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To Cheat or Not to Cheat: Impacts of Learning Disability Status and Impulsivity on Cheating

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TO CHEAT OR NOT TO CHEAT: IMPACTS OF IMPULSIVITY AND LEARNING
DISABILITY STATUS ON CHEATING

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for

the Degree Bachelor of Arts with

Honors College Graduate Distinction at Western Kentucky University

By:

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2016

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2016

ABSTRACT

Impulsivity is associated with academic dishonesty and deficits/disorders related to learning disabilities (LD). Despite separate connections made between impulsivity and academic cheating and between impulsivity and LD, there is little information in the literature regarding whether the impulsivity feature of some LD is related to higher rates of academic dishonesty among students with LD.

We measured history of academic dishonesty, tolerance of academic dishonesty, and impulsivity in 83 Amazon Mechanical Turk participants. An independent samples *t*-test revealed that participants with LD exhibited higher levels of dysfunctional impulsivity compared to neurotypical (NT) peers. Dysfunctional impulsivity was associated with increased cheating tolerance. Individuals with LD also reported cheating on more types of assignments (e.g., papers, tests, quizzes). This data demonstrates a connection between learning disabilities and impulsivity that researchers can further explore using experimental methods. These results have important implications for educators.

Keywords: impulsivity, academic cheating, learning disabilities

Dedicated to Little Britches & his supportive snuggles

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VITA

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Association for Psychological Sciences Annual Conference

May 29, 2016- Chicago, Illinois

To Cheat or Not to Cheat: Impacts of Impulsivity and Learning Disability Status on Cheating

REACH Week Conference- Western Kentucky University

March 2, 2016- Bowling Green, Kentucky

To Cheat or Not to Cheat: Impacts of Impulsivity and Learning Disability Status on Cheating

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Scholar of the College- College of Education and Behavioral Sciences, May 2016

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Undergraduate Service Award-Department of Psychology, May 2016

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To Cheat or Not to Cheat:
Impacts of Impulsivity and Learning Disability Status on Cheating

Introduction

Impulsivity refers to “the tendency to act without considering the logical consequences of one’s actions” (Anderman, Cupp, & Lane, 2010, p. 136). Dickman (1990) echoed a similar definition of dysfunctional impulsivity as, “the tendency to act with less forethought than other people of equal ability when this tendency is a source of difficulty” (p. 1). Impulsivity has been associated with a wide variety of behaviors, including increased drug use (Morgan, 1998), decision-making deficits (Franken, van Strien, & Murris, 2008), and academic cheating, the variable of interest for this research (Anderman et al, 2010; Kelly & Worrell, 1978). Impulsivity is also associated with various learning disabilities and learning problems (Sideridis & Stamovlasis, 2014; Cortiellia & Horowitz, 2014). Despite this connection, very little research has explored the relationship between impulsivity, academic dishonesty, and learning disability status. The present study aims to expand on this area of the literature.

Impulsivity and Cheating

Students cheat for a variety of reasons, some of which include low self-efficacy (Finn-Voelkl & Frone, 2004) and high feelings of normlessness, powerlessness, and estrangement (Brown et al., 2003). Sideridis & Stamovlasis (2014) also assert that

learned helplessness could even be a reason for academic dishonesty, especially amongst students with a learning disability. However, all of the above-mentioned reasons for academic cheating focus on external reasons for cheating, rather than personality characteristics. One such personality characteristic that students may not necessarily think about, yet may influence their decision to cheat academically, is impulsivity.

As previously mentioned, impulsivity can be defined as “the tendency to act without considering the logical consequences of one’s actions” (Anderman, Cupp, & Lane, 2010, p. 136). Dickman (1990) further breaks down impulsivity into two categories: functional and dysfunctional impulsivity. Functional impulsivity can be defined as, “the tendency to act with relatively little forethought when such a style is optimal” (p.1). Functional impulsivity can be considered non-detrimental to the individual and may be useful to an individual. Dysfunctional impulsivity can be defined as, “the tendency to act with less forethought than other people of equal ability when this tendency is a source of difficulty” (p.1). Dysfunctional impulsivity can be detrimental to the individual and is the type of impulsivity of interest in this research.

In a review of the literature on impulsivity and academic cheating, relatively few empirical articles were found. As Anderman et al. (2010) expressed, fewer than five articles have explored this relationship since the 1970s. In an effort to address this gap in the literature, Anderman et al. conducted a correlational study with high school students to further explore the relationship between impulsivity and academic dishonesty, as well as the effects of a classroom mastery goal structure and perceptions of teacher credibility on academic dishonesty.

Anderman et al. (2010) distributed various surveys examining academic cheating, perceptions of teacher credibility and classroom goal structures, and impulsivity to 583 high school students in health classes across the Midwestern United States. Anderman et al. found that impulsivity was positively and significantly correlated with cheating.

Kelly and Worrell (1978) examined the effect of personality traits on cheating. Participants were asked to complete an Analogical Reasoning Task and the Parent Behavior and Personality Research Forms. The 12-item Analogical Reasoning Task presented participants with sequences made up of number and letters. Each sequence had a missing symbol and participants were tasked with determining what the missing symbol was. Participants were asked to grade their own work by comparing their responses to an answer key, and report their scores to the experimenter at the end of the task. The last seven problems were incredibly difficult or impossible to solve, but this was unbeknownst to the participants. However, participants were told that the individuals scoring in the top 50% would be awarded 5 extra credit points, creating an incentive to cheat on their final answer totals. Participants who said they answered six or more (above the maximum number of correct items possible without falsification) were considered “cheaters” by the researchers (Kelly & Worrell, 1978).

Kelly and Worrell’s (1978) data indicated that nearly 20% of their 591 participants cheated on the Analogical Reasoning Task. Female cheaters scored significantly higher on levels of impulsivity as compared to their non-cheating counterparts, thus establishing another connection between academic cheating and impulsivity. There was no significant correlation between impulsivity and cheating for the male participants. However, beyond the connections between academic cheating and

impulsivity made by Anderman et al. (2010) and Kelly and Worrell, there has been very little exploration of this topic. One purpose of the present study is to help address this gap in the literature.

Brief Summarization of Learning Disabilities

According to Cortiella and Horowitz (2014), the most common definition of learning disabilities can be found in the federal special education law, the Individuals with Disabilities Education Act (IDEA). IDEA defines learning disabilities as “a disorder in one or more of the basic psychological process involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect abilities to listen, think, speak, read, write, spell, or do mathematical calculations,” (20 U.S.C. § 1401 (30), as cited by Cortiella & Horowitz, p. 6).

Although experts are still investigating how learning disabilities occur, research indicates that learning disabilities generally arise from differences in brain structure and other neurological differences (Cortiella & Horowitz, 2014). They also seem to have genetic and environmental components. It is important to note that, although researchers do not know the exact cause of learning disabilities, they have been able to determine what does *not* cause learning disabilities- physical or intellectual disabilities amongst other factors (Cortiella & Horowitz, 2014). In other words, just because an individual has lower than average intelligence or is at a disadvantage (due to low socioeconomic status, for example), does not mean that the individual has a learning disability.

Although learning disabilities generally do not present as obviously as physical or intellectual disabilities do, they still have a large impact on the individuals who are diagnosed with them. Cortiella and Horowitz (2014) explain that individuals with

learning disabilities often have trouble receiving, storing, processing, retrieving, or communicating information as well as with reading, math, writing, and comprehension. Academically, this can be a huge hindrance to students as it can be difficult to learn material and oftentimes, these learning disabilities can go undiagnosed for years which can contribute to low self-esteem and struggles with performance/achievement.

Learning disabilities include dyslexia, dyscalculia, and dysgraphia (Cortiella & Horowitz, 2014). It is important to note that learning disabilities tend to co-occur with other attention, language, or behavioral deficits/disorders, but that those deficits/disorders are not considered to be learning disabilities due to how they affect an individual's learning process (2014). These types of deficits/disorders include: Auditory Processing Deficit, Visual Processing Deficit, Non-Verbal Learning Disabilities, Executive Functioning Deficits, and Attention Deficit/Hyperactivity Disorder.

Impulsivity, Learning Disabilities, and Academic Cheating

Although impulsivity is not a direct characteristic of learning disabilities, there have been links made between the two. As mentioned previously, learning disabilities tend to co-occur with attention, behavioral, and language deficits/disorders. Cortiella and Horowitz (2014) estimates that nearly 1/3 of individuals diagnosed with a learning disability are also diagnosed with Attention-Deficit/Hyperactivity Disorder. Similarly, Sideridis and Stamovlasis (2014) provide an estimate of nearly 40%. Specifically, these attention deficits that co-occur with learning disabilities tend to have characteristics such as impulsivity, hyperactivity, inattention, and distractibility.

However, the link between learning disability status and increased impulsivity levels is more than just speculation. In 1974, Tarver and Hallahan conducted a meta-

analysis of 21 studies that explored attention deficits in children. Their analysis concluded that students with learning disabilities were more impulsive than control groups and that they were also deficient in their ability to maintain attention for long periods of time.

Regarding the impacts of impulsivity and learning disabilities on academic cheating, Sideridis and Stamovlasis (2014) suggested that students with learning disabilities could be more likely to cheat due to combination of inattention and impulsivity (both characteristics of associated deficits with learning disabilities.) Sideridis and Stamovlasis found that students with learning disabilities had surprisingly high levels of academic cheating compared to typical levels of cheating in student populations in the same age range.

Because cheating has been found to be correlated with impulsivity and impulsivity is associated with learning disabilities, it is reasonable to suggest that impulsivity is one of the reasons behind cheating in students with learning disabilities. The present study aims to empirically explore the relationship between impulsivity, learning disability status, and likelihood of academic cheating.

Reasoning for the Present Study

The purpose of the present study is to examine the relationship between impulsivity, learning disabilities, and academic cheating and address the gap in the literature surrounding these variables. This study also addresses whether the level of academic dishonesty displayed by students with a learning disability is associated with higher levels of impulsivity. Based on the evidence demonstrating that impulsivity is a

predictor of academic cheating and that impulsivity is associated with learning disabilities, we hypothesized that:

H1) Individuals with learning disabilities would display higher levels of impulsivity, specifically dysfunctional impulsivity (Dickman, 1990), as compared to their neurotypical peers.

H2) Individual with learning disabilities would display higher levels of academic dishonesty as compared to their neurotypical peers.

H3) Individuals with higher rates of dysfunctional impulsivity would report higher rates of cheating tolerance.

Methods

Participants

Eighty-three participants were recruited from Amazon's Mechanical Turk, an open, crowd-sourcing platform administered by Amazon. On this platform, researchers can upload various tasks and individuals who have Mechanical Turk accounts can complete these tasks for various compensations.

Of the 83 participants, 40 identified as having a learning disability. Participants were presented with the learning disabilities listed in the NCLD's (2014) report and selected which learning disability/disabilities and associated deficits/disorders with which they were diagnosed. 24 participants identified as being diagnosed with hyperactivity. The average age of diagnosis was 14 years. A breakdown of learning disability frequency can be found in Appendix A.

If participants identified as having a learning disability, they were also asked about the types of educational services they received during the K-12/postsecondary education. A breakdown of educational services frequency can be found in Appendix B.

Participants ranged in age from 19 to 58, with the average age being 31 years. Thirty-four participants identified as male, forty-two participants identified as female, and one participant chose not to answer. In regards to education level, 37 participants reported that they did not complete high school, 32 had a high school or GED diploma, and 8 had a bachelor's degree.

Measures

Surveys were administrated on Amazon Mechanical Turk and were completed in one sitting. Participants were paid \$4.50 for successful completion of the surveys. Throughout the surveys, there were five attention items to ensure data integrity. If more than two attention items were missed, the participant's survey responses were thrown out and they did not receive payment. Detailed descriptions of the measures are below. Complete questionnaires can be found in Appendix C.

Cheating Inventory. The purpose of this measure was to determine the types of educational situations where participants would find cheating acceptable. We created this measure specifically for the present study and based the educational situations in the measure on previous research that described reasons students reported cheating (Anderman & Danner, 2008; Finn & Frone, 2004; Brown et al., 2003).

The Cheating Inventory contained 32 items in a Likert Scale format ranging from Strongly Disagree to Strongly Agree. Four of the questions were adapted from Brown et al.'s (2003) modified version of the Student Factors Questionnaire. The stem of the

question read, “It would be okay for me to cheat on an assignment (test, paper, quiz, etc.) if...” Item examples include, “The teacher/professor graded unfairly,” and “I did not care about the class content.” A copy of the inventory can be found in Appendix C.

Cheating History. This measure was created to determine the cheating histories of the participants. The stem asked, “Which of the following assignments have you cheated on in the past?” Participants could choose from the following responses: Paper, Test, Quiz, General Assignment, Final Exam, Other, and None of the above. If participants indicated they had cheated on an assignment, they were prompted with the question, “Please explain your reasoning for cheating on (type of assignment.)” A copy of this questionnaire can be found in Appendix D.

Dickman’s Impulsivity Inventory. We used Dickman’s (1990) 46-item Impulsivity Inventory (Table X) as a measure of individual differences in impulsivity. Items were in a True/False format. Eleven items measured functional impulsivity, twelve items measured dysfunctional impulsivity, and twenty-three were filler items. A copy of this inventory can be found in Appendix E.

Demographic Questionnaire. Participants were asked to report information regarding gender, age, education level, diagnosis of learning disabilities and associated deficits/disorders, and details of educational services received (if any). A copy of this questionnaire can be found in Appendix F.

Results

Learning Disability Status and Impulsivity

An independent samples *t*-test was conducted to determine whether individuals with a learning disability reported higher rates of dysfunctional impulsivity than their

neurotypical peers. Results revealed that participants with a learning disability exhibited higher levels of dysfunctional impulsivity, $M = 15.52$, $SD = 2.18$, compared to their neurotypical peers, $M = 14.11$, $SD = 1.68$, $t(75) = 3.21$, $p = .002$, supporting H1.

Graphical representation of this data can be found in Appendix G.

Prevalence of Reported Academic Dishonesty

As a whole, 39% of participants reported having never cheated on an assignment (paper, test, quiz, etc.) However, all other participants reported cheating on one or more types of assignments. A breakdown of cheating by assignment type can be found in Appendix H.

An independent samples t -test was conducted to determine whether individuals with a learning disability reported higher rates of academic cheating than their neurotypical peers. Results revealed that individuals with a learning disability reported cheating on more types of assignments (e.g., papers, tests, quizzes), $M = 1.20$, $SD = 1.09$, than their neurotypical peers, $M = .73$, $SD = .80$, $t(75) = 2.16$, $p = .034$, supporting H2.

Impulsivity and Cheating Tolerance

A correlational analysis was conducted to determine whether dysfunctional impulsivity was associated with increased cheating tolerance. Results revealed that higher rates of dysfunctional impulsivity were associated with increased cheating tolerance, $r(75) = .40$, $p < .001$, supporting H3. However, additional analysis indicated that there was a non-significant correlation between dysfunctional impulsivity and actually cheating on more assignments, $r(75) = -.13$, $p = .27$.

Discussion

Few studies have examined the relationship between academic cheating and impulsivity (Anderman et al., 2010) and even fewer have examined the relationships between academic cheating, impulsivity, and learning disability status. The goal of the present study was to address the gaps in the literature surrounding these variables.

We hypothesized that individuals with a learning disability would display higher levels of impulsivity, specifically dysfunctional impulsivity (Dickman, 1990) as compared to their neurotypical peers. This hypothesis was supported as students with learning disabilities reported higher levels of dysfunctional impulsivity. Dysfunctional impulsivity was also associated with increased cheating tolerance. This aligns with previous literature that concluded higher levels of impulsivity are related to increased levels of academic cheating (Anderman et al., 2010; Kelly & Worrell, 1978) and that individuals with learning disabilities/associated deficits are more impulsive than their neurotypical peers (Sideridis & Stamovlasis, 2014; Tarver & Hallahan, 1974).

We also hypothesized that individuals with a learning disability would engage in academic cheating more often than their neurotypical peers. This hypothesis was also supported, as students with a learning disability reported cheating on more types of assignments (paper, test, quiz, etc.). Although limited research on these relationships exist, our results support those of Sideridis and Stamovlasis (2014) who found that students with learning disabilities exhibited high levels of academic cheating. Our third hypothesis was also supported, as individual with higher levels of dysfunctional impulsivity also had increased cheating tolerance.

One surprising result from our data was that dysfunctional impulsivity was positively and significantly correlated with cheating tolerance, but not with actually cheating on more assignments. It is possible that the situations in which individuals with higher levels of dysfunctional impulsivity found cheating acceptable in simply had not happened during their academic careers (e.g. peer pressure to cheat, teacher/professor grading unfairly, etc.) This would lead to more acceptable situations for academic cheating, but not necessarily a higher number of reported cheating instances. Another surprising result was that, while statistically significant at the $p < .05$ level, hyperactivity was only weakly correlated with dysfunctional impulsivity. This is particularly interesting as previous literature asserts that hyperactivity is the connecting link between impulsivity and academic cheating in students with learning disabilities. These results indicate that there is some other factor that could be moderating the relationship between those three variables.

Although these results address the gap in the literature surrounding impulsivity, academic cheating, and learning disabilities, the present study has some methodological limitations. First, this study used nonexperimental methods (e.g. self-report and surveys). With these methods, we can only demonstrate that impulsivity is associated with academic cheating and learning disability status, and that learning disability status is associated with higher levels of cheating. We cannot say, however, that impulsivity causes academic cheating in general or specifically in individuals with learning disabilities. Second, this study relied on past self-report data. Although we paid participants a fair, but not coercive, amount in accordance with standard Mechanical Turk rates and used attention items to increase data integrity, the possibility of fabricated

responses exists. Finally, the demographic make-up of participants in this study may not be representative of the general population due to the characteristics of Amazon Mechanical Turk participants. The high number of participants without a high school education in our sample suggests this may be the case.

Despite the limitations, the present study has several important implications. Our research provides more evidence of a relationship between impulsivity and academic cheating. This knowledge may help educators become more aware of not only what causes their students to cheat, but also how they can structure their classrooms and various activities to help inhibit the cheating of some students. Similarly, we found that students with learning disabilities reported higher levels of cheating than their neurotypical counterparts, which could help educators reach out to this student population in both the implementation of activities and assignments and monitoring of their academic progress.

Future research should attempt to use experimental methods to more precisely investigate the relationships between impulsivity, learning disabilities, and academic cheating. Although experimental methods designed to induce cheating in participants can be difficult, it is important that causal links between the three variables be established. Researchers should conduct future studies on current student populations rather than former students. This would provide a more current and representative sample of academic trends. Finally, it is very important that researchers begin to look into methods of how to curb academic cheating, especially for students who display higher levels of impulsivity.

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Appendix A

Table 1
Learning Disability Frequency and Total Percentage

<u>Learning Disability/Associated Deficits and Disorders</u>	<u>Frequency</u>
Dyslexia <i>(Reading Disabilities)</i>	12
Dyscalculia <i>(Math Disabilities)</i>	5
Dysgraphia <i>(Writing Disabilities)</i>	1
Auditory Processing Deficit/Disorder <i>(Difficulty in using and understanding auditory information)</i>	3
Visual Processing Deficit/Disorder <i>(Difficulty in using and understanding visual information)</i>	0
Non-Verbal Learning Disabilities <i>(Combination of unique LD characteristics)</i>	1
Executive Functioning Deficits <i>(Chronic difficulties in executing daily tasks)</i>	1
Attention Deficit/Hyperactivity Disorder <i>(Significant inattention, hyperactivity, and distractibility)</i>	27
Other	3
Total	53

Note. Individuals who selected more than one learning disability or associated deficits/disorders were counted for each selection.

Appendix B

Table 2
Frequency of Educational Services Received

<u>Type of Educational Service Received</u>	<u>Frequency</u>
Response to Intervention (RTI) Services <i>(K-12)</i>	3
Remedial Classes <i>(K-12)</i>	11
Special Education Courses <i>(K-12)</i>	7
Individualized Education Plan (IEP) <i>(K-12)</i>	8
Remedial Classes <i>(College/University Level)</i>	3
Other	1
Total	33

Note. Individuals who reported receiving one or more educational services were counted for each selection.

Appendix C
Cheating Tolerance Inventory

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The teacher/professor graded unfairly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I was wasting my time at my school/university.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I could not complete the assignment without cheating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not care about the class content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I knew I would not get caught.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was too tired.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not study for the assignment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The class was very important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The teacher/professor did not care about cheating in their classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The assignment was too hard.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My peers encouraged me to cheat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content was too difficult to understand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I had a lot of academic support and other resources at my school/university.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The assignment was difficult, but I felt that I could do it anyway.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I felt that the assignment was manageable.	<input type="radio"/>				
I was more concerned about getting an A than understanding the material.	<input type="radio"/>				
The penalties for cheating were not that bad.	<input type="radio"/>				
The class was not in my interests/major studies.	<input type="radio"/>				
The assignment was unfair.	<input type="radio"/>				
I observed my peers cheating without getting caught.	<input type="radio"/>				
I did not care about my school/university.	<input type="radio"/>				
I had no control over how well I did in the class. No matter what I did, I could not master the content.	<input type="radio"/>				
I had too many things to do.	<input type="radio"/>				
I forgot to study, do the assignment, etc.	<input type="radio"/>				
The teacher/professor enjoyed making the class difficult for students.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I was just a number at my school/university.	<input type="radio"/>				
I continually struggle with achieving my goals.	<input type="radio"/>				
My peers expressed disapproval in cheating.	<input type="radio"/>				
Learning the content was more important than grades.	<input type="radio"/>				
I felt attached to my school/university, peers, etc.	<input type="radio"/>				

My GPA was very important to me.	<input type="radio"/>				
I did not plan to cheat in advance, but ended up cheating.	<input type="radio"/>				

Appendix D
Cheating History Inventory

Which types of assignments have you cheated on in the past?

By cheating, we mean any of the following:

- Looking at another student's paper
- Using notes or other sources when you weren't supposed to
- Copying from another student, the internet, or another source
- Anything else you did an attempt to raise your score on an assignment in a way not authorized by the instructor

- Paper (i.e. plagiarism)
- Test
- Quiz
- General Assignment
- Final Exam
- Other (Please explain.) _____
- None of the above

For every assignment selection, participants were asked to explain why they cheated on that assignment:

- Please explain why you cheated on the paper(s).
- Please explain why you cheated on the test(s).
- Please explain why you cheated on the quiz/quizzes.
- Please explain why you cheated on the assignment(s).
- Please explain why you cheated on the final exam(s).
- Please explain why you cheated on the other assignment(s).

Appendix E
Dickman (1990) Impulsivity Inventory

	True	False
I would travel a great deal if I had a chance.	<input type="radio"/>	<input type="radio"/>
I don't like to make decisions quickly, even simple decisions, such as choosing what to wear, or what to have for dinner.	<input type="radio"/>	<input type="radio"/>
I seldom tell lies.	<input type="radio"/>	<input type="radio"/>
<i>I often say whatever comes into my head without thinking first.</i>	<input type="radio"/>	<input type="radio"/>
I have many hobbies.	<input type="radio"/>	<input type="radio"/>
I am good at taking advantage of unexpected opportunities, where you have to do something immediately or lose your chance.	<input type="radio"/>	<input type="radio"/>
I would rather read fiction than non-fiction.	<input type="radio"/>	<input type="radio"/>
<u><i>I enjoy working out problems slowly and carefully.</i></u>	<input type="radio"/>	<input type="radio"/>
I would not drive over the speed limit even if I knew I would not be caught.	<input type="radio"/>	<input type="radio"/>
I am uncomfortable when I have to make up my mind rapidly.	<input type="radio"/>	<input type="radio"/>
I consider myself a sympathetic person.	<input type="radio"/>	<input type="radio"/>
<i>I frequently make appointments without thinking about whether I will be able to keep them.</i>	<input type="radio"/>	<input type="radio"/>
I enjoy exercising.	<input type="radio"/>	<input type="radio"/>
I like to take part in really fast-paced conversations, where you don't have much time to think before you speak.	<input type="radio"/>	<input type="radio"/>
I like most of the people I meet.	<input type="radio"/>	<input type="radio"/>
<i>I frequently buy things without thinking about whether or not I can really afford them.</i>	<input type="radio"/>	<input type="radio"/>
I watch television about as much as most people do.	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>

	True	False
Most of the time, I can put my thoughts into words very rapidly.	<input type="radio"/>	<input type="radio"/>
I enjoy outdoor activities.	<input type="radio"/>	<input type="radio"/>
<i><u>I often make up my mind without taking the time to consider the situation from all angles.</u></i>	<input type="radio"/>	<input type="radio"/>
I read more books than most of my friends.	<input type="radio"/>	<input type="radio"/>
I don't like to do things quickly, even when I am doing something that is not very difficult.	<input type="radio"/>	<input type="radio"/>
I am more alert than most people late at night.	<input type="radio"/>	<input type="radio"/>
<i>Often, I don't spend enough time thinking over a situation before I act.</i>	<input type="radio"/>	<input type="radio"/>
I like to read about scientific research.	<input type="radio"/>	<input type="radio"/>
I would enjoy working at a job that required me to make a lot of split second decisions.	<input type="radio"/>	<input type="radio"/>
Religion is very important in my life.	<input type="radio"/>	<input type="radio"/>
<i>I often get into trouble because I don't think before I act.</i>	<input type="radio"/>	<input type="radio"/>
I have more curiosity than most people.	<input type="radio"/>	<input type="radio"/>
I like sports and games in which you have to choose your next move very quickly.	<input type="radio"/>	<input type="radio"/>
I read the newspaper almost every day.	<input type="radio"/>	<input type="radio"/>
<i>Many times the plans I make don't work out because I haven't gone over them carefully enough in advance.</i>	<input type="radio"/>	<input type="radio"/>
I sometimes get depressed for no good reason.	<input type="radio"/>	<input type="radio"/>
People have admired me because I can think quickly.	<input type="radio"/>	<input type="radio"/>
I enjoy it when I get a chance to visit a city I've never seen before.	<input type="radio"/>	<input type="radio"/>
<i><u>I rarely get involved in projects without first considering the potential problems.</u></i>	<input type="radio"/>	<input type="radio"/>
I am easily embarrassed.	<input type="radio"/>	<input type="radio"/>
I have often missed out on opportunities because I couldn't make my mind up fast enough.	<input type="radio"/>	<input type="radio"/>
I am more alert than most people in the morning.	<input type="radio"/>	<input type="radio"/>

<i><u>Before making any important decisions, I carefully weigh the pros and cons.</u></i>	<input type="radio"/>	<input type="radio"/>
I make an effort to take care of my health.	<input type="radio"/>	<input type="radio"/>
I try to avoid activities where you have to act without much time to think first.	<input type="radio"/>	<input type="radio"/>
I generally go to bed at a later hour than most people do.	<input type="radio"/>	<input type="radio"/>
<i><u>I am good at careful reasoning.</u></i>	<input type="radio"/>	<input type="radio"/>
I think that I am more creative than most of my friends.	<input type="radio"/>	<input type="radio"/>
<i><u>I often say and do things without considering the consequences.</u></i>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>

Italics: Dysfunctional Impulsivity

Underline: Reverse-coded

Appendix F
Demographic Questionnaire

- 1) Please indicate your gender.
 - Male
 - Female
 - Other
 - Prefer not to answer
- 2) How old are you?
- 3) What is your highest level of education?
 - Did not complete High School
 - High School Diploma (includes GED)
 - Bachelor's Degree
 - Master's Degree
 - Doctorate Degree
- 4) What was your major/area of study?
- 5) If you took the ACT and/or SAT, please indicate your scores below.
 - ACT (Please indicate your composite score and year taken.) _____
 - SAT (Please indicate your composite score and year taken.) _____
 - I took either/both the ACT and SAT, but cannot remember my scores.
 - I did not take either test.
- 6) Have you ever been diagnosed with a learning disability/disorder?
 - Yes
 - No
- 7) Please indicate your diagnosis.
 - Dyslexia (Reading disabilities)
 - Dyscalculia (Math disabilities)
 - Dysgraphia (Writing Disabilities)
 - Auditory Processing Deficit/Disorder (Difficulty in using and understanding auditory information)
 - Visual Processing Deficit/Disorder (Difficulty in using and understanding visual information)
 - Non-Verbal Learning Disabilities (Combination of unique LD characteristics)
 - Executive Functioning Deficits (Chronic difficulties in executing daily tasks)
 - Attention Deficit/Hyperactivity Disorder (Significant inattention, hyperactivity, and distractibility)
 - Other (Please indicate diagnosis in space below.) _____
 - Prefer not to answer

8) How old were you when you received your diagnosis/diagnoses? If you do not know the exact age, please provide an estimate.

9) Have you ever been diagnosed with hyperactivity/being hyperactive?

Yes

No

10) Please indicate if you received any of the following educational services:

Response to Intervention Services (K-12)

Remedial Classes (K-12)

Special Education Courses (K-12)

Individualized Education Plan (IEP) (K-12)

Remedial Classes (College/University Level)

Other

I received none of these services.

11) Please briefly describe your educational intervention you selected as "other."

12) Please indicate the subject(s) of the K-12 remedial courses you took.

Math

Reading

English/Writing

Behavior Intervention

Other _____

13) In what grade(s) did you take the K-12 remedial courses?

Kindergarten

1st Grade

2nd Grade

3rd Grade

4th Grade

5th Grade

6th Grade

7th Grade

8th Grade

9th Grade

10th Grade

11th Grade

12th Grade

14) Please indicate the subject(s) of the college remedial courses you took.

Math

Reading

English

Writing

Other _____

15) In what year(s) of college did you take remedial courses?

- 1st Year
- 2nd Year
- 3rd Year
- 4th Year (or beyond)

16) Please indicate the subject(s) you received Response to Intervention services for.

- Math
- Reading
- English/Writing
- Behavior Intervention
- Other _____

17) Please indicate the grade level(s) in which you received Response to Intervention services.

- Kindergarten
- First Grade
- Second Grade
- Third Grade
- Fourth Grade
- Fifth Grade
- Sixth Grade
- Seventh Grade
- Eighth Grade
- Ninth Grade
- Tenth Grade
- Eleventh Grade
- Twelfth Grade

Appendix G

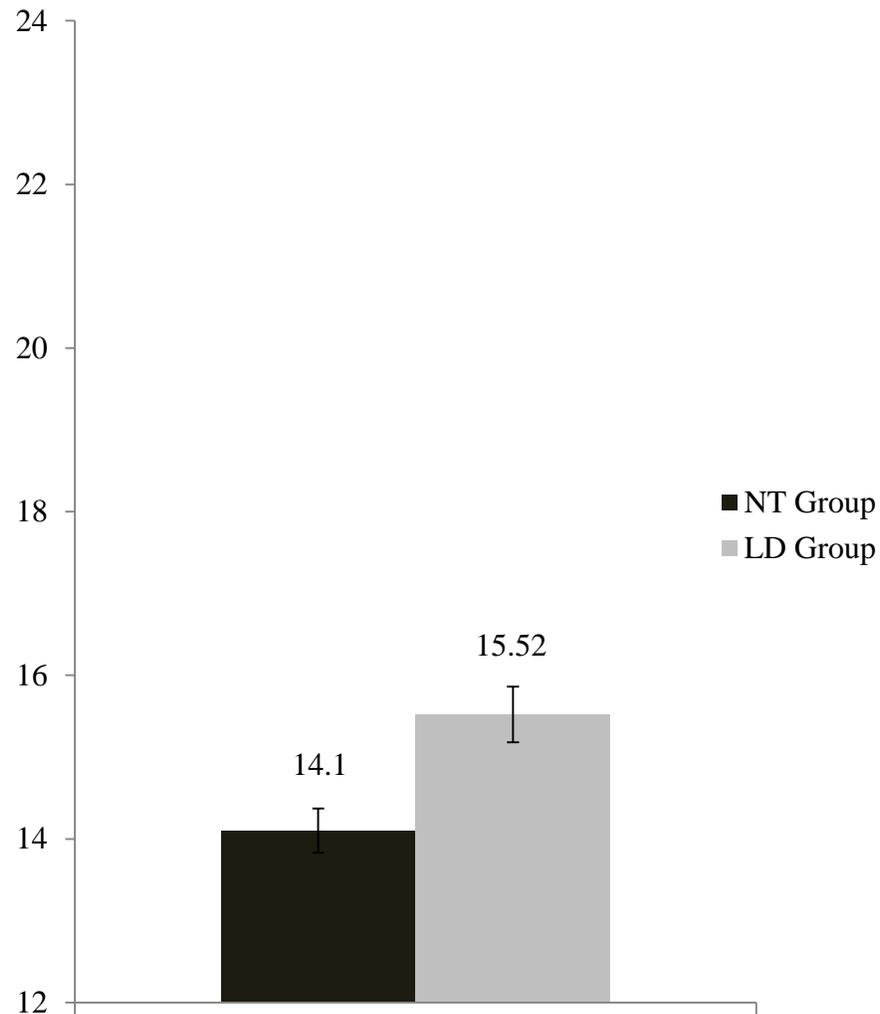


Figure 3. Average Dysfunctional Impulsivity scores of each group. This figure illustrates the average levels of dysfunctional impulsivity of individuals with a learning disability (LD) and neurotypical individuals (NT). Error bars represent standard error.

Note: The scale starts at 12 due to coding method used.

Appendix H

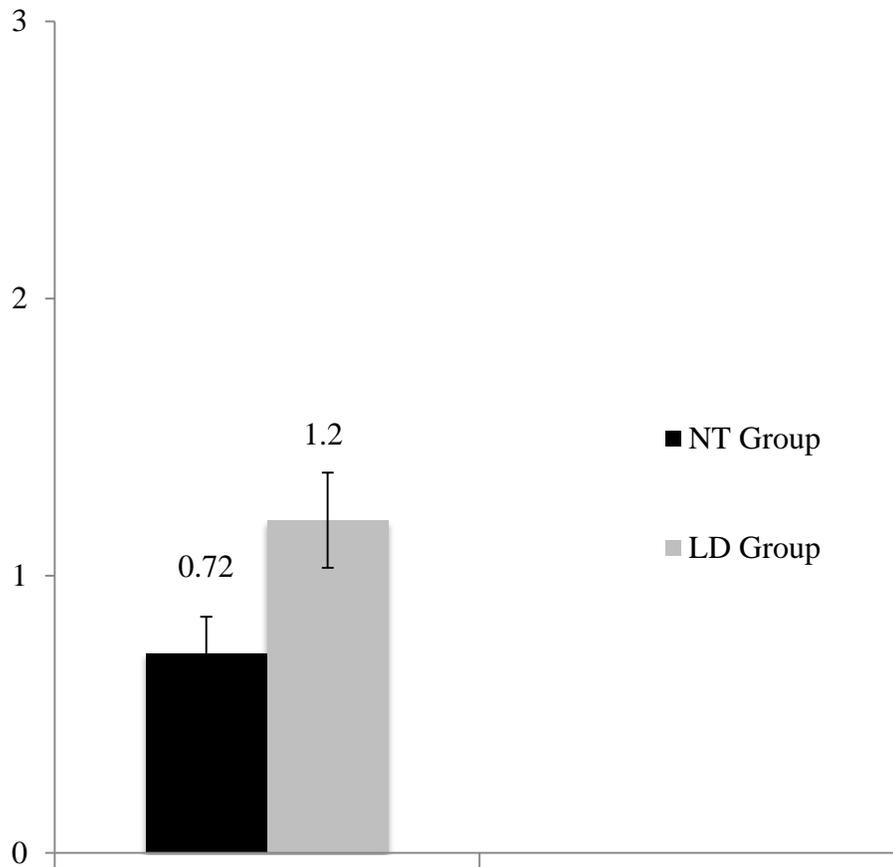


Figure 4. Average Number of Assignments Cheated on in each group. This figure illustrates the average number of assignments cheated on by individuals with a learning disability (LD) and neurotypical individuals (NT). Error bars represent standard error.