as illicit drug use (Kollins, 2003), risky sexual behavior (Gebru et al., 2022), driving without using a seatbelt (Rung & Madden, 2018), refusal to wear sunscreen (Daugherty & Brace, 2010), and willingness to isolate during the COVID-19 pandemic (Belisle et al., 2022). Discounting tasks may also predict academic cheating, given that it is another form of risky behavior. For instance, participants could be asked about their likelihood of using a cheat sheet during an exam under differing probabilities of getting caught, similar to Hayashi et al. (2016).

The Current Study

This study assessed self-reported cheating rates among undergraduate college students. It aimed to determine if there is a correlation between academic dishonesty and self-reported GPA, self-control, and stress. Cheating was measured via self-report and performance on a novel discounting task related to cheating during exams in both in-person and online scenarios. Self-control and stress were measured via self-report. It was hypothesized for the discounting tasks

that cheating would conform to a hyperbolic discounting function (rather than a linear function), in a manner similar to discounting curves for texting while driving and monetary rewards. In other words, the value (or likelihood) of cheating on an exam should decrease by a relatively large amount with relatively lower probabilities of being caught and decrease in progressively smaller amounts as the probability of getting caught increases. Additionally, we hypothesized students would be more inclined to commit a form of academic cheating during an online exam rather than during an in-person exam (Daty, 2022). It was also hypothesized that there would be a positive correlation between self-control and academic cheating. Finally, it was hypothesized that high levels of stress would be correlated with academic cheating.

Method

Participants

Fifty-eight students attending Assumption University were recruited as research participants through flyers that were either hung up across campus or given to professors to post online in their classes. The participants were given a $10 Amazon gift card as compensation for their time. Participants were given a description of the study and asked to provide informed consent. Participants were at least 18 years old and from different majors. Participants were asked to provide their date of birth (DOB), current GPA, gender, and current major. Of the 58 participants surveyed, 28% were freshmen, 30% were sophomores, 33% were juniors, and 19% were seniors. The average age was 19.6 years (range: 18–22), and 41% of participants were male, while 59% were female. The majority were psychology majors, and the second most common major was “undecided” (Figure 1). The average GPA was 3.26 (range: 2.00–3.98; Table 1).

Measures

Measure of Academic Dishonesty. Academic dishonesty was measured using the modified Survey on Academic Dishonesty (SAD) by McCabe and Trevino (1997). The SAD was designed to assess an individual's level of academic dishonesty and consists of 24 questions using a Likert scale ranging from 0 (*no cheating*) to 3 (*cheating five or more times*). This survey asks questions like, "Used crib notes, or cheat sheets, to cheat on an exam while in college" (McCabe & Trevino, 1997). The questions can be seen in Appendix A.

Measure of Stress. A modified Perceived Stress Scale was used to measure participants' overall level of stress (Cohen et al., 1986). Questions included, "In the last month, how often have you been upset because of something that happened unexpectedly?" and "In the last month, how often have you felt that you were unable to control the important things in your life?" Participants respond to each question on a Likert scale ranging from 0 (*never*) to 4 (*very often*). Scores ranging from 0–13 mean low stress, 14–26 mean moderate stress, and 27–40 mean high stress (Cohen et al., 1983). The survey can be seen in Appendix B.

Measure of Self-control. Self-control was measured using a 13-question survey created by Tangney et al. (2004) that was used by Yu et al. (2021). In this survey, participants respond to a series of questions assessing their ability to delay gratification. For example, questions include things like, "I am good at resisting temptation" and "I have a hard time breaking a bad habit" (see Appendix C for the entire list of questions). Responses to questions are assessed using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Discounting Tasks. Self-control and academic dishonesty were further measured with two discounting tasks: a delay discounting task related to hypothetical monetary rewards and a novel discounting task related to academic cheating. The monetary delay discounting task served as a comparison measure (cf. Hayashi et al., 2016) that could be correlated with the self-control

scale. The task consisted of 21 questions asking participants if they would rather have a smaller, sooner monetary reward versus a larger, later monetary reward (Kaplan, 2016). The questions can be seen in Appendix D and include questions like, “Would you prefer $30 tonight, or $85 in 14 days?” and “Would you prefer $40 tonight, or $55 in 25 days?”

A novel discounting task was created as an additional measure of academic cheating and was modeled after the task used by Hayashi et al. (2016). Participants were given a hypothetical scenario in which they were asked to rate the likelihood that they would cheat during an exam under varying probabilities that they would be caught. The scenario was as follows.

> Imagine you are sitting in the back of a classroom taking a difficult exam. Although you studied, you are not able to remember the answer to a question with a high points value. You realize the answer is on your study guide, which you have with you. The professor has stepped out of the room briefly. Because you are in the back, you have the opportunity to look at your study guide without the other students noticing.
>
> Please rate how likely you are to look at your study guide notes to answer the question versus answering the question without looking at your notes with a xx% chance of getting caught.

Across seven trials, the probability of being caught was 1%, 10%, 25%, 50%, 75%, 90%, and 99%. Underneath the question, participants rated their likelihood of looking at their notes using a visual analog scale. This scale is a slider ranging from 0 (*definitely not use notes*) to 100 (*definitely use notes*) in increments of 10. Each question was presented individually on the screen. After completing the six questions, participants repeated the task using a similar scenario involving taking an exam online in which they had the opportunity to open a new browser tab or not. The task read as follows.

> Imagine you are sitting at a desk in your dorm room taking an online exam and your roommate has left the room. Although you studied, you are not able to remember the answer to a question with a high points value. You realize the answer is easily found by searching online. You have the opportunity to look up the answer online without anyone seeing.
>
> Please rate how likely you are to look up the answer for the question versus answering the question without any help with a **xx%** chance of getting flagged by the school's anti-cheating software.

Procedure

Participants completed the tasks and self-report measures by opening a link to a Qualtrics survey. Once the participants opened the link to the survey, they were asked to complete an informed consent form. The participants were then asked to complete the demographic questionnaire. Following this, participants completed a series of surveys in the following order: the Perceived Stress Scale, the SAD, and then the self-control scale. Then, participants completed the monetary delayed discounting task, followed by the classroom and online discounting tasks.

Results

Data for two participants were not included in the analysis because they did not complete all of the measures. The average score on the self-control scale was 39.95 (range: 16–59). This indicates a moderate level of self-control among the participants. The average score on the Perceived Stress Scale was 18.35 (range: 9–28). This score indicates a moderate level of stress

among participants. Individual participant scores for the different measures can be seen in Table 2.

The average score on the SAD was 16.69 (range: 0–65). Although the mean score seems low, the individual participant data indicate that there was a high rate of reported cheating: Only 16% of students reported never cheating in their academic career. Responses on the SAD were further examined according to type of cheating behavior (see Figure 2). These data show that 33% of students indicated that they have done at least one type cheating behavior more than five times. The most common form of reported cheating was collusion, with 61% of students reporting to have done this behavior. Figure 2 also indicates that the least common form of cheating was using a personal data assistant.

The data were also examined to determine any differences between male and female participants; this analysis showed a higher average SAD score for males (mean = 24.5) than females (mean = 9.9; Figure 3). A *t*-test indicated that this difference was significant, $t(38) = 2.54$, $p = .054$. However, a lower percentage of male participants reported cheating at least one time (79%) than female participants (87%).

SAD scores were also examined according to class year. Freshman had a higher average SAD score (31.63) than other classes (Figure 3), and seniors had lowest average score (2.7). Analysis of variance indicated a significant difference in SAD scores by class year, $F(3, 52) = 5.77$, $p = .002$ and post-hoc comparisons using a Bonferroni test indicated that the difference between freshmen and seniors was significant, $p = .002$.

A Spearman's rank correlation was used to assess the relationship between the measures (see Table 3). There was no correlation between the SAD and self-reported GPA, indicating that there is no relation between academic cheating and GPA, $r(54) = -.070$, $p > .05$. The Spearman

correlation also showed no relation between self-control and the SAD. However, there was a significant positive correlation between the SAD and stress, $r(54) = -.286$, $p < .05$. This indicates that the more a student cheats, the more a student is stressed. However, this does not indicate a causal relation between these variables. Table 3 also shows that there is a significant negative correlation between stress and self-control, indicating that students with a lower self-control score have higher levels of stress, $r(54) = -.387$, $p < .01$.

Figure 4 displays participants' mean likelihood of cheating as a function of the probability of getting caught for both the classroom and online cheating discounting tasks. Analysis of these data was modeled after that in Hayashi et al. (2016). Discounting data were fitted to the hyperbolic discounting model, $V = \frac{A}{1+k\mathrm{D}}$, (Rachlin, 1991) using GraphPad Prism. In this equation, V indicates the value (or likelihood) of cheating, A indicates the maximum likelihood of not cheating, and D indicates the probability of getting caught. *k* is a parameter in the equation that indicates the discounting rate and is determined by fitting the data to the equation. Higher values of *k* indicate that the likelihood of cheating will decrease quickly with even small increases in the probability of getting caught. Obtained *k* values were .960 and 1.004 for the classroom and online tasks, respectively. Data points on the graph indicate the participants' mean likelihood of cheating at each probability of getting caught and the curve lines indicate the model fits. When a quantitative model does a good job of explaining the data, the curve will intersect (or come close to intersecting) every point on the graph. Visual inspection of these data suggest that these data are not explained well by the hyperbolic discounting model, as the curves intersect with few of the data points. Analysis in GraphPad Prism confirms this visual inspection, indicating low values for R^2 (which should be close to 1): -.06 and .14 for the classroom and online task, respectively. A linear regression analysis was also performed on the

data from the discounting tasks, and this analysis indicated that the data are well-described as a linear function (with R^2 values of .95 and .89 for the classroom and online tasks, respectively). This indicates that as the probability of getting caught increased, the value/likelihood of cheating decreased by approximately the same amount with each increase in probability.

Another method of analyzing discounting curves is to calculate area under the curve (AUC; Myerson et al., 2001). AUC may be a preferred method for analyzing data when there is variability between subjects, such as in the current experiment. AUC is calculated by using the points reported from the discounting curve (Figure 4) and refers to space beneath the line. A greater area under the curve indicates less discounting across the different probabilities. The total score is calculated by drawing vertical lines from each point on the figure to the x-axis, to divide the area into trapezoids. The area of each trapezoid is then determined using the following formula: $(x_1 - x_2)\frac{y_1+y_2}{2}$. The area of each trapezoid is summed to determine the total area under the curve.

When looking at the overall AUC scores of each participant, which can be seen in Table 2, it is important to note that a higher AUC indicates that a participant is relatively more likely to cheat even at greater probabilities of getting caught compared to lower AUC scores (i.e., the value of cheating is not discounted as much as the probability of getting caught increases). For the online cheating discounting task, the mean AUC was .26 (range: 0–.62). For the classroom cheating discounting task, the mean AUC was .30 (range: 0–.75). However, a *t*-test indicated that this difference was not significant. In addition, there was no significant difference between male and female participants on either discounting task (Figure 5).

A Spearman's rank correlation was used to assess the relationship between the cheating discounting tasks (using AUC) and GPA and the other measures (see Table 3). The classroom

discounting task was found to have a significant positive correlation with the online discounting task, $r(54) = .565$, $p < .01$. There was also a significant positive correlation between the SAD and the classroom discounting task, $r(54) = .509$, $p < .01$. There were no other significant differences found.

The monetary delay discounting task was analyzed using an automated scorer in Excel created by Kaplan et al. (2014), which is available online: http://www.behavioraleconlab.com/resources---tools.html. Participants' responses to each item were entered into the spreadsheet. The scorer calculates a *k* value for each participant. Higher values of *k* indicate a greater rate of impulsive behavior (Hayashi et al., 2016). The individual participant *k* values can be seen in Table 2. The mean *k* value was .036 (range: .0007–.133). There was a significant positive correlation between *k* and the classroom discounting task, $r(54) = .369$, $p < .01$.

Discussion

The SAD was used to examine the level of academic cheating in university students, and the results showed that only 16% of students reported never having engaged in any type of cheating behavior. Students admitted to various forms of cheating, such as looking at a cell phone during an exam, using cheat sheets, copying a classmate's answers, and submitting work done by someone else. The data also showed that there was no relation between GPA and academic cheating. This indicates that students with lower GPAs are not more or less likely to cheat than students with higher GPAs. In addition, there was no relation found between cheating and impulsive behavior, which contradicts past research supporting a relation between these variables. Yu et al. (2021) found a direct relationship between a lack of self-control and academic cheating and concluded that a strong sense of self-control can deter the temptation of

academic cheating. This difference between the current study and Yu et al. may be explained by the sample size of this study, which was relatively low and may not be representative of all college students.

Gender differences on the SAD indicate that while more female participants admitted to academic dishonesty, male participants who admitted to academic dishonesty were more likely to engage in dishonest behavior more often. This might suggest that someone more likely to repeat the behavior is also likely to be more tolerant of the behavior. These data support the finding of Whitley et al. (1999), who showed that males tend to have a more favorable attitude towards academic cheating than females.

Analysis of SAD scores and class year (Figure 3) shows that freshman participants scored higher than participants from other class years. These results could be in part due to the COVID-19 pandemic. Freshman participants would have shifted into online learning in their freshman year of high school, and this shift could have affected their approach to academic work as it was a new environment.

Stress, as measured by the Perceived Stress Scale, was found to have a strong correlation with the SAD (Table 3). This means that participants who indicated higher levels of academic dishonesty also indicated a higher level of overall stress within the past month. This could point towards stress either being a cause or a symptom of academic cheating. One limitation to the Perceived Stress Scale is that it primarily focuses on stressors within the last month. This could pose a problem for answering the current research questions because the SAD asked questions based on the participants' academic career, a very different timeframe. Thus, a participant may have been stressed when they cheated in the past but not stressed when they completed the current study. This situation may skew the data, as the participants' stress levels could be lower

while their SAD score could be higher. Nonetheless, the current data do support Conner et al. (2009), that suggested stress is a contributor to academic cheating. Further research should be done to clarify whether it is academic dishonesty that influences stress or stress that influences academic dishonesty. This could be done in an experimental setting where stressors are added to participants to see if they will resort to some form of cheating.

The Perceived Stress Scale and the self-control scale were significantly negatively correlated (Table 3). This indicates that a student with a higher stress level will also have a lower level of self-control. This could indicate that a student who becomes more stressed will be more likely to make rash decisions. Like the relation between the SAD and stress, however, this finding does not indicate whether one factor causes the other (or if there is a third variable involved). Future research should examine this.

The classroom discounting task was strongly correlated with *k* value. The correlation with *k* indicates that the classroom discounting task may be an accurate measure of the value of cheating to participants, as the likelihood of cheating changes across different probabilities of getting caught. However, unlike other types of risky behavior, such as texting while driving (Hayashi et al., 2016), data from the cheating discounting tasks were better described by a linear, rather than a hyperbolic, model.

The observed correlation between the classroom discounting task and the SAD suggests that the discounting task may be an accurate measure of academic cheating levels. Participants who indicated a higher likelihood of cheating in the task also reported a higher likelihood of cheating in the past. This suggests that the classroom discounting task could be a useful tool in gauging the extent of cheating at a university. For instance, as seen in Table 2, Participant 22 indicated that they had never committed any form of academic cheating. However, their

classroom discounting score still showed they were likely to cheat given the opportunity and necessity to do so. This points towards the idea that some participants may be hesitant to indicate their true levels of academic dishonesty through a self-report measure. Thus, a task such as the cheating discounting tasks developed for this study may be a way around the participants' hesitation to report the true data. Hayashi et al. (2016) reported strong correspondence between self-reported behavior and their texting while driving discounting measure. In that study, AUC of texting while driving was positively correlated with the self-reported frequency of that behavior. This could be further examined in an experimental setting where participants are monitored while completing a task to see if they will cheat and under what conditions.

Finally, there was a correlation between the online and classroom discounting measures. This increases confidence in the reliability of using this task to measure academic cheating. This is significant, as it points towards a reliable way to determine a student's online academic cheating versus their in-person (classroom) cheating. Having a measure that can be used to determine a student's online versus in-person cheating could be a valuable resource for schools and institutions to narrow down where the most academic cheating occurs. Then, a university can make strides to reduce testing in the environments for students indicate they may have a higher likelihood to cheat.

One of the limitations encountered was the sample size of the present study. With only 56 participants, there is a chance these data are not an accurate representation of an average college student, or even the average Assumption student. For example, 32% of the sample were psychology majors, which may not be an accurate representation of the campus' population. Additionally, there may be higher rates of cheating in other majors, but these data were not captured due to low number of participants.

Another potential limitation is that some participants may have been randomly inputting responses to the measures and/or discounting tasks to complete the study quickly and receive the gift card. This raises the concern of honesty and is especially clear in the cheating discounting tasks. When examining the individual participant data from the cheating discounting tasks, some participants gave what appeared to be random answers, meaning that a clear pattern was not evident. For example, in Table 4, which shows the individual scores among participants for the classroom discounting task, Participant 10 shows a strong differentiation from the other participants. There is no pattern to their responses, nor does it make sense, as they rate their likelihood of cheating when there is a 50% chance of getting caught as 72% and when there is a 1% chance of getting caught at 50%. Additional evidence of random responding was evident in the monetary delay discounting task. An automated scorer was used to analyze the 21-item Monetary Choice Questionnaire (Kaplan, 2014). This tool flags data that appeared random, and analysis of the current data indicated that about 20% of responses may be random.

Another potential limitation is that the data from the cheating discounting task suggests that some participants may not have understood the task instructions. For both the classroom and online discounting tasks, some participants' scores were the inverse of what was expected. In other words, they reported a higher likelihood of cheating when the probability of getting caught was 99% compared to when it 1%. This may have been caused by unclear endpoints on the slider scale used to indicate the likelihood of cheating (as seen in Figure 6). While it was intended that a score of 0 would be extremely unlikely to cheat and a score of 100 would be extremely likely to cheat, the question as presented to the participants does not specify what the endpoints are, possibly resulting in confusion among the participants and differences in the way in which they

answered the questions. This could be solved in future studies by using clearer labels on the slider scale so that it is evident that a higher score indicates a higher likelihood of cheating.

Another potential limitation of this study is the measure used to assess stress. All the data were collected during the summer and early fall semester. The way the Perceived Stress Scale measures levels of stress is by asking the participant how they have felt in the past month (Appendix B). However, the participants' average stress level likely changes throughout the semester. For example, students may be less stressed toward the beginning of the semester rather than the middle or end when there are midterm or final exams. The Perceived Stress Scale indicated that there was a moderate level of stress, on average, among the participants. However, as this study was conducted during the summer, the overall stress level of students may have been lower because they were less likely to be enrolled as a fulltime student or to experience stressors related to class work. Future research should collect data at different times throughout the semester to determine whether stress and cheating are correlated only at certain times.

Another limitation was the nature of some of the questions in the SAD, which may be outdated. As seen in Appendix A, the SAD asks questions regarding a personal data assistant, or a PDA. This may be confusing to some students, as they may either not know what that is or may have assumed that it is a cellphone. To accommodate this, in future research the survey should be modified to reflect a more modern or updated approach to cheating and should also include questions related to the usage of artificial intelligence.

The demographic questions were useful in determining the variety of participants involved in the study. However, more questions could be asked to determine the root causes of stress and self-control. For instance, depending on future research questions, researchers may want to include questions about current employment status, any disabilities and/or

accommodations, or whether English is the participant's first or only language. Questions like these could narrow down a student's root causes of stress or things that may factor into a student's stress level.

This study was able to determine that there was no relation between academic dishonesty and GPA, and no apparent correlation between academic cheating and self-control. However, there were correlations between stress and academic cheating and between self-control and stress. This indicates that stress is higher among students who have admitted to cheating. It was hypothesized that the discounting tasks would conform to a hyperbolic curve, but it was found that response better conformed to a linear function. Even so, participants reported a higher likelihood of cheating when the probability of getting caught was low. It was also hypothesized that students would be more inclined to commit a form of academic cheating for an online exam rather than an in-person exam, but the data did not show that.

Overall, the contribution of this study is the development of a new task that can measure a student's level of academic cheating. This task may be a more accurate assessment of academic dishonesty, as some participants who reported no instances of academic dishonesty on the SAD still reported a likelihood to cheat on the discounting tasks. While the discounting task differs in approach from the SAD, they both provide valuable information researchers for understanding academic dishonesty.

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Table 1

Participant Demographics

	Class	Age	Gender	Major	GPA
Participant 1	Junior	20	Male	Graphic Design	3.00
Participant 2	Junior	20	Female	Human Services	3.68
Participant 3	Senior	22	Female	Human Services	3.93
Participant 4	Sophomore	19	Male	Biology	3.00
Participant 5	Senior	22	Male	Management	2.70
Participant 6	Sophomore	19	Female	Graphic Design	3.20
Participant 7	Senior	21	Female	Business	3.00
Participant 8	Sophomore	20	Female	English	2.00
Participant 9	Junior	20	Female	Elementary Education	3.00
Participant 10	Sophomore	19	Female	Education	3.50
Participant 11	Junior	20	Male	Human Services	3.50
Participant 12	Sophomore	19	Male	Cybersecurity	3.35
Participant 13	Senior	20	Female	Psychology	3.90
Participant 14	Sophomore	19	Male	Cybersecurity	3.50
Participant 15	Senior	22	Male	Criminology /Sociology	2.80
Participant 16	Senior	22	Male	Health sciences	3.80
Participant 17	Senior	21	Female	Psychology	3.50

Participant 18	Senior	21	Male	History/Political Science	3.80
Participant 19	Junior	20	Female	Psychology	2.60
Participant 20	Junior	20	Female	Psychology	3.40
Participant 21	Sophomore	18	Female	Psychology/Philosophy	3.98
Participant 22	Junior	21	Female	Psychology	3.20
Participant 23	Freshman	18	Female	Psychology	--
Participant 24	Junior	21	Female	Psychology	3.66
Participant 25	Sophomore	19	Female	Psychology	3.40
Participant 26	Junior	20	Female	Psychology	2.90
Participant 27	Junior	20	Male	Psychology	3.00
Participant 28	Senior	22	Female	Psychology	3.50
Participant 29	Junior	20	Female	Psychology	3.50
Participant 30	Senior	21	Female	Biology	3.60
Participant 31	Junior	21	Female	Communications	2.45
Participant 32	Junior	20	Female	Nursing	3.00
Participant 33	Sophomore	19	Male	Business	3.50
Participant 34	Freshman	18	Male	Computer Science	--
Participant 35	Junior	21	Female	Psychology	3.78
Participant 36	Freshman	18	Female	Psychology	--
Participant 37	Junior	20	Male	Psychology	3.00
Participant 38	Freshman	18	Female	Nursing	--

Participant 39	Freshman	18	Female	Nursing	--
Participant 40	Junior	20	Female	Psychology	3.50
Participant 41	Sophomore	19	Male	Psychology	2.10
Participant 42	Freshman	18	Male	Exercise science	--
Participant 43	Junior	18	Male	Undecided	3.40
Participant 44	Freshman	18	Female	Undecided	--
Participant 45	Sophomore	19	Male	Undecided	3.20
Participant 46	Freshman	18	Male	Undecided	--
Participant 47	Freshman	18	Female	Undecided	--
Participant 48	Freshman	18	Male	Undecided	--
Participant 49	Freshman	--	Female	Undecided	--
Participant 50	Freshman	18	Male	Undecided	--
Participant 51	Freshman	18	Male	Undecided	--
Participant 52	Sophomore	19	Male	Undecided	3.30
Participant 53	Freshman	18	Female	Psychology	--
Participant 54	Junior	20	Female	Undecided	3.20
Participant 55	Freshman	18	Male	Undecided	--
Participant 56	Freshman	19	Male	Undecided	--

Note. "--" indicates that the participant neglected to input data in this section. Age is in years.

Table 2

Participant Scores Reported Across Measures and Tasks

	SAD Score	Stress Scores	Self-Control	GPA	*k* Value	Online	Classroom
Participant 1	0	23	51	3.00	0.01	--	--
Participant 2	0	18	39	3.68	0.02	--	0.07
Participant 3	1	11	45	3.93	0.02	0.25	0.12
Participant 4	15	28	23	3.00	--	0.27	0.14
Participant 5	0	12	38	2.70	0.04	--	0.00
Participant 6	0	13	46	3.20	0.02	--	0.00
Participant 7	10	18	16	3.00	0.01	0.56	0.60
Participant 8	3	20	45	2.00	0.03	0.26	0.17
Participant 9	3	24	48	3.00	0.00	0.42	0.42
Participant 10	37	20	44	3.50	0.03	0.58	0.65
Participant 11	2	13	48	3.50	0.01	0.50	0.44
Participant 12	0	17	49	3.35	0.00	0.10	0.27
Participant 13	3	20	35	3.90	0.01	0.31	0.06
Participant 14	0	17	35	3.50	--	--	--
Participant 15	3	13	42	2.80	0.07	0.05	0.08
Participant 16	1	9	49	3.80	0.00	0.07	0.06
Participant 17	1	11	48	3.50	0.01	0.17	0.24
Participant 18	0	13	38	3.80	0.02	0.38	0.03
Participant 19	1	18	33	2.60	0.01	0.13	0.07
Participant 20	1	13	39	3.40	0.04	0.01	0.02
Participant 21	4	14	48	3.98	0.01	0.34	0.35
Participant 22	0	16	46	3.20	0.02	0.42	0.24
Participant 23	14	26	42	--	0.02	0.36	0.29
Participant 24	4	15	35	3.66	0.01	0.02	0.26
Participant 25	4	27	35	3.40	0.00	0.25	0.39
Participant 26	3	18	37	2.90	0.01	0.04	0.34
Participant 27	65	19	34	3.00	0.02	0.14	0.09

Participant 28	0	24	32	3.50	0.02	0.09	0.08
Participant 29	15	20	35	3.50	0.01	0.54	0.52
Participant 30	8	9	59	3.60	0.00	0.41	0.44
Participant 31	2	21	39	2.45	0.07	0.09	0.08
Participant 32	3	12	40	3.00	0.00	0.02	0.02
Participant 33	4	23	30	3.50	0.05	0.24	0.29
Participant 34	49	17	37	--	0.13	0.61	0.57
Participant 35	7	17	38	3.78	0.01	0.32	0.28
Participant 36	1	19	47	--	0.02	0.10	0.07
Participant 37	48	19	39	3.00	0.02	0.05	0.05
Participant 38	4	27	35	--	0.01	0.47	0.43
Participant 39	6	23	28	--	0.00	0.14	0.02
Participant 40	0	17	40	3.50	0.01	0.00	0.00
Participant 41	5	18	35	2.10	0.04	0.32	0.32
Participant 42	2	10	38	--	0.10	0.48	0.45
Participant 43	29	17	39	3.40	0.13	0.30	0.55
Participant 44	48	27	42	--	0.13	0.54	0.67
Participant 45	48	19	40	3.20	0.01	0.10	0.75
Participant 46	49	24	34	--	0.02	0.23	0.53
Participant 47	57	21	40	--	0.03	0.05	0.64
Participant 48	52	18	42	--	0.13	0.16	0.46
Participant 49	53	19	40	--	0.13	0.29	0.74
Participant 50	56	19	38	--	0.00	0.32	0.54
Participant 51	52	18	40	--	0.13	0.09	0.45
Participant 52	47	22	35	3.30	0.07	0.07	0.08
Participant 53	1	14	34	--	0.02	0.62	0.62
Participant 54	32	19	42	3.20	0.13	0.40	0.51
Participant 55	25	22	44	--	0.13	0.19	0.29
Participant 56	37	18	42	--	0.01	0.43	0.25

Note. "--" indicates that the participant neglected to report information.

Table 3

Spearman Correlation Between Tasks and Measures

	SAD Scores	Stress Score	Self-Control	GPA	K Value	Online	Classroom
SAD Scores	x	0.286*	-0.091	-0.070	0.490**	0.020	0.509**
Stress Score		x	-0.387**	-0.257	0.121	0.063	0.204
Self-Control			x	0.166	-0.013	-0.029	-0.002
GPA				x	-0.142	0.1440	0.074
K Value					x	0.129	0.369**
Online						x	0.565**
Classroom							X

Note. SAD (Survey on Academic Dishonesty).

Table 4

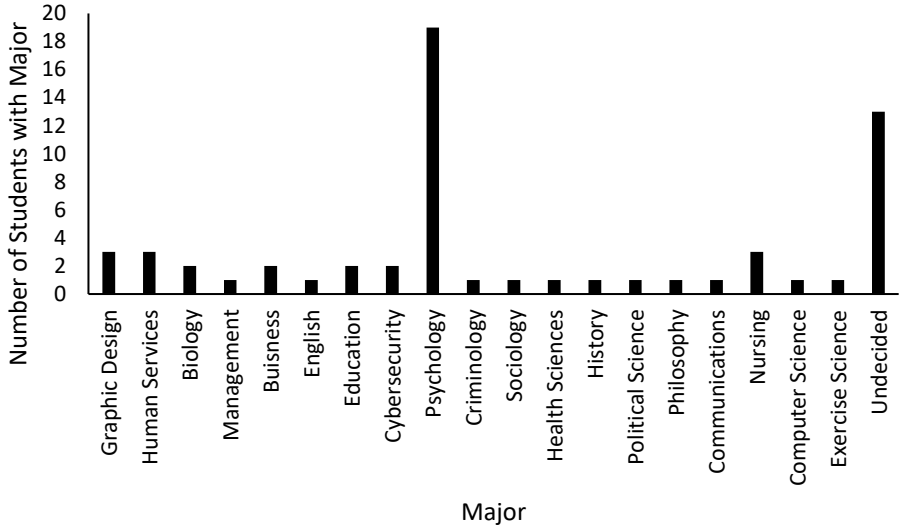
Participants Individual Scores on the Classroom Discounting Task

	Percentage of Getting Caught						
	1%	10%	25%	50%	75%	90%	99%
Participant 1							
Participant 2	43	11	10	5			
Participant 3	60	40	20	0			
Participant 4	100	45	20				
Participant 5							
Participant 6							
Participant 7	70	44	50	56	76	93	16
Participant 8	80	38	30	10	0	0	0
Participant 9	90	80	70	40	20	0	0
Participant 10	50	63	63	72	69	68	57
Participant 11	24	20	20	40	65	87	74
Participant 12	100	57	50	8	8	9	12
Participant 13	30	10	8	4	5	2	1
Participant 14							
Participant 15	90	18	5	2	1	0	0
Participant 16	9	8	7	6	4	5	3
Participant 17	24	42	38	24	16	5	1
Participant 18	16	6	4	3	0	0	0
Participant 19	50	30	2	1	0	0	0
Participant 20	9	6	3	0	0	0	0
Participant 21	75	75	60	36	6	1	1
Participant 22	60	50	50	9	10	9	10
Participant 23	71	70	55	24	0	0	0
Participant 24	90	80	50	10	0	0	0
Participant 25	100	96	85	20	5	0	0
Participant 26	74	60	53	51	0	0	0
Participant 27	90	30	5	0	0	0	0

Participant 28	3	0	7	0	17	25	0
Participant 29	42	73	28	68	76	28	2
Participant 30	90	78	68	58	10	3	0
Participant 31	50	20	0	8	8	0	1
Participant 32	11	4	2	1	0	1	0
Participant 33	90	75	69	0	8	0	6
Participant 34	79	59	57	70	43	44	69
Participant 35	70	64	43	23	11	5	2
Participant 36	40	30	10	0	0	0	0
Participant 37	92	1	1	1	1	1	1
Participant 38	60	68	57	51	34	9	8
Participant 39	17	4	1	2	1	1	1
Participant 40	6	0	0	0	0	0	0
Participant 41	68	66	60	36	0	0	0
Participant 42	25	41	85	16	49	50	47
Participant 43	29	48	22	58	99	54	70
Participant 44	61	70	36	77	75	81	94
Participant 45	100	95	88	85	74	43	2
Participant 46	99	80	64	54	43	33	0
Participant 47	98	92	87	73	54	13	4
Participant 48	71	63	62	47	38	25	14
Participant 49	100	95	88	84	71	40	13
Participant 50	100	100	100	49	28	0	3
Participant 51	85	71	58	49	41	8	0
Participant 52	42	33	13	0	0	0	0
Participant 53	36	18	40	70	83	96	100
Participant 54	51	46	47	52	57	56	55
Participant 55	34	26	34	6	40	46	65
Participant 56	32	22	31	19	27	27	30

Figure 1

Number of Participants with a Certain Major



Note. If participant indicated that they had multiple majors, both majors were included in the graph.

Figure 2

Percentage of Participants who Admitted to a Form of Cheating

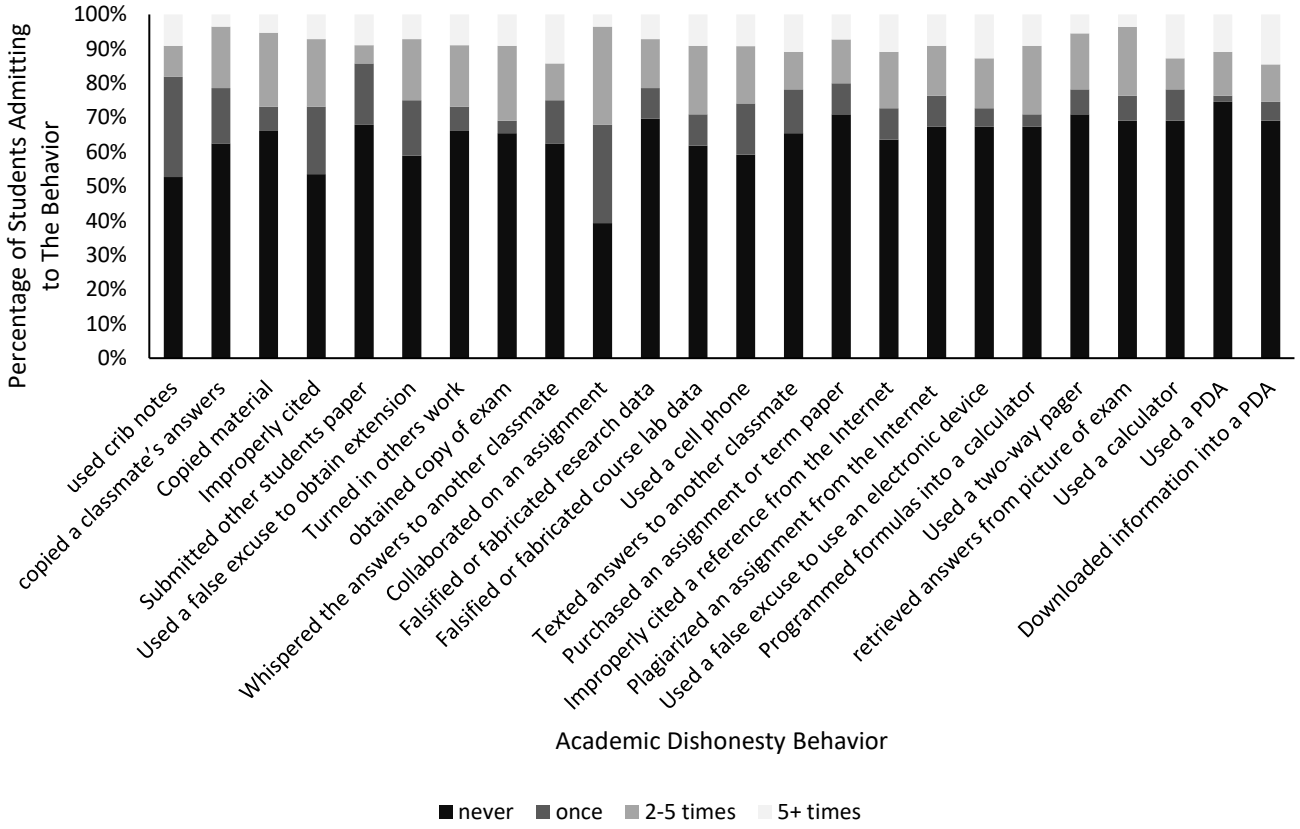


Figure 3

Average SAD Scores Class Year and Gender

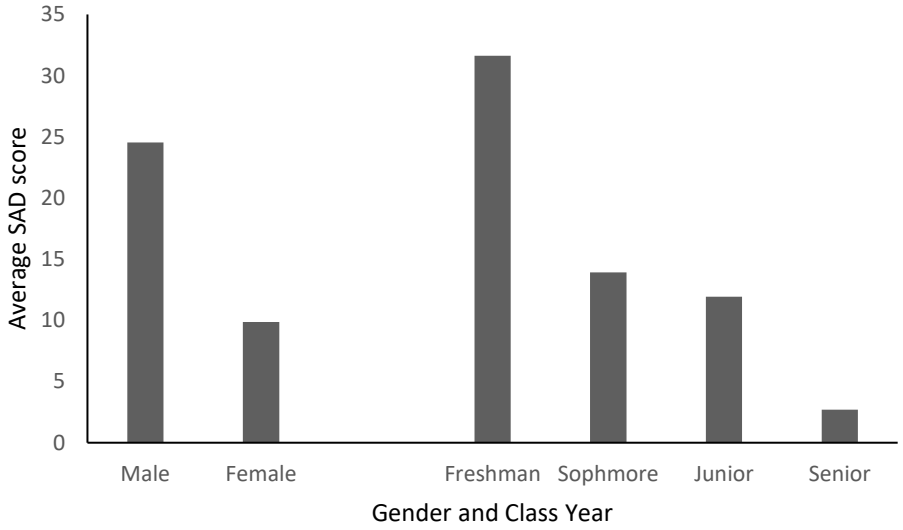


Figure 4

Likelihood of Cheating as a Function of Probability of Getting Caught from the Cheating Discounting Tasks

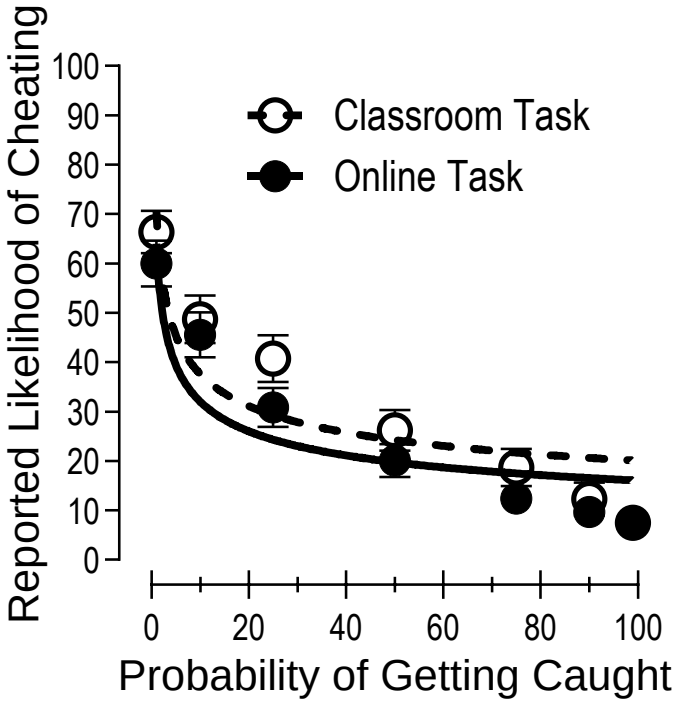
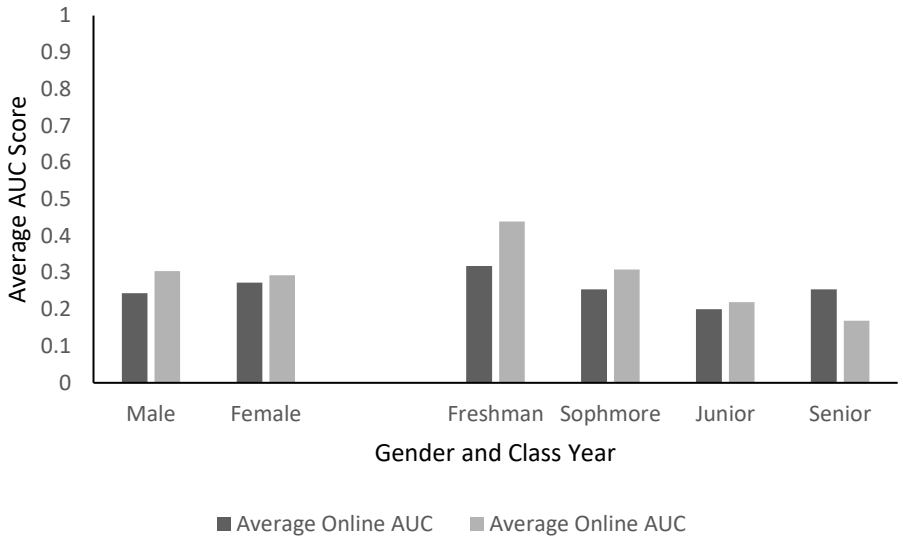


Figure 5

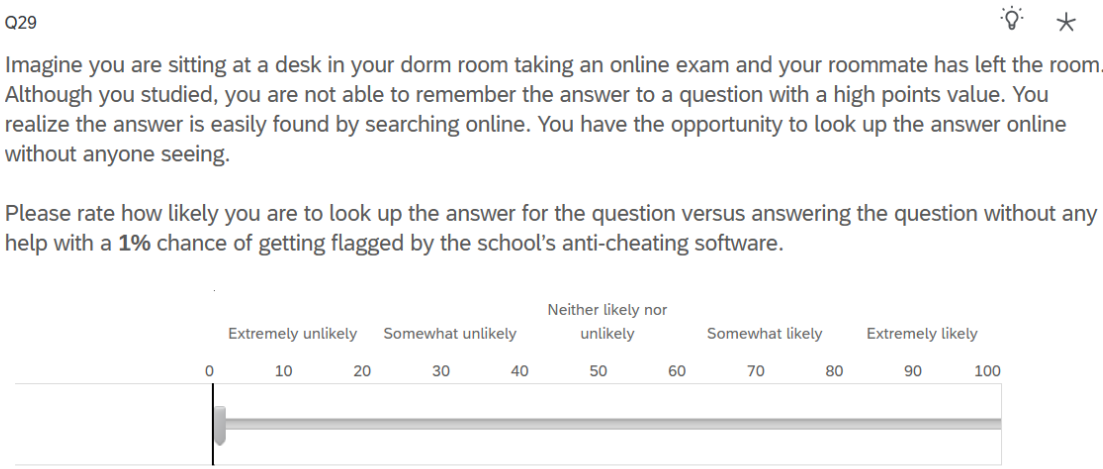
Average AUC Cheating Scores Compared Between Gender and Class Year



Note. Area Under the Curve (AUC)

Figure 6

Example of the Probability Discounting Task Question



Appendix A

Survey on Academic Dishonesty (SAD)

(McCabe & Trevino, 1997)

Questions 1–12 asked participants about traditional cheating behaviors to ascertain whether or not they had ever engaged in the following:

1. Used crib notes, or cheat sheets, to cheat on an exam while in college
2. Copied a classmate's answers on an exam in college
3. Copied material, almost word for word, from any written source and turned it in as your own work
4. Improperly cited a reference of a written source on purpose
5. Submitted a paper, at least in part, from another student's paper, whether or not that student is currently taking the same course
6. Used a false or forged excuse to obtain an extension on a due date for an assignment or exam
7. Turned in work done by someone else
8. Cheated on an exam by illegally obtaining a copy of it before the test
9. Whispered the answers on a test to another classmate during an exam
10. Collaborated on an assignment or take-home test that you were directed to complete on an individual basis
11. Falsified or fabricated research data

12. Falsified or fabricated course lab data

Questions 13–24 asked participants about contemporary cheating behaviors to ascertain whether or not they had ever engaged in the following:

13. Used a cell phone to cheat on an exam in college
14. Text messaged answers to an exam to another classmate during the exam
15. Purchased a ready-made assignment or term paper from the Internet
16. Improperly cited a reference from the Internet on purpose
17. Plagiarized or copied and pasted an assignment from the Internet and submitted it as your own work in college
18. Used a false excuse to obtain permission to use an electronic device during class to cheat
19. Programmed math or science formulas into a calculator to cheat on a quiz or exam
20. Used a two-way pager to cheat on an exam or assignment in college
21. Used the camera accessory on a cell phone to take a picture of an exam in order to retrieve the answers during the test
22. Used a calculator to cheat on an exam in college
23. Used a Personal Data Assistant (PDA) or palm pilot to cheat on an exam
24. Downloaded information from the Internet into a PDA during an exam to retrieve answer

Appendix B

Perceived Stress Scale

(Cohen et al., 1983)

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

1. In the last month, how often have you been upset because of something that happened unexpectedly? _____
2. In the last month, how often have you felt that you were unable to control the important things in your life? _____
3. In the last month, how often have you felt nervous and stressed? _____
4. In the last month, how often have you felt confident about your ability to handle your personal problems? _____
5. In the last month, how often have you felt that things were going your way? _____
6. In the last month, how often have you found that you could not cope with all the things that you had to do? _____
7. In the last month, how often have you been able to control irritations in your life? _____
8. In the last month, how often have you felt that you were on top of things? _____
9. In the last month, how often have you been angered because of things that happened that were outside of your control? _____
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them

Appendix C

(Tangney et al., 2004)

For each question please answer on the scale from 1–Strongly disagree, to 5 –Strongly agree

1. I am good at resisting temptation;
2. I have a hard time breaking bad habit;
3. I am lazy;
4. I say inappropriate things;
5. I do certain things that are bad for me, if they are fun;
6. I refuse things that are bad for me;
7. I wish I had more self-discipline;
8. People say that I have iron self-discipline;
9. Pleasure and fun sometimes keep me from getting work done;
10. I have trouble concentrating;
11. I am able to work effectively toward long-term goals;
12. Sometimes, I can’t stop myself from doing something, even if I know it is wrong;
13. I often act without thinking through all of the alternatives

Appendix D

Delayed Discounting Task Related to Hypothetical Monetary Rewards

(Kaplan, 2016)

For each of the next 21 choices, please indicate which reward you would prefer: the smaller reward tonight, or the larger reward in the specified number of days

1. Would you prefer $30 tonight, or $85 in 14 days?
2. Would you prefer $40 tonight, or $55 in 25 days?
3. Would you prefer $67 tonight, or $85 in 35 days?
4. Would you prefer $34 tonight, or $35 in 43 days?
5. Would you prefer $15 tonight, or $35 in 10 days?
6. Would you prefer $32 tonight, or $55 in 20 days?
7. Would you prefer $83 tonight, or $85 in 35 days?
8. Would you prefer $21 tonight, or $30 in 75 days?
9. Would you prefer $48 tonight, or $55 in 45 days?
10. Would you prefer $40 tonight, or $65 in 70 days?
11. Would you prefer $25 tonight, or $35 in 25 days?

12. Would you prefer $65 tonight, or $75 in 50 days?
13. Would you prefer $24 tonight, or $55 in 10 days?
14. Would you prefer $30 tonight, or $35 in 20 days?
15. Would you prefer $53 tonight, or $55 in 55 days?
16. Would you prefer $47 tonight, or $60 in 50 days?
17. Would you prefer $40 tonight, or $70 in 20 days?
18. Would you prefer $50 tonight, or $80 in 70 days?
19. Would you prefer $45 tonight, or $70 in 35 days?
20. Would you prefer $27 tonight, or $30 in 35 days?
21. Would you prefer $16 tonight, or $30 in 35 days?