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High School Students and Teachers Ethical Perceptions of using Cognitive Enhancers for Academic Achievement

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Concordia University–Portland
College of Education
Doctorate of Education Program

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High School Students' and Teachers' Ethical Perceptions of Using Cognitive Enhancers for
Academic Achievement

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Concordia University–Portland
College of Education

Dissertation submitted to the Faculty of the College of Education
in partial fulfillment of the requirements for the degree of
Doctor of Education in
Higher Education

Nicholas J. Markette, Ed.D., Faculty Chair Dissertation Committee

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Concordia University–Portland

2019

Abstract

The purpose of this qualitative case study was to explore how high school students and teachers perceive the ethical implication of using cognitive enhancing CE drugs for academic purpose within a Connecticut urban high school. This study set out to answer two research questions, (1) How do high school students perceive the ethical implication of using study drugs? (2) How do teachers perceive the ethical implication of using study drugs? A case study design was used to examine perceptions held by high school teachers and students in an urban school district. Data were collected using semi structured interviews, surveys, and tolerance vignettes. Analysis revealed perceptions towards the nonmedical use of prescription stimulants (NMUPS) were negative by both teacher and student participants. Teacher participants displayed the most concern towards safety issues while student participants showed concern towards fairness. The results of this study can be useful for developing early intervention awareness programs and implementing a code of conduct in an effort to deter the NMUPS.

Keywords: study drugs, academic steroids, illicit Adderall, illicit Ritalin, stimulant drug use and students, ADD/ADHD medication for increased focus

Dedication

This dissertation is dedicated to my daughter Klaudia. You can make the impossible possible.

Acknowledgement

First, I would like to thank my daughter Klaudia for her patience and understanding through those long nights of studying and endless, “I’m almost finished.” I am ecstatic to say, “I’m finally finished!” Thank you to my husband, David, who never underestimated my ability to complete this enormous task and for pushing me when I was ready to give in. Thank you to my parents, for supporting my dreams, and to my sister, who when I proposed this idea said, “why not, what else are you going to do.” Little does she know that those words were the spark that motivated this journey. Thank you!

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Finally, I give all my thanks and gratitude to God for without his grace nothing would be possible.

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Chapter 1 Introduction

Introduction to the Problem

Drugs, such as Adderall and Ritalin are commonly prescribed to treat the diagnosis of Attention Deficient Hyperactivity Disorder (ADHD), and are now highly sought after by college students who are looking to increase their abilities to extend study sessions, improve focus, and to achieve academic success (Ford & Schroeder, 2008; Frati et al., 2015; Gallucci, Usdan, Martin, & Bolland, 2014; Kerley, Copes, & Griffin, 2015; Loe, 2008; Partridge, Bell, Lucke, & Hall, 2013; Prosek et al., 2018). Adderall and Ritalin are stimulants that work to boost levels of neurotransmitters dopamine and norepinephrine in the brain. For patients with an ADHD diagnosis, it calms behaviors and increases focus; however, in healthy brains, it was reported to create a spark by igniting motivation resulting in some enhanced performance (Chatterjee, 2013; Ilieva & Farah, 2013; PBS, 2001a). Extensive research suggests illicit use of stimulants has the potential for harmful health risk including, addiction, insomnia, weight loss, increase blood pressure, anxiety, and even death. (Sussman, Pentz, Spruijt-Metz, & Miller, 2006).

Before legalizing marijuana, the majority of people considered marijuana's use to be morally unacceptable and harmful based on laws prohibiting its use (Brugger, 2017; Seaman, 2016). Senior Fellow of Ethics and Director of the Fellows Program at the Culture of Life Foundation in Washington, DC, Brugger (2017) explained how people connect laws to guiding their moral decisions. Also, the Journal of the American Medical Association (JAMA) Pediatrics 2016 study found, legalization led to decreased perceptions of risk and increase in marijuana use among teens (Seaman, 2016). While ethical perceptions regarding marijuana shifted in the United States, it is unclear how moral views regarding CE drugs are developing.

As this discussion shapes up legislatively, this study may provide insight into ethical perceptions regarding nonmedical CE drug use.

Garasic and Lavazza (2016) highlighted findings from the Federal Substance Abuse and Mental Health Services Administration affirming that roughly 137,000 American college students start abusing prescription stimulants each year. The nonmedical use of prescription stimulants (NMUPS) is most prevalent among persons aged 18 to 25 who attend college (Arria & DuPont, 2010; Gallucci et al., 2014); also, higher rates of NMUPS have been found among college students compared to their non-college attending counterparts (Ford & Pomykacz, 2016; The Yale Tribune, 2018). Author of ADHD Nation and Journalist for the New York Times, Alan Schwartz, expressed concerns regarding increases in ADHD diagnoses in conjunction with the overwhelming demand for stimulant medications. Schwarz (2015) exposed significant increases by up to 53% in a 4-year period of ADHD drug production (para. 34).

While some researchers suggest reasons such as over-diagnoses (Loe, 2008; Outram, 2010; Prosek et al., 2018; Stolz, 2012), increases in drug production (Kerley et al., 2015), and lowered threshold in the diagnostic criteria (Miller & Prosek, 2013), other findings support that students justify their reason for using CE by creating a false division between moral values thereby allowing them to feel vindicated in their decision to engage in using CE medications for their off label affects (DeSantis & Hane, 2010; Kerley et al., 2015). This study will provide insight regarding ethical perceptions held by high school students and teachers towards NMUPS to increase cognitive enhancement for gaining academic success.

Stimulation misuse or off-label drug use is defined as using medication beyond prescribed dosage, using without a prescription, and/or using beyond the intended medical purpose (Hartung et al., 2013; Prosek et al., 2018). Prescription medications are typically

misconceived as being safe, even more so, with medicines that are commonly prescribed to children (Kerley et al., 2015). Students and, in many instances, parents are unapprised of the potential risk factors associated with cognitive enhancers (Hartung et al., 2013; Prosek et al., 2018). Pharmaceutical companies contributed to this misconception when the FDA approved the direct to consumer advertising for prescription drugs; specifically, Ritalin, which promised better grades in a pill (PBS, 2001a; Schwarz, 2015).

Perceptions from a study conducted by Kerley et al. (2015) revealed that students consider the use of cognitive enhancers as safe because they are government regulated, prescribed by medical professionals, created in clean labs, and come with dispensing direction labels. Another delusion that establishes a false sense of security is that patients do not expect a doctor to write a prescription for cocaine especially for a child (Kerley et al., 2015). The stimulant Ritalin has the same chemical structure as cocaine, they both block the reuptake of dopamine, because of the different ways in which the drugs are administered Ritalin enters the brain gradually, therefore, eliminating a euphoric sensation (Fрати et al., 2015; PBS, 2001a).

These misconceptions contradict the data and research, which suggest that those who engage in misuse of stimulant medication are more susceptible to addiction and medical problems (Sussman et al., 2006). Amphetamine and Methylphenidate are Schedule II drugs due to their propensity for abuse and dependency, and their adverse impact on physical and psychological health (Bavarian, Flay, Ketcham, & Smit, 2013). Within the last 10 years, the Food and Drug Administration mandated manufacture put the strict “black box” warning on these medications due to their severe hazards (DEA.org). According to the Substance Abuse and Mental Health Services Administration (SAMHSA), 47% of the 10,146 emergency room visits connected to stimulant medication among young adults were related to nonmedical use (Prosek

et al., 2018). A comprehensive understanding of students' and teachers' ethical perceptions regarding the NMUPS may assist in guiding future research regarding enhancement medication for healthy individuals, evaluate the benefits to risk ratio, distinguish between treatment and enhancement, address equal access and socioeconomic disparities, consider the possibility of coercion, and assess the value of authenticity.

Background

In 1963, amphetamines were being prescribed to control hyperactive behaviors in children, and by 1970 more than 15 pharmaceutical companies were manufacturing over 30 different kinds of stimulant prescription medications (Sussman et al., 2006). Benzedrine takes credit as the launch pad for current study drugs. Not only were college students inhaling amphetamines for their stimulating side effects that assisted them in extending their nightly study sessions and completing term papers (Sussman et al., 2006), allied forces during WWII were also taking advantage of amphetamine benefits. Amphetamine became a staple in fighter pilots first aid kits, German soldiers took them to march for hours, and even housewives popped the pills to maintain pep and control weight (Benson, 2015).

Panizzon, a Swiss chemist, synthesized methylphenidate in 1944 (Lange, Reichl, Lange, Tucha, & Tucha, 2010). Panizzon gave the drug to his wife, Rita, who took the stimulant before her tennis games to help increase her low blood pressure. The drug enhanced her performance as well as suppressed her appetite and was named Ritaline. Later the medication was sold by Ciba Pharmaceuticals with the brand name Ritalin (Frati et al., 2015; Lange et al., 2010). Ritalin was marketed initially as a pep pill for housewives in 1954, and soon became the cognitive enhancement go-to pills that were prescribed to geriatric patients to increase motivation as well

as patients diagnosed with depression, psychosis, or narcolepsy (Benson, 2015; Lange et al., 2010).

Although Ritalin's initial use as a pep pill failed, child psychiatrists took note of the drug's cognitive enhancement ability which inspired the drug company to remarket Ritalin for modifying behaviors of children by creating a calming effect, increasing focus, and ultimately assisting children with their academic progress (Schwarz, 2015). In 1962, the FDA approved the drug company's request to sell Ritalin as a cognitive enhancer for children, and it soon became a best-selling focus drug to control ADHD (Benson, 2015; Frati et al., 2015).

During the period from 1930 through the 1970s, taking amphetamines were a common practice for military workers, truck drivers, manual laborers, athletes, and students (Jenkins, 1999; Kerley et al., 2015). Consumption of amphetamine soared in the late 1960s ultimately increasing drug production and triggering public health concerns thereby limiting production due to drug abuse which inherently provoked strict prescribing guidelines. Sales and prescriptions declined by 90% from 1971 to 1986, until the diagnosis of ADHD emerged. Adderall, a mixture of amphetamine salts, was introduced in 1996, the synthesis of four amphetamine salts produced a smoother, more gradual, less abrupt effect (Goode, 2012); and therefore, was presented as a safe brand you can trust (Kent, 2013).

In 1937, Time magazine published an alarming article, "Pep-Pill Poisoning" warning the public about mass over-dosing by midwestern university students, pointing to what they described as a powerful but poisonous brain stimulant, Benzedrine. Students using these so-called pep-pills to cram for finals were experiencing insomnia, slow pulse rates, and collapsing or fainting (Time Inc., 1937). Calling attention to the drug's dangerous effects as a mood enhancer and study drug.

Adderall did not become prevalent with healthy students for cognitive enhancement until the late 1990s. Google search activity reports the term ‘Adderall studying’ did not exist as a search query until 2009; the research also reveals peaks and valleys indicating greater search hits during college exam periods (drugabuse.com., 2019). McCabe, West, Teter, and Boyd (2014) summarized that college students aged 18 to 22 are the predominate nonmedical users of stimulants, compared to the same age group not enrolled in college. The common demographic characteristics for misuse are white, male, and fraternity affiliation (Ford & Ong, 2014; McCabe et al., 2014; Prosek et al., 2018).

Statistics for Adderall prescriptions and production began to skyrocket, ranking Adderall 43 out of the top 200 most prescribed drugs in 2008 (Goode, 2012), while Aikins (2011) reported sales of approximately \$7.5 billion on ADHD medications for 2010. The demand for methylphenidate and amphetamine-dextroamphetamine continues to overwhelm pharmaceutical companies who must adhere to federal guidelines regarding the amounts of drugs that they can manufacture per year. Over-diagnosing ADHD has led Congress to increase quotas for production of Adderall (PBS, 2001b). The Coalition Against Drug Abuse reports that cognitive-enhancing drugs double in their rate of production each year (PBS, 2001b). Since the early 1990s, Ritalin production, the drug most commonly prescribed for adolescence to treat ADHD, skyrocketed from 1,768 kilograms to 14,957 kilograms within a 10-year span when it finally began to level off (PBS, 2001b).

According to Dr. Anjan Chatterjee, chair of neurology at the University of Pennsylvania, cognitive enhancement is not going away (Chatterjee, 2013). Chatterjee proposed that physicians will encounter pressure from patients to prescribe treatments for nontherapeutic uses (Chatterjee, 2006, 2013). Szalavitz (2012) reported that in 1937, The New York Times hyped

the use of Benzedrine as “high octane brain fuel,” pitching it as a cognitive enhancer, which sparked Time magazine to run a follow-up story about how college students were using it to cram for finals. Prescription stimulants are notorious for their nonmedical uses such as study drugs, therefore, drawing inquiry to the future of cognitive enhancement regarding safety, policy, regulation, access, and coercion may provide pivotal insight.

Statement of the Problem

It is not yet known how high school students and teachers perceive the ethical implication regarding the nonmedical use of prescription stimulants for cognitive enhancement. While the illicit use of cognitive enhancers drives the pharmaceutical market, it is the population responsible for fueling these profits that are most disillusioned by these drugs harmful side effects and social implications (Arria & DuPont, 2010; Chatterjee, 2013; Schwarz, 2015; Stolz, 2012). When cosmetic surgery crossed the line from treating to enhancement, it was often met with judgment and skepticism questioning ethical implications (Chatterjee, 2013). If it is perceived to be ethically acceptable to use prescription stimulants for cognitive enhancement can society expect to experience ethical shifts in how academics are measured?

The purpose of this qualitative case study was to explore how high school students and teachers perceive the ethical implication of high school students and teachers regarding the nonmedical use of prescription stimulants for cognitive enhancement. The popular drugs frequently prescribed to children and adults for the treatment of ADHD are easily obtained on high school and college campuses. Students who typically seek cognitive enhancing drugs are doing so to increase focus and extend study sessions (Partridge et al., 2013; Prosek et al., 2018). Rationalizations for the drug’s safety, self-improvement, and social acceptance downplay the

moral and ethical boundaries that are crossed by ingesting drugs for their off-label effects (Kerley et al., 2015).

Purpose of the Study

The purpose of this qualitative case study was to explore how 16 participants (eight high school students and eight teachers) perceive the ethical implication of using cognitive enhancing CE drugs for academic purpose within a Connecticut urban high school. This study could provide valuable information about perceptions regarding the nonmedical use of cognitive enhancers as a study drug regarding perceived ethical values through a system of justification. The study will navigate the various attitudes held by high school students and teachers including motives, acquisition, social implications, ethics, policy, and knowledge of side effects. The descriptive case study will consider high school students at least 18 years of age and teachers within the high school and investigate their ethical perceptions for the nonmedical use of stimulants for cognitive enhancement. It is explored if these two populations are tolerant of using prescription drugs for their off-label effects because they appear to be safe, are commonly prescribed to adolescents, and are popular brands with reputations for helping students be successful (Frati et al., 2015; Kerley et al., 2015; Partridge et al., 2013).

By understanding ethical perceptions, this study may guide future research to consider alternative study habits, ethical dilemmas related to the unauthorized use of prescription stimulants for the purposing of gaining an unfair advantage, safety concerns, efficacy, and considerations for equal access (Chatterjee, 2013; Maslen, Faulmüller, & Savulescu, 2014). Accusations that drugs such as Ritalin and Adderall increase GPAs are controversial. Farah (2015) reported findings from a meta-analysis that the effects are real but minor for executive function, test stressing inhibitory control but insignificant for working memory test. A debatable

issue regarding enhancement whether in the form of legal stimulants such as tutoring, computer applications, and caffeine versus the illicit stimulants reveals that enhancement is obtainable but questions where the ethical line is crossed.

Research Questions

RQ₁: How do high school students perceive the ethical implication of using study drugs?

RQ₂: How do teachers perceive the ethical implication of using study drugs?

A possible explanation was that students who illicitly engage in cognitive enhancers for their off-label use will justify this behavior as acceptable. Students in this category will dispel any implications that their actions reflect their ethical standards. Controversially, students who perceive that consuming cognitive enhancers for their off-label use as unethical may view this behavior as unethical. I anticipated that teachers would more likely display significant concerns towards the moral wrongfulness for the nonmedical use of stimulants for increased academic achievement. The assessments utilized in this study contribute to exploring how high school students and teachers perceive the ethical implication of using study drugs for academic achievement.

Rationale, Relevance, and Significance of the Study

This qualitative case study was intended to discover how 16 participants (eight high school students and eight high school teachers) ethically perceive using cognitive enhancing drugs (CE) to gain an academic advantage in an urban high school located in Connecticut. This study could provide valuable information regarding motives, acquisition, myths, and justifications. An exorbitant amount of research exists concerning the illicit use of cognitive enhancement drugs by college students. However, the research was sparse for high school students' and teachers' ethical perceptions.

Through the determination of perceptions grounded from morality, this study will assist in predicting future occurrences. León and Martínez (2017) suggested that early onset use of one substance will predict experiential uses of others; however, their study explains that students who engage in the nonmedical use of prescription stimulants (NMUPS) for productivity or performance tend to disassociate from those who use them for recreational purposes. Therefore, this study will specifically delineate ethical perceptions for the academic performance of NMUPS.

By understanding ethical perspectives, this study may guide future research to consider alternative study habits, ethical dilemmas related to the NMUPS for the purpose of gaining unfair advantages, and considerations for CE medications being available to all. Accusations that drugs such as Ritalin and Adderall increase GPAs have yet to be determined. To date, there are limited studies to accurately assess the efficacy of prescription stimulants as a study drug to increase academic achievement (Weyandt et al., 2016). Results from these studies reveal insignificant effects for behavior (Adokat, 2013; Smith & Farah, 2011); in addition, research from Benson, Flory, Humphreys, and Lee (2015) suggested that academic performance is negatively associated with NMUPS.

Definition of Terms

Adderall. Adderall is “single-entity amphetamine product combining the neutral sulfate salts of dextroamphetamine and amphetamine, with the dextro isomer of amphetamine saccharate and d, l-amphetamine aspartate” (Stolz, 2012, para. 2). It is used to treat individuals with ADHD and Narcolepsy and works to enhance concentration by stimulating the production of dopamine and norepinephrine in the brain (Stolz, 2012).

Attention deficit hyperactivity disorder (ADHD). ADHD is a DSM-V recognized neurobehavioral psychiatric disorder that affects the attention, hyperactivity, and impulsiveness of individuals (Centers for Disease Control, 2013).

Cognitive enhancement. Cognitive enhancement refers to interventions in humans that aim to improve mental functioning beyond what is necessary to sustain or restore good health (Dresler et al., 2013). Elevating cognitive capacities beyond the individual physiological and psychological limitations (Wagner, Robinson, & Wiebking, 2015).

Methylphenidate. A psychostimulant related to amphetamine and cocaine, methylphenidate works by blocking the transporters that reuptake dopamine and norepinephrine into the presynaptic neuron following their release. It is the most commonly prescribed medication to treat ADHD brand name Ritalin (Urban & Gao, 2014).

Misuse. Misuse refers to using stimulant medication beyond prescribed dosage, using the medication without a prescription, or using beyond the intended medical purposes (Prosek et al., 2018).

Neuroenhancement. Neuroenhancement refers to the nonmedical use of prescription drugs by healthy subjects to enhance mood or cognitive function (Maier, Liechti, Herzig, & Schaub, 2013; Partridge et al., 2013).

Nonmedical use of prescription-type stimulants. Nonmedical use of prescription-type stimulants is defined as the use of these drugs without a prescription or use that occurred simply for the experience or feeling the drug caused (Lipari, 2015).

NPSU. NPSU is an acronym for non-prescription stimulant use (León & Martínez, 2017).

NMUPS. NMUPS is an acronym for nonmedical use of prescription stimulants (Gallucci et al., 2014)

Off-label use. Off-label use refers to prescription drugs used for purposes other than those for which the Food and Drug Administration has approved (Partridge et al., 2013).

Pharmaceutical Cognitive Enhancers (PCE). PCEs are substances able to improve some cognitive functions due to their action on the biochemical balance of the brain (Garasic & Lavazza, 2016).

Schedule II drug. Schedule II drugs have a high potential for abuse, with use potentially leading to severe psychological or physical dependence. These drugs are also considered dangerous. Some examples of Schedule II drugs are combination products with less than 15 milligrams of hydrocodone per dosage unit (Vicodin), cocaine, methamphetamine, methadone, hydromorphone (Dilaudid), meperidine (Demerol), oxycodone (OxyContin), fentanyl, Dexedrine, Adderall, and Ritalin (DEA, 2018).

Smart drugs. Smart drugs refer to pharmaceutical stimulants, leading people to believe their efficacy for the purpose of improving cognition in healthy people (Partridge et al., 2013), including prescription drugs such as Ritalin that are taken with the intent of improving cognitive performance (Wagner et al., 2015).**Stimulant.** Stimulants are substances that make people more alert, increase their attention, and raise blood pressure, heart rate, and breathing. Stimulants come in a variety of forms, including amphetamines, cocaine, and methamphetamines (DHHS, 2016).

Assumptions, Delimitations, and Limitations

An assumption for this study is that students who use cognitive enhancers for academic achievement are not morally confounded based on rationalizations that using for instrumental

purposes is both safe and acceptable (DeSantis & Hane, 2010; León & Martínez, 2017). The bulk of related research regarding NSPU is centered around college campuses' maintaining the illicit use of cognitive enhancement use more often than not leads to other substance abuse (McCabe et al., 2014). The researcher assumes that this study will disclose an additional layer of NPUSM through her investigation of high school students concerning moral views. It was also assumed that the participants would be ethical in responding truthfully.

Limitations that may potentially influence the case study could be related to the student population and demographics and self-reporting data. The study will take place in an urban school district that is not known for competitive college acceptance. The degree of competitiveness by students may not be known; for instance, academic rigor may not be the motive for college acceptance. Another possible limitation was the lack of socioeconomic diversity because this population was limited to a low-income school.

Demographics of the sample was considered a delimitation of the study. The sample of participants was delimited to one senior class within an urban school district. The majority of students are first generation seeking college admissions, of which 45% are Hispanic, 35% African American, and 20% Caucasian or another race (Indian, Eastern European, and Asian).

Chapter 1 Summary

In brief, the need to explore ethical perceptions for living up to a standard of perfection may assist in shaping academic policy. Some students have experimented with using CE as a temporary academic crutch while others rely on their off-label effects as a permanent study tool. The off-label effects such as wakefulness and concentration of cognitive enhancers are the reason that students seek them. However, their potential for harmful effects frequently gets dismissed due to distorted rationalizations. Scientific studies expose that there is not enough

evidence to prove that using cognitive enhancers has any educational benefits in healthy adults. The evidence is conclusive that there are harmful side effects related to taking Ritalin, the least of which is an addiction.

It may be meaningful to explore the fine line between treatment and enhancement or better yet, to debate whether one exists. Where according to Maslen et al. (2014), treatments are used to cure illness and enhancement is to make people better than well. They went on to suggest that an objection to this distinction regarded what is defined as healthy and normal is arbitrary.

Finally, with the heightened media exposure relating to brain-enhancing drugs among high school and college students,' there is an urgency to define guidelines for students who engage in NPSU including drug testing, efficacy, safety, and distribution of prescriptions from both an academic integrity standard and a legal stance. To this point, past research indicates that the NMUPS has not been significantly proven to increase GPA, there is a significant concern for health risks including addictive behaviors, and the prevalence of nonmedical prescription stimulant use is among students seeking to prolong studying and increase focus. However, there was a gap in the research regarding ethical perceptions, especially among high school students and teachers. It is imperative to gather this information for enacting alternative and possibly preventative measures.

Chapter 2 will present the literature review with an in-depth review of prior research that outlines six domains regarding NMUPS. Chapter 3 explores the qualitative case study research approach while explaining the research methods and procedures. Chapter 4 reveals the findings of the study. Chapter 5 expounds on the results of the case study, results in relation to the literature review, evaluates the limitations, and assesses recommendations for further research.

Chapter 2: Literature Review

Introduction to the Literature Review

The purpose of this qualitative case study was to explore how 16 participants (eight students and eight teachers) perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs for academic purpose within a Connecticut urban high school. Students, particularly emerging college-aged (18 to 25), are at the greatest risk for illicit use of cognitive enhancers (Ford & Ong, 2014; Prosek et al., 2018; Sussman et al., 2006). The literature review provides documentation linking student justifications for illicit use, motives, acquisition, knowledge of side effects, social implications, moral/ethical dilemma, and policy. The literature review also highlights past studies regarding consequences, emerging policy, and the need for education. In addition, the literature review examines what perceptions are already known for tobacco, marijuana, alcohol, and opioid use, and what still needs to be explored in the area of cognitive enhancement drugs. Consequently, the literature review builds an argument for the need to examine how high school students and teachers perceive the ethical implications of the nonmedical use of CE drugs.

The literature was obtained from extensive database searches using ERIC ProQuest, ProQuest Education Journals, Google Scholar, SAGE, JSTOR, Wiley Online Library, and Mendeley. Key terms and phrases included Adderall and college students, Stimulants and prescriptions and university, Study drugs and students, brain enhancers and students. The researcher also received automatic notifications from Mendeley related to recently searched and saved articles. Over 60 peer-reviewed articles, professional journals, and scholarly dissertations provided credible academic resources to support and conduct a thorough review of the literature.

Current research emphasized the increased use of off-label cognitive enhancers by college and high school age students to gain an academic edge (Arria, Caldeira, Vincent, O'Grady, & Wish, 2008; Ford & Schroeder, 2008; McCabe et al., 2014; Sussman et al., 2006). Students justify their reasons for illicitly using prescription stimulants as an end justifying the means, taking CE in moderation, self-medicating, perceiving CE as safe, not considering CE as illegal, and minimizing harmful CE side effects (DeSantis & Hane, 2010; Kerley et al., 2015). Methylphenidate (Ritalin[®]) and amphetamine-dextroamphetamine (Adderall[®]) are classified as a schedule II drugs indicating their high risk for addiction (DEA, 2018). When adolescents take low doses of cognitive enhancers to achieve their off-label effects (energy booster, focus aid, or weight loss) the brain experiences selective increases in dopamine and norepinephrine in the prefrontal cortex providing students extra stamina for extending study sessions, retaining more information, and intensify focus with no effect on locomotor activity (Urban & Gao, 2014). However, there is little research addressing how students and teachers perceive the ethical implication of the nonmedical use of CE drugs.

Extensive research suggests the illicit use of cognitive stimulants has the potential for harmful health risk including, addiction, insomnia, weight loss, increase blood pressure, anxiety, and even death (Frati et al., 2015; Gallucci et al., 2014; Sussman et al., 2006); however, ethical perceptions have yet to be studied. The literature review discusses motives for taking study drugs and acquisition, knowledge of side-effect and social implications, and finally the moral and ethical dilemma and policy. Despite this information, it was not known how high school students and teachers ethically perceive using cognitive enhancers CE for the purpose of academic achievement. Ethical perceptions regarding substance abuse, steroid use and legalizing marijuana include extensive research providing prevention strategies and policy. The researcher

attempts to close the literature gap through semistructured interviews, survey questions, and scenarios vignette to capture moral and ethical perceptions regarding the nonmedical use of cognitive enhancers.

By and large, the review of literature includes current strategies and policies, currently in place at schools, and what precautions if any that physicians are warning their patients and parents regarding misuse of cognitive enhancers which may sway their decisions for off-label abuse. Some research suggested that there is little if any data that reflects the effectiveness of preventive efforts (Bavarian et al., 2013), while other researchers outline policies for change with hopes of tailoring misuse (Gallucci et al., 2014; Prosek et al., 2018; Stolz, 2012). These suggestions included limiting access to prescriptions, seeking alternative less harmful cognitive enhancers, including law enforcement and politicians regarding appropriate consequence for selling cognitive enhancers, rallying drug companies to promote misuse, implementing more stringent disciplinary programs, and encouraging physicians to educate patients and parents about the harmful side effects and illegal ramifications of selling or sharing cognitive enhancers, actively involving college clinicians during intake and screening sessions (Prosek et al., 2018; Stolz, 2012; Sussman et al., 2006). Further recommendations are needed to assist students and teachers of the potential dangers and alternative measures for cognitive enhancers.

Past research concludes that there is a relationship between moral perceptions and use of alcohol, tobacco, and marijuana in conjunction with recent research confirming perceptions of how substance abuse by others are associated with one's own use (Amonini & Donovan, 2006; Bertholet, Faouzi, Studer, Daeppen, & Gmel, 2013). These findings support Akers' social learning theory concluding that there is a link between behavior and the relationships of others (Ford & Ong, 2014). Ford and Ong (2014) found that the use of nonmedical prescription

stimulants was dependent on peer use justifying the behavior as socially acceptable or normative (p. 281).

Current legalization in some states for both the medical and recreational use of marijuana has sparked controversial ethical issues (Amonini & Donovan, 2006). It is now known that ethical perceptions among teens have decreased in states where cannabis use is legal, and it is also known that laws guide perceptions rather than values. We know that teens who consider it “wrong under any circumstances were less likely to be users of alcohol, tobacco, and marijuana than those who consider it ok under some or any circumstances” (Amonini & Donovan, 2006, p. 276). However, we do not know what the ethical perceptions of the nonmedical use of cognitive enhancement drugs for academic achievement are for high school students and teachers.

Conceptual Framework

There is much research regarding students’ off-label use of cognitive enhancers; as a study drug, however, there is little or no information regarding ethical perceptions. This study will seek the perceptions of high school students and teachers regarding the illicit use of cognitive enhancers as study drugs from the traditional ethical framework.

Three traditional ethical frameworks have guided this study, consequentialist (utilitarian) framework, deontologist (duty-based approach) framework, and agent-centered (virtue approach) framework. Considering the ethical dilemma is a task that students encounter when deciding whether to engage in the use of off-label cognitive enhancers for academic advancement. Individuals typically abide by a prescribed set of moral attributes usually derived from family values, environmental influences, or religious beliefs. As no one framework is better than the others, it is impossible to say that a perfect theory exists (Brown University, 2019).

The consequentialist or utilitarian framework is the theory constructed from the idea that all actions have a consequence, but it is up to the individual to determine what consequence produces the greatest good (Borgmann, 2006). British philosopher and economist John Stewart Mill is perhaps the most influential advocate of the consequentialist framework, specifically under the utilitarian paradigm. The philosophy that guides utilitarianism is that of producing the most good for the greatest amount of people and where everyone's happiness is considered equal (Driver, 2014). Followers believe that this approach is the most appropriate to any situation because its consequences impact the least amount of people while producing the greatest amount of good. The rationalization that motivates the consequentialist framework is from the result or the consequence rather than the act itself.

Non-consequentialist is also referred to as deontological ethics, or the duty-based approach considers the morality of the act rather than the consequence (Borgmann, 2006; Brown University, 2019). For example, an individual deliberates an act based on morally right or morally wrong laws. Philosopher Immanuel Kant argues, "Doing what is right is not about the consequences of our actions but about having the proper intention of performing the action" (Brown University, 2019, p. 2). Followers of this paradigm do not base their decisions or actions on the consequence instead they use the consequence as a guide for their duty. Simply stated, consequences have no bearing on an act, judgments rely on rightness or wrongness.

Agent-centered theories rely on individual concerns for the betterment of one's self (Brown University, 2019; Kemerling, 2011). Subscribers to this framework act in manners consistent with their personal beliefs. Their actions reflect how they think they should act for obtaining the highest level of character. Virtue ethics regards the whole person and is prominent among eastern philosophies where it is crucial to act virtuously or appropriately in a variety of

situations (Brown University, 2019). This ethical framework is rooted in character portrayal where the individual’s actions and decisions are the factors for the type of person they believe best highlights moral integrity. Table 1 highlights the main contrasts between the three frameworks:

Table 1

Contrasting the Three Frameworks

	Consequentialist	Deontologist	Virtue
Deliberative process	What kind of outcomes should I produce (or try to produce)?	What are my obligations in this situation, and what are the things I should never do?	What kind of person should I be (or try to be), and what will my actions show about my character?
Focus	Directs attention to the future effects of an action, for all people who will be directly or indirectly affected by the action.	Directs attention to the duties that exist prior to the situation and determines obligations.	Attempts to discern character traits (virtues and vices) that are, or could be, motivating the people involved in the situation.
Definition of Ethical Conduct	Ethical conduct is the action that will achieve the best consequences.	Ethical conduct involves always doing the right thing: never failing to do one's duty.	Ethical conduct is whatever a fully virtuous person would do in the circumstances.
Motivation	Aim is to produce the most good.	Aim is to perform the right action.	Aim is to develop one’s character.

In seeking out ethical perceptions of high school students and teachers, this study is able to determine what ethical framework drives the decision of the different populations, i.e., high school students and teachers. An ethical decision-making model begins with considering the facts related to the off-label use of cognitive enhancers regarding the school's code of conduct and legal issues. Next, the participants will evaluate alternative actions for making the most ethical decision by questioning the three traditional ethical frameworks. Utilitarian approach – which action results in the most good and least harm? Duty approach – which action protects the

rights of everyone involved regardless of the consequence? Virtue approach which action embodies the character strengths they value? The next step in the decision-making process includes considering the participant's values (cultural, family, etc.) followed by a plan of action. In this final step, participants test their decisions by asking themselves would they regret their choice if their actions were made public. Figure 1 outlines this process:

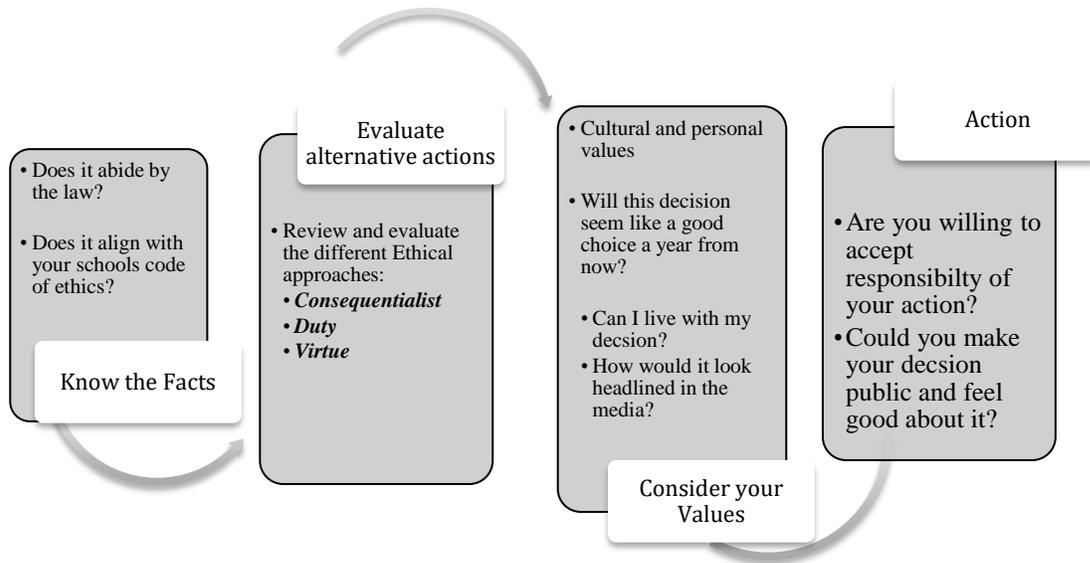


Figure 1. Ethical decision-making process.

Review of Research Literature and Methodological Literature

The NMUPS has increased among college students' recent studies indicates the prevalence of stimulant prescription misuse at 17% (Benson et al., 2015; Ford & Pomykacz, 2016). As more students with an ADHD diagnosis enter college increases in stimulant medications become widely available (Weyandt et al., 2016). Two prevalent motives include academic achievement and recreational purposes (Advokat, 2013; Brandt, Taverna, & Hallock 2014; Low & Gendaszek, 2002; Teter, McCabe, LaGrange, Cranford, & Boyd, 2006). Demand for prescription stimulants is greater during exam weeks and near deadlines (Advokat et al., 2008; DeSantis, Noar, & Webb, 2008; Ford & Pomykacz, 2016; Teter et al., 2006). Research

reveals evidence that students adopt a cavalier attitude towards using prescription stimulants and perceive them as normative when used for academic reasons (Aikins, 2011; DeSantis et al., 2008; Ford & Pomykacz, 2016).

Although, research demonstrates that there is no empirical data to prove increases in GPA among prescription stimulant misuse. Benson et al. (2015) declared that NMUPS have negatively impacted GPA's; in addition, meta-analyses revealed small to moderate effects are associated with behavior and the most impact is related to long-term memory (Advokat, 2013; Smith & Farah, 2011). Negative health effects range from less severe, loss of appetite, headache, and insomnia (Fрати et al., 2015; Gallucci et al., 2014; Sussman et al., 2006) to more serious effects including psychosis, hypertension, and cardiovascular failure (Weyandt et al., 2016).

Biochemist, Gordon Alles discovered amphetamine the main ingredient in Adderall in 1929. While researching a more effective treatment for asthma Alles injected himself with the drug Amphetamine, which was first, synthesized in 1887 by a Romanian chemist eventually leading him to discover remedies for many ailments. Though this experiment Alles experienced the drugs psychological affects where he reported, “a feeling of wellbeing” and “sleeplessness” (Benson, 2015, para. 4). Alles went on to publish his findings relating to the use of amphetamine sulfate and amphetamine hydrochloride and patented the drugs for use as a nasal decongestant Benzedrine. The amphetamine Benzedrine created a feeling of euphoria, students and others were chewing the amphetamine-soaked gauze from the nasal decongestants for a quicker high (Schwarz, 2015).

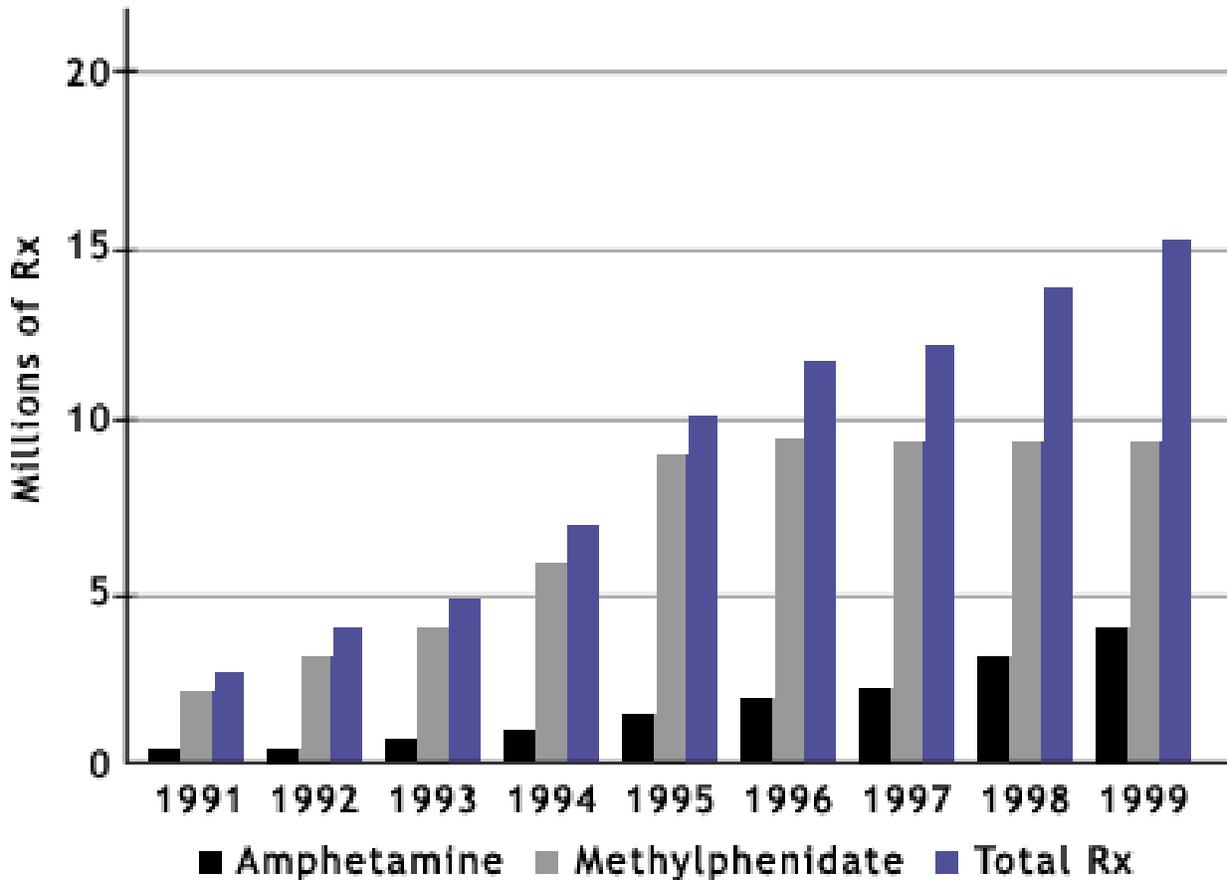


Figure 2. Amphetamine and Methylphenidate prescriptions (IMS Health, National prescription audit plus). Source: <http://www.dea.gov/pubs/cngrtest/ct051600.htm>

The private prescription-auditing firm, Intercontinental Marketing Services (IMS) Health, confirmed amphetamine (Adderall) had experienced recent increases from 1.3 million in 1996 to nearly 6 million in 1999 (PBS, 2001b). Surges in drug fabrication stimulate the market allowing for illegal buying and selling of these drugs and inherently creating a higher demand for their off-label side effects confirming their availability for nonmedical use.

Data obtained from national surveys report unprecedented rises in the use of prescription cognitive enhancers among healthy students. Mohamed (2014) found, “in the United States, 16% of college students and 8% of undergraduates reported having illicitly obtained and used prescription psychostimulants” (p. 535). The Monitoring The Future Study collaborates the findings of these surveys with evidence gathered by a long-term epidemiological study, which

reports that psychostimulants and Vicodin are the most commonly abused prescription drugs by teens (Mohamed, 2014).

Issues concerning ethics and equality arise when healthy students seek out cognitive enhancing drugs with intentions for boosting academic achievement through higher-order memory processes and functions for increased focus and attention (Mohamed, 2014). The abundant amount of research regarding the NMUPS provides researchers with why students and parents seek methylphenidate and amphetamines, how they are acquired, and safety concerns regarding their nonmedical use. However, there is little or no information regarding ethical perceptions held by high school students, and teachers of the nonmedical use of cognitive enhancers. This study will seek to close the research gap regarding ethical perceptions by reviewing what is already known about CE drugs motives, acquisition, side effects, social implications, and policy.

Motives. Research suggests that the off-label use of cognitive enhancers continues to increase as academic competition surges, therefore, ensuring academic performance as the primary motive for stimulant misuse. Concentration, improving attention, partying, reduced hyperactivity, and intense cramming are common motives for illicit use of cognitive enhancers (Ford & Ong, 2014; White, Becker-Blease, & Grace-Bishop, 2006). Low observed threat relating to the use of cognitive enhancers coupled with sensation seeking intensifies risk for off-label use (Arria et al., 2008). Students range from those who have affiliations with Greek organizations such as sororities and fraternities to upperclassmen as those who are most likely to abuse prescription stimulants (Andersen, 2005). Colleges with competitive admissions standards show to have a higher prevalence of illicit use as well as colleges located in the northeast.

Reasons from high levels of stress to academic competition attribute to why students choose to partake in the nonmedical use of cognitive enhancers. Students report that they typically seek out cognitive enhancers during times of intense academic stress to assist with fatigue and concentration (DeSantis et al., 2008). Andersen (2005) reported that “procrastination and difficulty with time management have also been shown to relate to stimulant misuse among college students” (p. 242). Self-diagnostic tendencies often lead abusers of CE to believe that they, in fact, have symptoms of ADHD thereby justifying their illicit use.

Mohamed (2014) reported the uses of pharmacological cognitive enhancers (PCEs) are becoming commonplace resulting from increasing demands to overproduction. Sussman et al. (2006) ascertained that students were more apt to engage in the use of prescription cognitive enhancement drugs with the intention of keeping pace with their peers. Their research unveiled that peer pressure did not influence students, but instead, illicit use of prescription cognitive enhancers decreased as the result of peer disapproval. In addition to the previous researchers, Stoeber and Hotham (2016) studied attitudes towards cognitive enhancers for the obtainment of perfectionism, finding that participants were only influenced by peer pressure when associated with hyper-competitiveness because they too felt the need to compete. Using motives such as success and justifications embedded in a falsely constructed system of values may create a blurred framework of morals thereby necessitating the need to explore ethical perceptions.

Acquisition. Most students who seek cognitive enhancers are obtaining these drugs on their college campus. Mohamed (2014) cited scientific and philosophical debates that human enhancement shows a growing interest in PCEs. Results from a study conducted by DeSantis et al. (2008) highlighted responses from students: “The stuff is everywhere. Just ask anybody, and they will either have it or know somebody that has it. It’s really no biggie.” The increased

exposure may be a contributing factor to nonmedical stimulant abuse and acceptance as a cognitive enhancer. An alarming 89% of the students in the study admit that they were able to obtain cognitive enhancers from a friend (DeSantis et al., 2008). Peer acquisition is harmful and risky (Bavarian et al., 2013) describe this practice as dangerous and worrisome as students would not know others medical information risking drug or allergic reactions.

Production of cognitive stimulants is in abundance, pharmaceutical companies have increased supply by an estimated 40% since 1993 (White et al., 2006). The Drug Enforcement Administration supports this finding citing, “methylphenidate is the fourth most prescribed drug in the United States since at least 2003, behind hydrocodone, oxycodone, and codeine” (White et al., 2006, p. 261). Bavarian et al. (2013) added that when patients share prescriptions with friends and peers, they increase their risk of drug interactions, allergies, and other harmful effects due to pre-existing medical conditions. Students receiving treatment for ADHD are capitalizing by selling their prescriptions for one to five dollars per pill and up to 10 dollars each during exam times (White et al., 2006). Due to the increase of students obtaining cognitive enhancers, it is common for medical manufacturers to caution physician regarding patients who may be receiving meds for diversion and warning them with their parents of the legal ramifications of sharing or selling cognitive enhancers (Arria & DuPont, 2010).

Knowledge of side effects. Most students who seek cognitive enhancers regard the risk of these prescriptions as marginal. Some view cognitive enhancers CE as a step above caffeine pills, strong coffee, or energy drinks (Wagner et al., 2015). The media continually emphasizes many common adverse side effects. Amphetamine Dextroamphetamine and Methylphenidates are Schedule II drugs due to their addiction to abuse, dependency, and adverse impact on physical and psychological health (Bavarian et al., 2013). Within the last 10 years, The Food

and Drug Agency mandates manufacturers put a “black box” warning on these medications (DEA.org, 2018).

Many students are not aware of their potential risk factors for addiction when they are seeking out these drugs for their intended side effects including loss of appetite and extended wakefulness (Benson et al., 2015). Other commonly reported side effects include confusion, irritability, headaches, stomachaches, delusions, sadness, and social difficulties (Benson et al., 2015; Sussman et al., 2006). Additionally, cognitive stimulants have a greater impact on brain functioning. Caffeine, a “soft enhancer,” is not capable of stimulating the brain enough to achieve the gains that cognitive enhancers can accomplish (Wagner et al., 2015).

Ultimately, the off-label use of prescription enhancers alters the academic playing field for those who engage in the drug by potentially benefiting from their side effects (Wagner et al., 2015) including extending study sessions and increased focus. Furthermore, Benson et al. (2015) explained students will not be deterred by the adverse side effects when these are the effects that they are seeking. Therefore, students deem the medications as useful and worth the risks.

Social implications. Contrasting opinions regarding the nonmedical use of cognitive enhancement drugs are sometimes influenced by what society perceives to be a safe drug. Because children are typically prescribed cognitive enhancement drugs like Ritalin or Adderall, most adults believe that they are safe disregarding the drugs numerous health risk, therefore, justifying that it is acceptable to use them. College students regard the NMUPS as normative or acceptable behavior (Benson et al., 2015; Dodge et al., 2012; Weyandt et al., 2016). In addition, students who abuse prescription stimulants for the purpose of academic achievement assume that their behavior is normative compared to those who abuse CE for recreational purposes (Ford &

Pomykacz, 2016). Parents and students may also be more tolerant of using cognitive enhancers believing that they are helping to boost academic success.

Arria and DuPont (2010) indicated that the media is partially responsible for reporting misleading information regarding the positive effects of the nonmedical use of prescription stimulants. Alleging that myths persuade students into believing that prescription stimulant medications will improve academic performance when in fact there is no justification to substantiate these claims misleading students, as well as parents, into thinking that these drugs are safe and acceptable.

Arria and DuPont (2010) continued their claim by referencing distinguished physician Dr. Brian Doyle who defends that students using cognitive enhancers are only using them during exam periods and not for recreational purposes thereby trivializing the illicit use of prescription stimulants. Also, researchers speculated that the inequality of access will lead to an imbalance of competitive fairness thus creating an unjust society.

In the New York Times article, “The Adderall Advantage,” one student reported, “‘As a kid, I was made to feel different for taking these drugs,’ she said. ‘Now it’s almost cool to take them’” (Jacobs, 2005, para. 9). Pop culture television and the media can be credited for sensationalizing the use of prescription stimulations as a pep-pill to gain a competitive edge or maintain pace. Students who have a prescription for perception stimulants are often sought out for their pills (Garasic & Lavazza, 2016). The research conducted by Ford and Ong (2014) was grounded in the social learning theory and demonstrated that behaviors become normative due to social influences. The study reveals that the more prevalent the use of non-prescription stimulates are among college students, the more acceptable these behaviors become, supporting the theory that students will follow an action to be part of a group.

Policy. Testing for illicit use of cognitive enhancers crosses an ethical line if it impinges on confidentiality regarding the use of other medications. Testing could reveal additional unnecessary and irrelevant personal information. There is minimal data to prove that cognitive enhancers will produce increased intelligence, and there is no evidence that suggests staying awake longer will catapult an average student to the head of the class (Whetstone, 2015). These factors lead to the questions “Is this cheating?” and if not, “Is it necessary to enforce any policy”? Many argue that an extra boost or increased focus is enough enhancement to be considered cheating. Therefore, it would only be fair to provide equal access leaving the decision of taking the drugs up to the student and disregarding all and any safety concerns. This perspective opens the door to additional policy and regulations regarding industries that may mandate cognitive enhancement regarding their off-label uses. For example, the military, healthcare providers, and aviation personnel are prime candidates for seeking the effects of cognitive enhancers. However, those seeking outside results (increased focus, more energy, and wakefulness) deal with dangerous repercussions, including death.

Due to the tenacious, sensitive, and legal nature that is involved with drug testing, colleges would find it almost impossible to administer and conduct stringent testing procedures. The majority of students who engage in the illicit use of cognitive enhancers report doing so to gain a competitive edge due to the highly selective college admissions requirements, scholarships, or career opportunities. Suggestions for reducing competition within educational institutions have surfaced as a preventative measure for reducing the nonmedical use of prescription stimulants include eliminating standardized test scores and maintaining greater focus on students’ achievements such as extracurricular activities and internships. Mounting societal

pressure places internal and external demands on students to perform (Moore, Burgard, Larson, & Ferm, 2014).

It is undetermined if implementing institutional policies that prohibit cognitive enhancers will be efficient and beneficial. Sattler, Sauer, Mehlkop, and Graeff (2013) identified cognitive enhancement as “the amplification or extension of the core capacities of the mind through improvement or the augmentation of internal information processing systems” (p. 1). This definition resembles the rationale of Cabrera, Fitz, and Reiner (2015), who asserted that “the drive for self-improvement is an enduring feature of the human condition” (p. 93). Economies continue to prove that markets thrive on competition; therefore, the nonmedical use of stimulants contributes to the never-ending mentality that is enough is never enough.

While many states have legalized medical marijuana and some recreational use, considerable debate still lingers regarding morality, in turn, skewing perceptions of safety. A 2016 JAMA Pediatrics study regarding the changing views of teens on marijuana after legalization in Washington determined that younger teens perceived it to be less harmful and reported increases in use (Seaman, 2016). Reports on the findings also suggested states develop “evidence-based prevention programs” before legalizing recreational marijuana use.

Moral and ethical dilemma. Universities find it challenging to monitor, police and enforce policies regarding the illicit use of cognitive enhancers. Educating and prevention are yet to be proven a leading directive at most universities. Ethical dilemmas that students convey relate to fairness, harm, autonomy, and means-end-relation. While some students consider the illicit use of cognitive enhancers equal to caffeine (Franke, Lieb, & Hildt, 2012), others argue that they enhance ones’ ability to sustain exaggerated study sessions with extreme focus resulting

in higher grades and possibly eliminating the competition. Sharing or selling prescription drugs is also illegal, thereby leading many to question if there is a moral issue.

The debatable issue between what is considered to be morally right and legally right arises. In Franke et al.'s (2012) study, participants' moral and ethical beliefs were assessed concerning the use of caffeine versus prescription stimulants for enhancement concluding that the majority based their decisions on legal and medical components over ethical ramifications. Healthcare professionals are facing scrutiny for overprescribing addictive and potentially harmful substances before considering alternative safer options (Al Achkar et al., 2017). This practice is prevalent in cases involving prescriptions for opioids, where physicians are being held accountable for prescribing highly addictive drugs.

In the qualitative study, Al Achkar et al. (2017) examined how the opioid epidemic has forced legislation in Indiana to curb prescriptions for opioid drugs through strict monitoring processes in an attempt to reduce abuse. Like ADHD, chronic pain is a patient-reported assessment leading to diagnosis; physicians must determine what treatment is necessary by weighing the benefits and risk leading them to consider alternative ethical measures.

It is illegal to market drugs for enhancements, according to Whetstone (2015); however, some medical professionals evade this issue by increasing the diagnosis of ADHD thus allowing for additional production and availability of stimulant medication. In an international study, Partridge et al. (2013) suggested that the heightened enthusiasm surrounding the use of cognitive enhancers relating to unverified benefits may lead to relaxing laws, allowing healthy people access to drugs with potentially insurmountable risks.

Review of Methodological Issues

As more students with an ADHD diagnosis enter college increases in stimulant medications substantiate the availability, use, misuse, and diversion among college students (Benson et al., 2015; Weyandt et al., 2016). The CEAA coupled with tolerance vignettes looks to assess attitudes towards NMUPS regarding perceptions towards their use not necessarily participant experience. A notable distinction concerning the tolerance vignettes was that the character portrayal was only male (Vargo et al., 2014). Data was also dependent on the level of participants knowledge of NMUPS or using prescription stimulants such as Adderall or Ritalin off-label. Palamar and Le (2017) found that the prevalence of NMUPS may be underreported on surveys simply because study participants are unapprised of drug categorization and or alternate terminology.

Recent research demonstrates that college students do not perceive NMUPS as risky (Weyandt et al., 2016) or not dangerous at all (DeSantis et al., 2008). Yet, there is minimal knowledge regarding ethical concerns which require further investigation through triangulation of data. Exploring perceptions through data gathered via CEAA surveys, tolerance vignettes, and semistructured interviews may provide a foundation for further direction regarding prevention and early intervention initiatives. Process orientation is critical in qualitative research because researchers focus on why and how behavior occurs not just on the outcomes. Researchers would put a big emphasis on how expectations are formed and explain the reasons for the results (McMillan, 2012). In the participant perspectives characteristic, the researchers focus on the participants' understanding and meaning-making of an experience or topic. The importance here is to understand the participants from their point of view to make inferences for implementation.

Synthesis of Research Findings

Data regarding the nonmedical use of prescription stimulant medication confirmed that the dangerous side effects pose potential risk factors including cardiovascular complications, insomnia, anxiety, suppressed appetite, psychosis, and in some cases death (Prosek et al., 2018). Researchers agree that justifications for taking stimulant drugs for their off-label effects negate both safety and moral stigmas (Kerley et al., 2015; Prosek et al., 2018). Too often young adults dismiss the drug manufactures harsh warnings and even more alarming is the fact that they are bypassing the strict FDA's "black box" label, which signifies the potential for abuse and addiction (Bavarian et al., 2013; DEA.org, 2018; Kerley et al., 2015; Sussman et al., 2006). Finally, ethics often becomes confused with legality as when marijuana became legalized in some states.

Substantial research supports the idea that methylphenidate and amphetamine have minimal effects on increasing cognitive functioning thereby discrediting these drugs efficacy as "smart drugs" (Harris & Chatterjee, 2009; Ilieva, Hook, & Farah, 2015; Partridge et al., 2013; Smith & Farah, 2011). Past literature is consistent regarding proving that cognitive enhancers used by healthy individuals do not increase G.P.A.'s (Arria & DuPont, 2010; Arria et al., 2008; Rabiner et al., 2009; Teter et al., 2006). Ilieva and Farah (2013) suggested there is a definite distinction between boosting productivity and increasing IQ levels, indicating that motivation is probably a better characterization of Adderall's effects.

While some researchers debate the nonmedical use of stimulant medications for enhancement purposes some conclude that the degree between treatment and enhancement is appropriately defined. A neurologist, Chatterjee (2013) raised a host of ethical concerns including safety, character, distributive justice, and coercion as reasons physicians and patients

should regard for the off-label use for cognitive enhancement in the healthy brain. Like cosmetic surgery, which was initially used for treating physical abnormalities, Chatterjee (2009) anticipated that the practice of cosmetic neurology will become widespread and commonly accepted.

Researchers ascertain that physicians will face pressure from patients in search of enhancement rather than treatment, furthermore, suggesting that given the right incentive and cultural framework, doctors will become comfortable with non-therapeutic interventions (Chatterjee, 2009; Farah, 2002; Maslen et al., 2014). Chatterjee (2013), Farah (2002), Maslen et al. (2014), Partridge et al. (2013), and PBS (2001a;) cautioned the societal implications of cosmetic neurology with the potential of modifying cultural norms including equal access, socioeconomic disparities, and job competition coupled with coercion, with an overall concern for creating unattainable standards in academia and in the workforce whereby ultimately resulting in unhealthy practices. Prior to physicians accepting the shift from treatment to enhancement, it is imperative to research the perceptions of the stakeholders who will directly be affected by the potential policy changes in academia.

In summation, the research concludes by questioning whether the benefits outweigh the risks of the nonmedical use of prescription stimulants for cognitive enhancement (Chatterjee, 2013; Farah, 2015; Outram, 2010). The controversial divide occurs when substantiating arguments surface by multiple stakeholders including but not limited to physicians, patients, pharmaceutical companies, government agencies, educational institutions, and employers both for and against the nonmedical use of cognitive stimulants. The conflicting and overlapping agendas present a wide array of controversial issues all sharing a common thread regarding

ethics. Gaining a clear understanding of perceptions may assist in gauging how CE drugs will shape the moral landscape regarding stimulant enhancement, particularly in academia.

Critique of Previous Research

Past studies demonstrate that the use of anonymous questionnaires is most popular for gathering information regarding student misuse (Low & Gendaszek, 2002; White et al., 2006) but also report limitations to this approach such as low participation rate and or fear of being discovered. In attempts to bypass this limitation researcher, Moore et al. (2014) compensated participants with a raffle entry for an iPad. Another source of data collection is the use of multidimensional scales. Stoeber and Hotham (2016) utilized this method to measure an individual's standard of perfectionism and attitudes in which students were giving a series of questions, which were then rated using the Likert Scale. These researchers also offered participants a choice of either being entered a \$50 raffle or course credit, indicating that students will be more willing to volunteer for a survey when offered a reward.

In the study, *Perceptions of assisted cognitive and sports performance enhancement among university students in England*, researchers, Vargo et al. (2014) incorporated an adaptive version of the Performance Enhancement Attitude Scale (PEAS) referred to as the Cognitive Enhancer Attitude Assessment (CEAA) where neuroenhancement terminology replaces performance doping language. Concluding that when using cognitive enhancement for the purpose of self-improvement students perceived them to be less ethical rather than when abused in competitive situations.

Chapter 2 Summary

This descriptive case study investigates the ethical perceptions of high school students and teachers concerning the nonmedical use of cognitive enhancers for academic achievement.

A thorough examination of past literature documents that the prevalence of non-prescription cognitive enhancers among healthy college students void a substantial measure reflecting student and teachers' ethical perceptions. Many studies concentrated on six domains: motives, acquisition, knowledge of side effects, social implications, policy, and ethical/moral dilemma.

The literature review explored each of these domains about student use of non-prescription cognitive enhancers revealing a mutual theme of students who engage in using cognitive enhancement medication for the nonmedical purpose believes that it is without risk trusting the ends justifying the means defense. The basis of this cavalier attitude is partly because prescriptions for Ritalin and Adderall are typically for children who have a diagnosis of ADHD; therefore, they are assumed to pose minimal harm. The literature explains that there is little if any evidence proving that cognitive enhancers used by healthy individuals have an impact on increasing GPA's (Arria et al., 2008; Arria & DuPont, 2010; Rabiner et al., 2009; Teter et al., 2006).

Almost all research reviewed concurred that the majority of students seeking cognitive enhancement was for the purpose of achieving academic excellence and improved cognition (Advokat et al., 2008; Ford & Pomykacz, 2016; Low & Gendasek, 2002; Teter et al., 2006). In addition to the standard motives such as extended study sessions, increasing focus, and competition, researchers concurred that students considered these motives as acceptable reasons for using cognitive enhancers because they were for self-improvement (Ford & Pomykacz, 2016; Garasic & Lavazza, 2016).

The same nonchalant theme carries through regarding attitudes towards the acquisition of prescription cognitive enhancers. Many students disregard the drugs' potential risk factors (Weyandt et al., 2016) because they can easily obtain stimulant medication from peers, friends,

and physicians by merely falsifying symptoms (Aikins, 2011; Ford & Pomykacz, 2016; Gallucci et al., 2014; Teter et al., 2006). Another unsettling thread commonly found throughout the literature review was the link between illicit uses of cognitive enhancers to the pervasiveness of other illegal substances (Ford & Pomykacz, 2016; Weyandt et al., 2016). Lastly, researchers fervently agree that the need to create regulation policies coupled with implementing intervention strategies is fundamental for raising awareness while dispelling myths of smart-drugs (Weyandt et al., 2016).

Past research addresses the who, what, and whys of cognitive enhancement drug use among healthy college students, however, there is a gap in the literature regarding the ethical perceptions for the nonmedical use of cognitive enhancement drugs specifically for academic achievement regarding high school students and teachers. Researchers, Vargo et al. (2014) compare the use of Anabolic steroid use for athletic enhancement and or body image improvement to enhancement used for academic achievement concluding that those who engaged in enhancement for self-improvement, i.e., body image and academic success were not negatively perceived. The researchers explained the phenomenon coined by (Goodman, 2010) the zero-sum task, “situations where there are a winner and losers” to non-sum task “success is independent of others’ performance” (Vargo et al., 2014, p. 70) as the paradigm that differentiates moral to immoral behavior (Dodge, Williams, Marzell, & Turrisi, 2012). The comparison of enhancement use for athletics versus academic use showcases negative attitudes towards students they perceive as being deceitful when achieving a competitive edge (sports competition and internship).

Through a descriptive case study, high school students and teachers provided their ethical perceptions of the nonmedical uses of prescription stimulants for academic achievement. The

qualitative study allowed the researcher to access and decipher individual ethical perceptions obtained through interviews, surveys, and tolerance vignettes. Chapter 3 will outline the methodology that was used for collecting data, which addressed the research questions to report ethical judgments thoroughly. In conclusion, this descriptive study was intended to examine the ethical/moral framework embedded within high school students and teachers considering the societal climate shift from concealing DBA behaviors to hold wrongdoers accountable. The belief that an ethically charged lens will change perceptions from what was acceptable to a moral dilemma.

Chapter 3: Methodology

Introduction to Chapter 3

The nonmedical use of prescription stimulant drug use has dramatically increased among the college population (Gallucci et al., 2014; Garasic & Lavazza, 2016; Kerley et al., 2015; Prosek et al., 2018). Research indicates that illicit use of cognitive enhancers is among the most abused drug excluding marijuana (Ford & Schroeder, 2008) connecting the ethical framework of legal to moral (Brugger, 2017). Students seek cognitive enhancers for their ability to increase wakefulness, intensify focus, and extend study sessions for the purpose of academic achievement. In addition to maintaining a competitive edge, Stoeber and Hotham (2016) found that students were more likely to engage in the illicit use of cognitive enhancers when they felt pressured to withhold a perfectionist persona.

Increases in the diagnosis of ADHD have ultimately flooded the market with prescription medications used for its treatment. Students who legally have a valid prescription for Ritalin or Adderall are diverting their medication by selling, trading, or giving them away (McCabe et al., 2014), thus supplementing an already saturated supply. Periods of high stress increase the drugs' demand as well as the price where students can expect to pay anywhere from \$10 to \$20 per pill (Stolz, 2012). The qualitative case study will explore how 16 (eight high school students and eight teachers) perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs for the purpose of academic enhancement.

Few colleges and universities have policies regulating the illicit use of cognitive enhancers by healthy students. Wesleyan University, a liberal-arts school located in Connecticut, considers the use of Adderall without a prescription a form of cheating according to their honor code (Schwarz, 2015). Researchers agree that the first step in prevention will be to

dispel the myth that these drugs have any academic enhancing abilities. Evidence does not substantiate any findings to support the efficacy of cognitive enhancers when used by healthy individuals leaving some researchers to believe that if any enhancement was experienced in their studies, it is most likely the result of the placebo effect (Arria et al., 2013; Ilieva et al., 2015). Mohamed (2014) advocated expanding research by taking it beyond whether cognitive enhancers alter higher order complex processes but also how they may potentially hinder emotional intelligence or lead to over-focusing and impairment in cognitive flexibility. Without knowing the prevalence, risk, and benefits of these brain interventions, Farah (2015) stressed that it is difficult to formulate a useful policy (p. 380).

Statement of the Problem

It is not known how high school students and teachers perceive the ethical implication of using study drugs. Consequently, the purpose of this qualitative case study was to explore how eight high school students and eight teachers perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs within a Connecticut urban high school. Medications commonly prescribed for the treatment of ADHD and ADD are readily available to students who assume that they will gain an academic advantage by ingesting cognitive stimulant drugs. Students justify their reasons for illicitly using prescription stimulants as an end justifying the means, taking it in moderation, self-medicating, and minimizing harmful side effects (DeSantis & Hane, 2010).

Researchers have investigated misuse, prevalence, consequences, and implication for policy, while also examining past research that implies the off-label use of cognitive enhancers will assist in wakefulness (Ford & Ong, 2014; Ford & Pomykacz, 2016); yet research fails to prove that it increases academic success (Arria et al., 2013; McCabe et al., 2006; Weyandt et al.,

2016). The literature review has explored six domains related to this issue: motives, knowledge of side effects, acquisition, social implications, policy, and ethical/moral dilemma regarding the off-label use of cognitive enhancers. This case study has integrated these six domains through interviews, questionnaires, and cognitive attitude assessments for determining ethical perceptions of students and teachers.

Past research proves the use of cognitive enhancers is just as effective as caffeine, and therefore prescription drugs such as Ritalin and Adderall have no significant impact on increasing brain cognition (Franke et al., 2012). According to Advokat and Scheithauer (2013), evidence suggested that healthy, non-ADHD; young adults who use either amphetamine or methylphenidate did not have significant improvements in cognitive scores. Advokat and Scheithauer (2013) pursued their inquiry through experimental studies where they test students who have an ADHD diagnosis who are taking medications, students with a diagnosis not taking medications, and non-ADHD students (control group) where they conclude that the long-term use of cognitive enhancers did not promote increases in cognition. Although, the study found that students who legally take medications had improvement in long-term episodic memory proving that students diagnosed with ADHD will benefit from taking cognitive enhancers (Advokat & Scheithauer, 2013) it does not show evidence that enhancement would occur in a non-ADHD diagnosed student taking stimulant medications.

Arria et al. (2013) concluded that students who engage in the NMUPS did not increase their GPAs and suggested that any prospect of improving academics is misleading. Therefore, questioning the association between stimulant medications equating to cognitive enhancement and students' intentions with academic outcomes (Prosek et al., 2018). Yet students continue to

misuse prescription stimulants at alarming rates (Ford & Pomykacz, 2016) despite their potentially-harmful side effects and legal consequences (Weyandt et al., 2016).

Research Questions

It is not known how high school students and teachers perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs. An abundance of literature exists regarding students' nonmedical use of prescription stimulants (Advokat & Scheithauer, 2013; Benson et al., 2015; DeSantis et al., 2008; Weyandt et al., 2016). However, there is little or no information regarding ethical perceptions. The purpose of this qualitative case study was to explore how 16 participants (eight high school students and eight teachers) perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs within an urban high school located in Connecticut. The researcher sought to answer the following research questions to close the research gap of students' and teachers' ethical perceptions.

RQ1: How do high school students perceive the ethical implication of using study drugs?

RQ2: How do teachers perceive the ethical implication of using study drugs?

Students who use cognitive enhancers for their off-label use appear to have less of an issue with the ethical implication of using study drugs. On the other hand, students who do not use cognitive enhancers may perceive users as gaining an unfair academic advantage. Teachers may be most concerned about the illicit use of cognitive enhancers pertaining to fairness and possibly health issues associated with NMUPS. Contributing factors to these assessments may be due to the level of education or knowledge, personal beliefs, or shifts in societal norms.

Purpose and Design of the Study

This study could provide valuable information about perceptions regarding the off-label use of cognitive enhancers as study drugs regarding ethical values as a system of justification.

The study has navigated various perceptions held by high school students and teachers. The case study considered high school students who were at least 18 years old (required age to participate) to investigate whether there was a significant degree of perception based on degrees of ethical values. For instance, were students more tolerant of using prescription drugs for their off-label effects because the participants' justifications validated their behaviors?

Teachers may contemplate the dangerous side effects or the consequences associated with ingesting prescription drugs for their off-label results, or more importantly, they may be opposed to this behavior because it is considered morally wrong. Can it be assumed that the teacher participant group has a refined moral compass based on education, experience, and age?

By understanding ethical perspectives, this study may guide future research to consider alternative study habits, ethical dilemmas related to the unauthorized use of prescription stimulants to gain unfair advantages, school policy, and considerations for access to all. Accusations that drugs such as Ritalin and Adderall increase GPAs have yet to be determined. Farah (2015) reported findings from a meta-analysis that the effects are real but minor for executive function test stressing inhibitory control but insignificant for working memory test. A debatable issue regarding enhancement whether in the form of legal stimulants such as tutoring, computer applications, and caffeine versus the illicit uses reveals that enhancement is obtainable but where is the ethical line crossed?

Research Population and Sampling Method

Population. The northeast region of the United States is home to all eight Ivy League Universities, with half of them located in New England. In addition, this region includes some of the country's oldest and most renowned colleges in the nation, therefore, creating fierce competition amongst students seeking freshman college admission. The population for this case

study was concentrated on eight high school students (18-years-old) and eight teachers. No participants in this case study self-identified with a diagnosis of ADD/ADHD.

Sample size selection. Eight high school students and eight high school teachers, or until saturation was met, determined the sample size. When deciding the sample size of the selection, the researcher must first consider how they will obtain their sample (Fusch & Ness, 2015). This case study investigated a specific sub-set of high school students and teachers.

The first step in obtaining a sample that will satisfy the case study was to draw from a subpopulation of high school students and teachers. Fusch and Ness (2015) explained that data saturation is essential to the quality and validity of any research. Saturation, according to Bowen (2008), is the point at which there is enough data to answer the research question adequately. Saturation of data does not equate to quantity but rather the quality of information relevant to the research, “the objective is not to maximize the numbers but rather become saturated with information on the topic” (Bowen, 2008, p. 142). To meet saturation, the sample for this case study consisted of the appropriate population composed of the college-bound students and teachers with the intentions of determining if any of the groups perceived ethical dilemmas for the off-label use of cognitive enhancement.

Sampling method. Purposive sampling was initiated as the sampling method to gather data. Purposeful sampling is used as a selection method in qualitative research to identify individuals who are knowledgeable with a phenomenon of interest in addition to being willing and available to participate (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). Student participants were current high school student and met the age requirement for consent of 18-years-old. Due to the nature of the population, the researcher used probability sampling which allowed for random selection of participants via purposive sampling to procure an accurate

sample of participants. Purposive sampling ensures representation from key subgroups thereby warranting saturation or the greatest capacity among the sample. Eight teacher participants and eight students were interviewed and surveyed to address ethical perceptions regarding the NMUPS for the purpose of gaining academic achievement. Although the sum of the total sample was not large, McMillan (2012) explained that larger groups allow the researcher to remain unobtrusive yet, it also complicates record keeping. Therefore, depth is sacrificed for less intrusion. Bowen (2008) surmises that it is not necessary to interview the same participants if there are other sources of data.

Instrumentation

This study employed three sources of instrumentation to gather information and to report data. The following instruments, semistructured interviews, tolerance vignette, the Cognitive Enhancer Attitude Assessment (CEAA) were acted as the primary sources to determine students' and teachers' ethical perceptions of using prescription stimulants for achievement.

Tolerance Vignettes. In the study, *Perceptions of assisted cognitive and sports performance enhancement among university students in England* researchers, Vargo et al. (2014) used vignettes to measure tolerance levels in the presence or absence of zero-sum scenarios. Participants were presented with two scenarios; one was competitive while the other was non-competitive. The following two questions were asked of the participants, "How much do you believe this affects others?" Participants chose from a 5-point Likert-type Scale (No Affect to Major Affect). The next question asked for the participant's agreement to the character's decision on a 6-point Likert-type scale (Strongly Disagree to Strongly Agree), assessing participants acceptance based on individual success versus competition.

Semistructured interviews. The use of semistructured interviews offered the most flexibility for probing while gathering rich descriptive data as well as eliminating the need for additional meetings. Creswell (2013) recommended the use of open-ended questions for accumulating lengthy and descriptive responses rather than yes/no answers. Describing that the data collected by the research drives the questions presented to the participants, therefore the goal is to acquire a mass of information to answer the research questions (Creswell, 2013; Yin, 2014). Questions were intended to provide an understanding regarding the perceptions held towards cognitive enhancing for academic purposes.

Cognitive Enhancer Attitude Assessment (CEAA). The final data assessment was an adaptive version of the Performance Enhancement Attitude Scale (PEAS) referred to as the Cognitive Enhancer Attitude Assessment (CEAA). The Performance Enhancement Attitude Scale (PEAS) is a 10-item self-reporting instrument structured on a 6-point Likert-type scale. The PEAS rates attitude statements such as, “Doping is necessary to be competitive” whereas the CEAA alters language from doping to “smart pills” an example is “I am aware of students using smart pills regularly” (Petróczi & Aidman, 2009; Schelle et al., 2015). The conversion from PEAS to CEAA is also different in that it is measured on a 6-point Likert-scale from strongly disagree (1), disagree (2), somewhat disagree (3), somewhat agree (4), agree (5), to strongly agree (6) with total score ranges from 10 to 60 and a middle-point of 40.

The CEAA replaces performance-doping expressions with neuroenhancement terminology. This survey was intended to help assess perceptions held by each subgroup for determining awareness and reveal participant’s views concerning attitudes regarding illicit cognitive drug use. Cabrera et al. (2015) considered public attitudes towards the use of pharmacological enhancement (PE) revealing the most significant concern regarding safety,

coercion, and fairness. Their study also discussed the discomfort experienced by participants, which associates changes in core features of a person that the impact PE has on the successfulness of a person.

Data Collection

Upon approval from the Institutional Review Board of Concordia University, the researcher received permission from the principal of the site high school, which is located in an urban city in Connecticut. The researcher is employed as a school counselor in the high school where the study was conducted.

The researcher completed all necessary forms to meet policies that the Board of Education and case study school district leaders required, and she presented the requirements of the study with specific protocols. The principal, students, and faculty members were sent an email highlighting the nature of the study with instructions for filling out the consent form and the researcher's contact information. The participants who volunteered were instructed to contact the researcher within a specific period to conduct the interview. The email included an explanation of the researcher/participant role, an overview of the study, and a potential schedule for the interview.

The data was collected via face-to-face semistructured interviews, Likert-type scale tolerance vignette, and the CEAA survey. Students and teacher participants were presented with an overview of the study with the required consent form which was completed prior to the interview. Interviews typically lasted between 45 minutes to an hour and were conducted during study halls or elective periods with the permission of their assigned teacher. Student interviews were conducted with the students in the researcher's office. Teacher semistructured interviews

were prearranged at the digression of the teacher to coordinate with their off-duty prep times. Teacher interviews took place in their empty classrooms.

The CEAA survey and the tolerance vignette was distributed to eligible student participants during their college application seminar which took place at the school's computer lab. The CEAA survey and the tolerance vignette were emailed to all faculty via the school email system. The email included a brief description of the study with an anonymous link generated by Qualtrics. Once the participant was linked to the survey and vignette, they were presented with the consent form and were required to confirm that they were at least 18 years old.

Identification of Attributes

Understanding the ethical perspectives of high school students and teachers towards prescription stimulant misuse or NMUPS were the principal attributes used to outline this case study. According to Weyandt et al. (2016), first time stimulant prescription misuse occurs during high school with their primary motivation of cognitive enhancement. Palamar and Le (2017) report that 5.3 million students 12 years old and younger misused prescription stimulants.

Data from participants could lend direction towards prevention and intervention strategies for students as young as middle school. Ford and Pomykacz (2016), confer with previous research that the prevalence of NMUPS nearly doubled between 2000 and 2012 for college students (Johnston et al., 2015), additionally students overestimate the prevalence of NMUPS among their peers, therefore, viewing this behavior as normative. Additionally, research confirms that NMUPS is linked to other drug use. Efforts to prevent misuse couple with accurate information regarding stimulant medication efficacy may hinder misuse (Palamar

& Le, 2017). Appraising students of the harmful effects and judicial consequences in conjunction with physician directed conversations may tailor misuse and diversion.

Data Analysis Procedures

Qualitative research is employed to develop theories and tell a unique story when statistical measures are not appropriate for solving a problem it is especially useful when trying to capture the uniqueness of the situation (Creswell, 2013). Converting the data collected in the qualitative process into a meaningful interpretation is required. Experiences are recorded through observations or self-described accounts from the participant to the researcher who analyses and interprets these events into a written presentation. Simply stated, “where quantitative data are numbers, qualitative data are words” (Creswell, 2013, p. 18) which allows the researcher to analyze for a written presentation.

The tedious task involves identifying common themes then categorizing information that will later be coded to develop theories and draw conclusions. “Identifying and refining important concepts is a key part of the iterative process of qualitative research” (Schutt, 2012, p. 328); hence validating the belief of tenuousness on the part of the researcher. Researchers typically approach a situation where the data collection process debunks the predetermined theory leading to refining their concepts. Flick (2013) noted, “Whatever the data are, it is their analysis that, decisively, forms the outcomes of the research” (p. 3).

The researcher transcribed the field notes that were recorded in a journal during the interviews and audio recordings. Analysis of participants’ disposition, attitudes, and other comments was organized for coding and evaluated for overlapping themes. The researcher utilized the qualitative data analysis software NVivo and Qualtrics to perform the functions of

coding, identifying similarities and differences in the data, making conclusions, recognizing relationships, and creating generalizations.

First, the researcher transcribed participant interviews and organized field notes into categories according to like themes. A systematic procedure of pull apart put back together process conceptualized observations whereby making meanings of statements and extracting pertinent information for analysis (Saldaña, 2016). The researcher disseminated data by what the participants emphasized via their responses including verbal and body language observations. From this, the researcher applied codes to reduce extraneous data, based on the recommendation from Flick (2013), “grouping of several elements under one concept, so that we have a more or less limited number of codes (or categories) rather than a large variety of diverse phenomena (p. 11).

Second, the researcher tallied the data collected from the CEAA to evaluate the perceptions held by the participants. The researcher established the credibility of the study through triangulation of data sources including transcribed interview responses and results of the CEAA replies with the tolerance vignettes. All transcriptions were first shared with the participants and reviewed for accuracy then presented to the dissertation chair for peer debriefing (member checking).

Finally, the research reviewed the participants’ responses from the vignettes, which measured tolerance levels for illicitly using prescription stimulants for cognitive enhancement. Results from the scenarios have assisted as an additional layer towards determining ethical attitudes of the NMUPS. Competitive reasons for using prescription stimulants nonmedically may trigger participants to be less tolerant while non-competitive or self-improvement will most likely receive more tolerant reactions.

The creation of a checklist matrix as an organizational tool has assisted in summarizing the data into categories while also accessing the need for future analysis. Determining what, if any, additional information is needed to support the conditions about why things will set the foundation for authenticating the conclusion (Schutt, 2012). As the researcher dissected the data, she determined if there was enough evidence to support key points, if there was missing information, and if the evidence supported the conclusion.

Regarding the ethical framework, the researcher believed that individuals associated with different ethical views would have divergent reactions to the vignettes and other data collection prompts. A consequentialist would argue that the NMUPS would be acceptable because increasing focus, productivity, and academic rigor could assist in the creation of a higher achieving society; therefore, producing the most good with the least harm (Brown University, 2019). Followers of the Duty framework will consider the NMUPS as wrong. The Duty framework defines ethical conduct as “doing one’s duties and doing the right thing, and the goal is performing the correct action” (Brown University, 2019, para. 28). Supporters of the Duty framework believe that it is morally wrong to use prescription stimulants for cognitive enhancement based on Kant’s theory that to act ethically we must obey the universal moral law (Brown University, 2019). If an exception is made for oneself, it must be universally accepted. Therefore, the universal law would allow nonprescription stimulants for all creating a drug-induced society falsely representing human ability and autonomy.

Lastly, the virtuous framework adheres to the philosophical theory conceived from Aristotle which states “the virtuous habit of action is always an intermediate state between the opposed vices and deficiency: too much and too little are always wrong; the right kind of action always lies in the mean” (Kemerling, 2011, para. 5). Therefore, subscribers of this framework

consider the NMUPS as ethically unacceptable since CE by definition is to elevate cognitive capacities beyond the individual physiological and psychological limitations (Wagner et al., 2015).

The purpose of this qualitative case study was to explore how 16 participants perceive the ethical implication of the nonmedical use of CE drugs within an urban high school in Connecticut. Incorporating an ethical decision-making model (see Figure 3) through a process of questioning and assertion of values assist participants in bringing focus to a conclusion regarding the ethical dilemma for the nonmedical use of CE drugs.

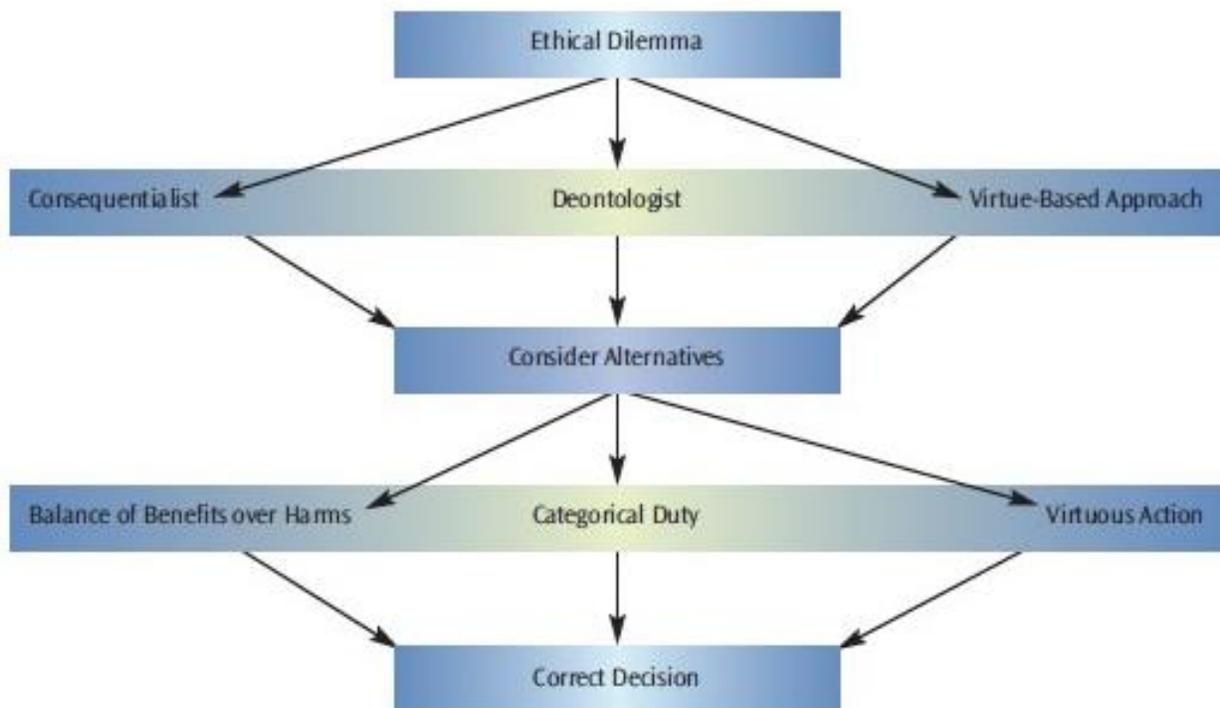


Figure 3. The steps leading to a decision for each theory.

Limitation of the Research Design

Limitations in any study are inevitable. Limitations can develop from the constraints of the research design or the research methodology. A limitation of this study was the sample population because this study only sampled students from one urban high school located in

Connecticut. The CEAA and tolerance vignette data are cross-sectional, therefore responses could only be measured at one point in time. It is also not known if the participants understood the terminology (NMUPS) and (smart pills) despite being explained prior to the questions.

Self-reporting measurements can also be attributed to a studies limitation (Hoskin, 2012; Rosenman, Tennekoon, & Hill, 2011). It cannot be known if the participants truthfully reported their perceptions regarding stimulant misuse. Hoskin, Rosenman, and Tennekoon suggest that even in anonymous surveys participants may respond with biased estimates such reasons include social-desirability or misunderstanding the measurement. Additionally, rating scales are limited due to individual interpretation of meaning (Hoskin, 2012).

Validation

To ensure credibility the researcher has implemented the following strategies: (1) member checking and (2) triangulation. Creswell (2008) suggest that these two components enhance credibility in research studies. Triangulation accesses the participant's perceptions using different instruments. McMillan (2012) explained the technique as a process, which seeks convergence of findings, cross-validation, among different sources and methods of data collection. Individual responses from two or more sources are compared to measure data consistency.

Triangulation supports validity because researchers rely on multiple forms of evidence rather than a single incident or data point in the study (Creswell & Miller, 2000). Triangulation occurs if the results from all sources corroborate. Lincoln and Guba (1985) considered member checking "the most crucial technique for establishing credibility" (p. 314). During data collection the researcher, with the permission of the participant, audio recorded individual interviews, which were then transcribed. She then took her data, findings, and interpretations

back to the participants to ensure credibility by incorporating the participant in the process, which creates an additional layer of validity (Creswell & Miller, 2000). At this time, the researcher was able to verify that she has accurately interpreted emerging themes, transcriptions, and field notes. Participants' comments were documented and incorporated into the findings adding another layer of credibility (Creswell & Miller, 2000).

Expected Findings

The assumption was that students who use cognitive enhancers for academic achievement are not morally confounded based on rationalizations that using for instrumental purposes is both safe and acceptable (DeSantis & Hane, 2010; León & Martínez, 2017). Students will also perceive the nonmedical use of stimulants as safe because prescription stimulants are regulated and manufactured by reputable pharmaceutical companies (Kerley et al., 2015). Finally, students may accept NMUPS as normative therefore they may not regard this behavior as stimulant abuse (Aikins, 2011; DeSantis et al., 2008; Ford & Pomykacz, 2016).

It was assumed that teachers would interpret the nonmedical use of cognitive enhancers as cheating. Although, some teachers may take an egocentric approach where they perceive that it is in their best interest if the student is performing at their peak, therefore, they would not oppose the use of nonmedical enhancement. The bulk of related research regarding NSPU is centered around college campuses maintaining the illicit use of cognitive enhancement use more often than not leads to other substance abuse (McCabe et al., 2014). The researcher assumed that this study would disclose an additional layer of NSPU through her investigation of college students concerning moral views.

Ethical Issues

Steps were taken to avoid ethical issues that may surface at any point of the study. Creswell (2013) explained that ethical problems could occur in many phases of the research process, from when the researcher seeks approval to acquiring participant consent through data analysis, which can then flow into reporting the results. Adams and Lawrence (2015) stated, “According to ethical guidelines, a study should be designed to increase our knowledge about behaviors, situations, or theories. The researcher has a responsibility to use only those measures or procedures that will produce a meaningful result for this study” (p. 95).

The researcher's position as a school counselor in the high school where the study took place was not a conflict of interest. This is not a position of authority; participants were not rewarded nor were they penalized for their decision to participate in the study. The researcher was not affiliated with any outside agencies or pharmaceutical companies.

The researcher always remained cognizant of the participants' safety and autonomy, it is their responsibility of, “ensuring that participants are not harmed, privacy is maintained, and the participants have provided informed consent” (Lichtman, 2010, p. 51). The researcher adhered to all requirements outlined in Concordia University's Institutional Review Board. The researcher presented the participants with a description explaining the purpose of the study along with a consent form highlighting that participation is voluntary and participants could withdraw their participation at any time with authorization for the researcher to incorporate the findings from participant interviews and any assessments used to gather data (see Appendix F). The researcher secured a flash drive containing the results of all measurements and interview transcriptions that is only accessed by the researcher on her personal laptop which will be retained for three years.

Chapter 3 Summary

The purpose of Chapter 3 was to expound on the methodology utilized to conduct the case study including the tools, methods, and data sources necessary for examining the ethical perceptions of students and instructors concerning the non-prescription use of cognitive enhancers for academic achievement. Utilization of participant interviews, field observations, coupled with The Cognitive Enhancement Attitude Assessment and results from the Tolerance Vignettes the researcher has obtained the ability to analyze the data for an adequate assessment of ethical perceptions.

The culmination of research techniques; interviews, field observations, attitude assessments, and tolerance vignettes fused together forming a credible case study outlined in Chapter 3. When a reader develops a full comprehension of the case study, the researcher can confidently assume that the data analysis is credible (Capella.edu). Chapter 3 focused on presenting the reader with an in-depth view of the data sources regarding the collection, analysis, and interpretation for the researcher to answer the research questions. Chapter 3 concluded with a review of ethical guidelines, which are used to prepared for unforeseen dilemmas while conducting reliable research.

Chapter 4: Data Analysis and Results

Introduction

The purpose of this study was to determine how high school students and teachers perceive the ethical implication regarding the nonmedical use of prescription stimulants for cognitive enhancement. In this chapter, the researcher will present the sample of the participants, the research method, and analysis of the data that she collected via Semistructured interviews, Cognitive Enhancer Attitude Assessment (CEAA) survey, and responses to a situational vignette, which was used to assess tolerance levels.

Chapter 2 evaluated the vast amount of literature associated with the nonmedical uses of CE for academic achievement, weight loss, extended study sessions, and partying, (Arria et al., 2008; Ford & Schroeder, 2008; McCabe et al., 2014; Sussman et al., 2006). However, there is limited research regarding high school students and teacher perceptions towards using CE for academic achievement. A case study design via qualitative research was implemented to collect data for addressing this purpose. Qualitative research seeks to uncover individual perceptions, which are then used to identify emerging themes. As summarized by Stake (2010), qualitative data accounts for the researcher's interpretations from observations and data to form an analysis to be translated into a written conclusion.

Three instruments were utilized in this study: (1) The Cognitive Enhancing Attitude Scale (CEAA), (2) semistructured interviews, and (3) Tolerance vignettes were implemented to address the research questions. The first instrument used in this study was an adaptation of the Performance Enhancing Attitude Scale that exchanged language from doping to smart pills for enhancement. The Cognitive Enhancing Attitude Scale (CEAA) measures attitudes towards cognitive enhancement on a 6-point Likert-type scale from strongly disagree (1), disagree (2),

slightly disagree (3), slightly agree (4), agree (5), to strongly agree (6), with total score ranges from 10 to 60 and a middle-point of 40. The second instrument measured participants' levels of acceptance based on competitive and non-competitive scenarios. Lastly, the researcher conducted 16 semistructured interviews. Eight interviews were conducted with teacher participants for the purpose of gathering teacher perceptions and while the remaining eight were conducted with student participants for student perceptions.

The CEAA survey paired with a tolerance vignette assessed the participants' perceptions regarding competitive and non-competitive scenarios. Data collected from the survey and tolerance vignettes was beneficial because it outlined awareness of cognitive enhancement drugs in addition to degrees of acceptance. Semistructured interviews were utilized as a final assessment to gain rich descriptive knowledge and individual views concerning both teacher and student perceptions.

Description of the Sample

Semistructured interview teacher participants consisted of eight secondary teachers, four males and four females, ranging from six years to 10 years of teaching experience (see Table 2). Of the eight teacher participants, two taught English, two taught History, one taught Mathematics, one taught Business, one taught Science, and one taught Reading Skills. All of the participants held the required State of Connecticut teaching certification additionally all teachers had a minimum of a master's degree and a maximum sixth-year degree level of education. Of the eight teachers, three of the females and two of the male participants are also parents with children ranging from pre-school age through college graduate. None of the teacher participants had a diagnosis of ADD/ADHD. Teacher participants were assigned pseudonyms that were only known by the researcher.

Table 2

Teacher Participant Demographics

Pseudonym	Age	Ethnicity	Gender	Teaching Experience	Children (Y/N)
VEM	49	White	Female	12	Y
ZRE	44	White	Female	18	Y
MHJ	53	White	Female	10	N
HEM	45	White	Female	20	Y
NHR	42	White	Male	11	N
GSJ	46	White	Male	8	Y
UMA	34	White	Male	7	Y
DBA	43	White	Male	14	N

VEM. A certified English teacher who has taught in this district for her entire career, VEM is also currently and has been for the past four years the senior class advisor. VEM has one child who is a college graduate.

ZRE. Dual certified in English and as a reading specialist, which is her current position, ZRE has been was employed in the district for three years, then transferred out of district for two years before returning. In addition to her teaching certification, she is certified as an administrator. ZRE has one daughter who attends first grade at a private catholic school.

MHJ. A certified U.S. History teacher who also has her law degree, MHJ has been employed in the district for 10 years following her career as a legal consultant. MHJ does not have any children.

HEM. Dual certified in English and as a library media specialist, which is her current role in the district, HEM has been employed in the district for 20 years but has worked in various schools within the district. She has three daughters, one is attending college, one is a junior in high school, and the last is in middle school.

NHR. A certified history teacher and newly elected state political position, NHR has been employed in the district for 11 years, he was also a student teacher in the school where he is currently employed. NHR does not have any children.

GSJ. Holding a general science certification, GSJ has worked in the district for eight years following a short-lived career in the private sector. GSJ has four children ranging from seventeen to new born.

UMA. Certified in mathematics and also holding an administrative degree, UMA has worked in the district for seven years and for the past two years he has held the position as the math department chair. UMA is also a coach in the district. He is a parent of two children.

DBA. Certified in business, DBA has an MBA, administrative certification and is currently working towards his special education certification. DBA has been employed for 14 years and he also did his student teaching in the district. He is also the yearbook and DECA advisor. DBA does not have any children.

Participants from the student participant side included four males and four females. Of the female students, two were Hispanic, one African American, and one was Caucasian. Three of the male participants were African American and one was Caucasian. All student participants were at least 18 years old and were in their senior year of high school and all are planning to attend a postsecondary education institution.

As a Title 1 school, all students classify as low income and are eligible to receive free lunch. None of the student participants had a medical diagnosis of ADD or ADHD and none of them were currently taking or have never been prescribed any cognitive stimulants such as Adderall or Ritalin. Like the teacher participants, students also had an assigned pseudonym that was only known by the researcher. Table 3 is an overview of the student participants.

Table 3

Student Participant Demographics

Pseudonym	Age	Ethnicity	Gender
GRZ	18	Hispanic	Female
LOZ	18	Hispanic	Female
AWS	19	African American	Female
GSS	18	White	Female
CDE	18	White	Male
DAN	18	African American	Male
KMN	18	African American	Male
JGN	18	African American	Male

GRZ. An 18-year-old student who plans on attending a local state university next year, GRZ has a younger brother who is diagnosed with ADHD as well as two other younger siblings. GRZ works part time after school in addition to helping her mom with childcare. She is also actively involved in student council and she is the captain of the volleyball team.

LOZ. An 18-year-old student who has currently applied to six colleges is hoping to attend a school in Florida where she is originally from, LOZ transferred to the district when she was in eighth grade and has dreamed of returning ever since. She is currently taking a combination of college prep and Advanced Placement courses. LOZ played the leading role in the drama production last year and has plans to try out for the spring musical.

AWS. A 19-year-old student who has applied to multiple colleges and early action to her top school, AWS will be the first person in her family to attend college with hopes of pursuing a degree in nursing. AWS ranks in the top 10% of her graduating class, she is enrolled in Advanced Placement courses in addition to taking one college collaboration course. AWS enjoys volunteering at elementary schools in the district she is also a member of the National Honor Society.

GSS. An 18-year-old student female student who is in the process of applying to the state university regional branch, GSS' intentions are to commute to there for two years to earn her general credits then transfer to the main campus where she intends to study engineering. GSS is a self-described techie who is interested in traveling and singing. She has participated in vocal music and chorus throughout high school. She has always been on the honor roll and was inducted into the National Honor Society as a junior.

DAN. An 18-year-old student athlete who excels at math, DAN is currently taking AP calculus in addition to one other advanced placement class and college prep courses. He has applied to all four of the colleges in the state university system but is considering attending community college for his first year. Before entering the district last year, he attended a private high school.

KMN. An 18-year-old male the youngest of six siblings, KMN explained that his motivation for going to college is to move out away from his siblings. He has applied to some local 4-year and a few historically black universities. KMN has not decided on a major but is interested in either law or politics. He is currently enrolled in a Law and Society course, which has peaked his interest. KMN said that he also likes forensics so maybe a career in criminal investigations or working for the FBI.

JGN. An 18-year-old student who ranks in the top 5% of his graduating class, JGN has applied to many schools and is hoping to receive an athletic scholarship. His dream is to play professional basketball and his backup plan is to have a career in finance. JGN is actively involved in community service through his church and school organizations. When he is not playing basketball for the school team, he is assisting the unified sports team.

Research Methodology and Analysis

The case study design allowed the researcher to pursue rich data from the participants' experiences (Stake, 1995). The two research questions that guided this study were,

RQ1: How do high school students perceive the ethical implication of using study drugs?

RQ2: How do teachers perceive the ethical implication of using study drugs?

Data collection began in mid-September 2018 and lasted over a period of four weeks, concluding during the second week of October. Eight high school teachers who agreed to be interviewed received an interoffice email invitation within the high school where the study took place. All teachers accepted the invitation and were contacted individually to schedule a convenient non-teaching time to conduct the interview. The researcher selected age-appropriate students via the schools' student database.

All age appropriate students (at least 18-years-old) were contacted first to conclude that their postsecondary plans included attending college. If students met the study criteria, they received an overview of the study with an oral invitation to participate. Student participants were interviewed during a study hall or non-academic period. Student interviews took place in either the researcher's office or in a private study room located in the media center. Teacher interviews were conducted in the teacher's classroom during teacher preparation time.

Following the semistructured interviews, the researcher delivered surveys and tolerance vignettes to the entire certified teaching faculty via the school email system. Surveys were emailed with a short description of the study which included an anonymous linked generated by Qualtrics. Distribution of student surveys took place during the college application seminar; this is a senior activity that occurs during English classes. Students were first asked their age; if they did not meet the required age of 18 years old the survey ended thereby prohibiting the student

from accessing any part of the survey questions. Teachers were emailed multiple times in an attempt to generate as many responses as possible. Some teachers contacted the researcher personally to confirm that the survey and vignette were sent by her and was not a SPAM email.

The researcher utilized an online application that was downloaded to her cell phone to record and transcribe semistructured interviews. At the conclusion of each interview, transcripts were stored on a password protected computer. The audio-recording and transcript were compared by the researcher, to ensure accuracy and adjust transcription as needed. The recorded interview was deleted within two days of the interview after finalizing the transcription. Pseudo codes different from the participant demographic codes and were only known by the researcher protected all participants' identities. The researcher then set up individual times with all participants and met privately to review the transcription from the interview for review of accuracy or respondent validation. Transcriptions coupled with analysis of emerging themes were reviewed with the participants as an additional layer of credibility to support the study (Gagnon, 2010). All transcriptions were reviewed by each participant and agreed that no revisions were necessary.

The Cognitive Enhancing Attitude Scale (CEAA) served as the second instrument for collecting data. The CEAA is structured on a six-point Likert-type scale rating participants perceptions from strongly disagree to strongly agree. The survey consisted of 10 questions; all of which included the term smart pills and sought to determine if the perceptions of teachers differed from those of students. Results revealed that both teachers and students held similar viewpoints except for question numbers 3, "I think that it is harmless to use smart pills". Thirty percent (30%) of students strongly disagreed, whereas the majority (53%) of teachers strongly disagreed. Question number 9, "A policy surrounding 'smart pills' would allow a fair academic

standard for students”, only 8% of students strongly agree while 26% of teachers strongly agree. Question number 10, “I think that it is illegal to take smart pills”, shows that the majority (37%) of teacher participants rated this question as “agree” whereas only (18%) of student response “agree” to this statement. Table 4 and Table 5 outline participant results from the CEAA.

Questions can be found in Appendix B.

Table 4

Teacher Results

#	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	16.67%	38.89%	11.11%	16.67%	11.11%	5.56%
2	65.00%	20.00%	5.00%	10.00%	0.00%	0.00%
3	52.63%	15.79%	21.05%	5.26%	5.26%	0.00%
4	10.00%	0.00%	0.00%	0.00%	20.00%	70.00%
5	5.00%	0.00%	0.00%	0.00%	30.00%	65.00%
6	0.00%	5.26%	36.84%	21.05%	10.53%	26.32%
7	5.56%	16.67%	16.67%	27.78%	11.11%	22.22%
8	5.26%	15.79%	5.26%	15.79%	21.05%	36.84%
9	0.00%	21.05%	10.53%	21.05%	21.05%	26.32%
10	5.26%	15.79%	5.26%	10.53%	36.84%	26.32%

Table 5

Student Results

#	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	26.23%	29.51%	22.95%	16.39%	1.64%	3.28%
2	34.43%	29.51%	21.31%	11.48%	1.64%	1.64%
3	30.00%	31.67%	20.00%	10.00%	6.67%	1.67%
4	8.20%	8.20%	6.56%	13.11%	27.87%	36.07%
5	6.56%	3.28%	8.20%	8.20%	24.59%	49.18%
6	9.84%	13.11%	24.59%	19.67%	14.75%	18.03%
7	11.67%	16.67%	25.00%	28.33%	10.00%	8.33%
8	13.11%	6.56%	18.03%	21.31%	19.67%	21.31%
9	20.00%	13.33%	23.33%	25.00%	10.00%	8.33%
10	9.84%	13.11%	24.59%	18.03%	18.03%	16.39%

A tolerance vignette served as the final assessment (see Appendix C), which accessed participants perceptions based on competitive verses non-competitive scenarios. Following a

short reading passage, participants rated their level of agreement to the characters' decision in the competitive and non-competitive situation. The first scenario portrayed a character in a competitive arena vying for a job. This scenario requires all applicants (characters) to take a math-reasoning test. The character decides to enhance his ability by taking CE drugs. The second scenario represents a non-competitive circumstance where the character is striving for self-improvement. In this situation, the character is striving to obtain a specific score on his final exam to ensure the Dean's list recognition. The character is invited to take Ritalin to assist in his focus while studying. Participants evaluated each character's decision in both scenarios to determine if a non-competitive versus competitive situation had an impact on their perceptions.

The results for teacher participants in both competitive and non-competitive scenarios showed similar perceptions in regard to the characters decision to use CE drugs. Teacher participants strongly disagreed (45%) with the characters decision to use CE drugs in the competitive scenario and strongly disagreed (36.84%) with the characters decision to use CE drugs towards the non-competitive scenario. Teacher participants (40%) believed that the character's decision in the competitive scenario affected others a great deal; however, only 26% had the same opinion that the character's decision affected others regarding the non-competitive scenario.

Student participant results varied between non-competitive and competitive scenarios. The majority of student participants (21.67%) somewhat agree with the characters decision to take CE drugs in the non-competitive scenario while only (15%) strongly disagree with the characters decision to use CE drugs. Results regarding the competitive scenario showed an equal majority (24.19%) between "somewhat agree" and "agree" with the characters decision to take CE drugs to ensure a competitive edge. However, results were comparable regarding how the

characters decision to use CE affected others in both competitive and non-competitive scenarios, for example, the majority of student participants suggested that the decision of the character had a “moderate affect on others” in both situations (see Table 6).

Table 6

Tolerance Vignette Comparison

Tolerance Vignette	Competitive		Non-Competitive	
	Student Response	Teacher Response	Student Response	Teacher Response
How much do you believe the character’s decision affects others?	31% Moderate Amount	40% A Great Deal	34% Moderate Amount	26% A great Deal, A lot, A Moderate Amount
Do you agree with the character’s decision?	24% Somewhat Agree 23% Somewhat Disagree/Disagree	45% Strongly Disagree	22% Somewhat Agree/ 20% Somewhat Disagree/Disagree	37% Strongly Disagree

A section is provided for teachers and students to report their justifications regarding their responses following both scenarios. Examples from the responses from the teacher participants are:

I don’t believe that anyone should take enhancers of any kind... He has an unfair advantage due to his use of pharmaceuticals. . . . It is unethical and should not be tolerated, taking prescriptions that are not prescribed is illegal and dangerous, no outside factors such as prescriptions should influence your own critical thinking skills. . . . All meds do not have the same effect on all individuals, however, especially those

individuals who are taking other mood/psych drugs. . . . Ritalin (amphetamines) has serious side effects that need to be considered.

The following are student participants' response excerpts:

- “He did what he had to do to get the job,”
- “He was nervous that is why he did that,”
- “He did what he thought was the best thing to do,”
- “it is unfair,”
- “Even though he did something not right he passed his class by himself even if he didn't do it by himself,”
- “The use of this drug caused him to succeed when everyone else worked on their own skill level and ability,”
- “Martin didn't use his ability or skill, it was the drug itself that ensured 1st,”
- “It's not fair to give yourself an edge to better your chances while everyone else has to deal with their regular ability to concentrate,”
- “He did what he thought was the best thing to do,”
- “Although he's doing it to better his future, other students could have obtained it as well if there was an equal advantage.”

The following graph displays teacher responses to “How much do you believe this affects others” in the competitive scenario:

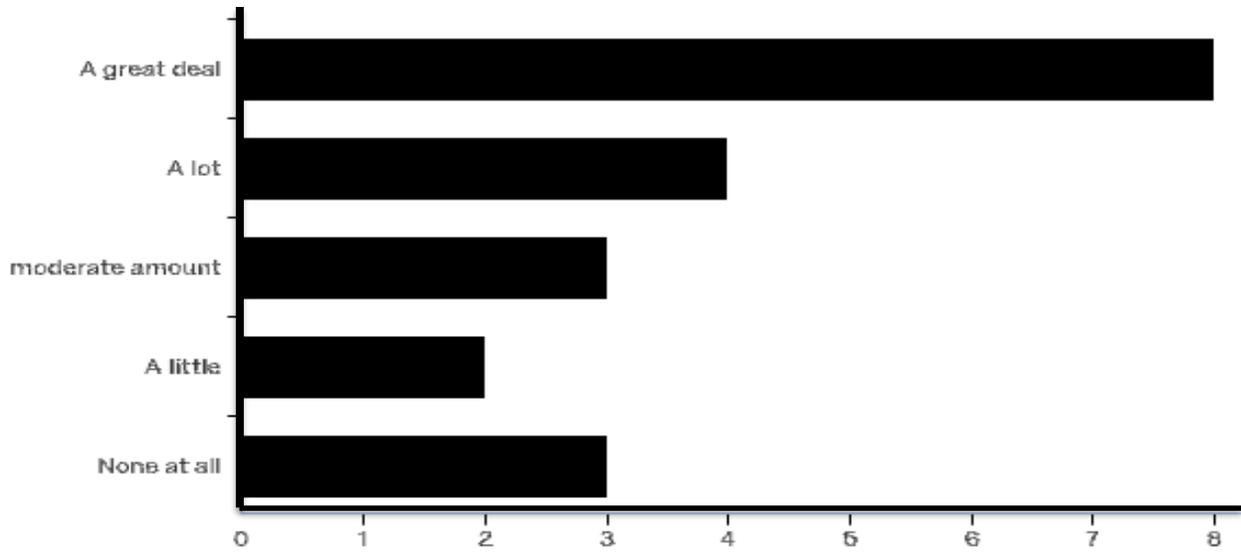


Figure 4. Teacher responses to “How much do you believe this affects others” in the competitive scenario.

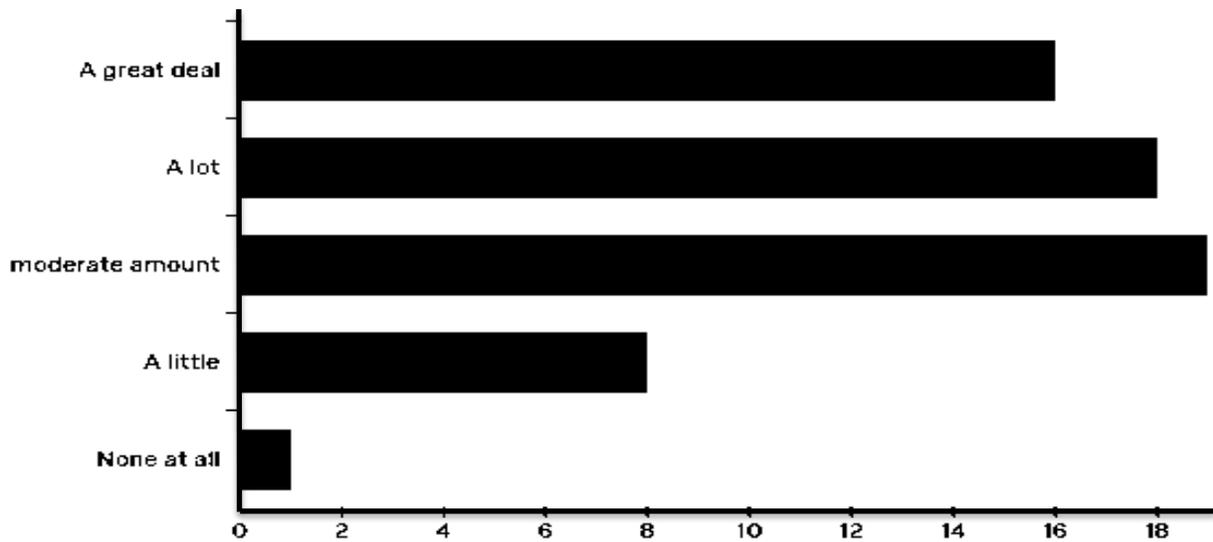


Figure 5. Student responses to “How much do you believe this affects others” in the competitive scenario.

Summary of the Findings

Findings for research question 1. How do high school students perceive the ethical implication of using study drugs? Semistructured interviews, tolerance vignettes and surveys were utilized to gather information from high school students to determine how they perceive the ethical implication of using study drugs. The following themes emerged in the findings: peer

acceptance, fairness, and media. Student responses aligned with past research findings regarding justifying reasons for taking CE.

Many students considered these drugs to be harmless they did not contemplate any risk and thought that if they needed them on a regular basis, they could easily obtain a prescription from their doctor, however, some student participants did not see any issue with the occasional use. Regarding ethical perceptions, the student participants were split in their responses; while some considered using CE without a prescription as “no biggie,” others were adamant that it was wrong and should only be considered if appropriate measures, such as obtaining a valid prescription from a health care professional, were in place.

Participant GRZ disclosed that her younger brother is diagnosed with Attention Deficit Hyperactivity Disorder and has a valid prescription for Adderall. She admitted to taking some of his pills as an aid to keep her awake to finish homework. She explained that it is difficult to keep up with homework due to her need to work part-time in addition to helping out with her younger siblings. GRZ explained that she really wants to go to college, and she knows that the only way to afford tuition is through maintaining a high GPA and hopefully winning a scholarship. When asked if she considered this unethical, she replied, no because it is not cheating it’s just helping her stay awake to complete her work or study longer. Ford and Pomykacz (2016) noted that NMUPS are most prevalently used to help students stay awake to study (p. 254). She said that she has never taken Adderall as a focus tool, like before taking tests, and would not consider using it or any other drugs while taking her SATs. Instead, she said that she cannot go to school, work, and complete all her homework without it to help her stay awake; “It’s not giving me the answers, Adderall basically gives me energy to do my work.” In her opinion, Adderall is just like coffee or an energy drink but in pill form.

Participant KMN shared a similar perspective. “It’s not like taking heroin or crack” he said; “Students take them to do better, not to get high or anything.” This participant shared that he has only taken CE drugs one time, which he described his experience as “experimental”. He said that he, along with some friends, found them at their buddy’s house and wanted to see what would happen. KMN explained the experience as no big deal; he described the occurrence as the equivalent of drinking a few cans of Red Bull. He said that he would not consider taking CE drugs because he could just as easily drink Red Bull and that he just tried it because he wanted to experience it with his friends.

Peer acceptance. Peer acceptance was the first theme that emerged from the data, which research described as a double-edged sword. According to Ford and Ong (2014), the nonmedical use of prescription stimulants was dependent on peer use justifying the behavior as socially acceptable or normative (p. 281). Participant GSS disclosed that she has not felt the need to use any type of cognitive enhancers but would be willing to try them in college if her friends used them. She expects that college will be more demanding and CE drugs will be easier to obtain on a college campus because in her opinion: “all college students take them.” When asked if she knew anyone who takes or has taken them, she responded,

Yes, my friend took her brothers pills once. They didn’t do anything for her except keep her awake all night. So, if I were to ever take them that is what I would use them for, not to necessarily get better grades.

When asked if she considered using them for nonmedical reasons as a form of cheating, GSS replied, “Not really, it’s an individual choice.” She explained that just like anything, it comes down to what a person is willing to do to get what they want and, if it’s wrong, in the end, they are the ones who will face the consequence.

The *New York Times* reported a student stating that as a kid they were made to feel different for taking Ritalin but now it is almost cool (Jacobs, 2005). Student participants validated this reasoning. For example, Participant CDE recalled a situation where a classmate used to made fun of for going to the nurse's office to take his meds. Now that classmate is sought out for this exact reason stating, "kids know who they can go to for what they need." He continued stating that, "he knew another kid who was bragging about how much money he had made selling his pills." CDE said that he heard of students using them for other things other than studying and figured that was probably what made them popular.

Fairness. Fairness was the next emerging theme most commonly discussed among the student population group. When asked, "What concerns you the most in regard to the NMUPS?" unlike the teacher population who cited safety as their top concern, students were most concerned with fairness. Participant AWS is under the assumption that the majority of classmates who have a legitimate prescription for CE are using them for other off-label purposes, which leads her to question fairness.

Student participant DAN addressed other nonmedical applications such as tutoring and or private schooling, which he considered an unfair advantage geared towards suburban students but not afforded for his demographic. DAN, therefore, justified the illicit use of CE use, stating whether it's attending a better school or taking these drugs, achievement is still dependent on the student's motivation. He shared that before transferring into the public school last year, he attended a private Catholic high school where competition was fierce. DAN described an environment that is driven by popularity derived on a hierarchy from money followed by sports achievements and finally academic success. Explaining that if a person ranked in any of these categories, they were in.

DAN candidly shared that students in this demographic are highly competitive from the brand of clothes they wear to the colleges that they receive an acceptance letter, therefore drugs such as Ritalin and Adderall were easily accessible. He admitted to never using cognitive enhancement but said that most of his friends took them because, in his opinion, they were trying to measure up to the pressure of always being better. DAN said he felt it was almost impossible to keep up with these standards and therefore decided to leave his private school.

Media. Students cited media as a final theme, particularly popular teen-gearred movies and television shows that highlighted CE medications for keeping up with schoolwork and activities. Some students shared that this was their first introduction to drugs such as Ritalin or Adderall being used for off-label effects. Participant GSS said that she had never heard the term cognitive enhancer but was familiar with Ritalin as a medication used for ADHD because she had researched the disorder for a class project. GSS shared that she learned about some of the common side effects such as weight loss and insomnia but had not considered these drugs as enhancement since her research was geared towards hyper activity. GSS said that she remembered seeing a movie where one of the main characters wanted to take Adderall. She said that this confused her because she had always thought that Adderall was used for kids who had ADD or ADHD. Our conversation revealed that as she watched the movie, she understood that the character was taking them to essentially cheat his way into a high-level college. She thought that the movie portrayed a false sense of reality because it did not disclose any of the negative side effects.

Findings for research question 2. How do teachers perceive the ethical implication of using study drugs? Like research question 1, the second research question was also analyzed using semistructured interviews, tolerance vignettes, and surveys to gather information from high

school teachers to determine how they perceive the ethical implication of using study drugs. Participants shared their knowledge and feelings regarding the nonmedical use of cognitive enhancers for academic advantage. Stimulation misuse or off-label drug use is defined by Hartung et al. (2013) and Prosek et al. (2018) as using medication beyond prescribed dosage, using without a prescription, and/or using beyond the intended medical purpose. The following themes emerged from the semistructured interviews: health/safety issues, fairness, doctor supervision, gateway drug, and addiction.

Health/safety issues and addiction. The most prevalent theme to emerge among the teacher population was health / safety issues and addition. Health issues relating to insomnia, weight loss, dosage and unknown reactions to medications coupled with addiction were most mentioned. Participant HEM explained that she worried most about all the side effects associated with taking medications under a physician’s care and how “scary” that can be, but for students to take such potent drugs as these is “incredibly dangerous.” Rightly so, these concerns are validated by the Substance Abuse and Mental Health Services Administration (SAMHSA), which reported that 47% of the 10,146 emergency room visits connected to stimulant medication among young adults resulted from their nonmedical use (Prosek et al., 2018). HEM also shared that her husband works as a sales representative for a popular drug company, which sponsors trips and social events promoting the use of CE drugs and sees how health care professionals are easily persuaded to prescribe drugs despite their negative side effects.

Participant VEM shared that she prefers holistic approaches opposed to prescription medications because of their lengthy list of side effects associated with them. This participant stated, “The long-term effect of the drug will bring you to a disadvantage at some point”. She went on to explain that she believes people will eventually become dependent and may even seek

out other drugs to meet their desired needs. VEM, who is also a parent of a college graduate, explained that CE was not prevalent so much during her son's high school years but that it was more of an issue at college. In her opinion, she does not consider CE drugs to be an issue at this public school but is more concerned with students experimenting with them as a means to get high and worries about that it could lead to dangerous consequences because students, teachers, and parents are not aware of their potency.

Participant ZRE addressed how CE drugs are misconstrued as safe because they are prescribed to children and adolescents, stating, "cognitive enhancement drugs would not be highly regulated if doctors thought they were as safe as people think they are." However, it is because of the regulation that students and parents perceive this false sense of safety. Kerley et al. (2015) revealed that students consider the use of cognitive enhancers as safe because the government regulates them, they are prescribed by medical professionals, created in clean labs, and come with dispensing direction labels. Responses from student participants echoed this thought. Participant LOZ said she is aware of the highly addictive nature of heroin but did not consider drugs like Ritalin to be equally as addictive or dangerous because they come from a doctor; therefore, she considered them as safe.

Participant ZRE shared how she had a family member who took the CE medication, Vivance off label for weight loss, which led to taking other drugs and eventually addiction. Addiction concerns her the most she proclaims, "if students start depending on these drugs but they are no longer available it can lead to taking street drugs and who knows what else" she describes this behavior as, "a slippery slope" and is in favor of physicians educating both patients and students of the harmful side effects associated with using CE.

Over diagnoses. Another theme relating to safety issues is over diagnoses by physicians leading a saturated market of CE. Participant MHJ shared her concerns regarding the ease of obtaining cognitive enhancing drugs. MHJ stated, “parents are basically self-diagnosis their kids to get them on these drugs” she suggested that maybe parents think that they are helping their kids by providing a competitive edge noting that it is not without a cost. She expressed that, “either way its wrong morally and legally” and, as a lawyer, MHJ, agreed that students should receive a consequence if caught using CE off label. She recommended intervention strategies followed by suspension and or expulsion depending on the level of student and assessment.

Research points to these reasons such as over diagnoses (Loe, 2008; Outram, 2010; Prosek et al., 2018; Stolz, 2012) increases in drug production (Kerley et al., 2015) and lowered threshold in the diagnostic criteria (Miller & Prosek, 2013) as the leading cause for CE abuse. Participants also displayed concerns for students taking prescription drugs without the supervision of a physician. Dosages instructions and interactions with other medications is a serious risk that can be overlooked by students. On the other hand, participants commented that too often doctors are quick to prescribe medications and stressed parents are willing to accept the diagnosis because it offers them a break too. Over diagnosing feeds into the casual mindset that CE drugs are safe therefore lending to a misconception that there is no harm associated with self-administering them.

Fairness. The next theme that emerged was fairness. When teacher participants were asked about their opinions regarding the nonmedical use of prescription stimulants, they all agreed that it was wrong on some level either with regard to its legality, morality, or authenticity. While some stated that it was never okay, participant, ZRE “It’s wrong on all fronts. Students need to find a balance and develop coping strategies and organizational skills,” she championed

early college experience programs that teach these transition skills. She explained as a reading specialist and parent of a pre-school age student the importance of teaching study skills and time management strategies. Sharing her own experience of attending a large college as overwhelming between navigating a huge campus to managing her work-study finding time to do homework was almost impossible. She said that she could understand how students would seek out a crutch but luckily for her she was too afraid to take aspirin never mind prescription drugs.

Unlike other teacher participants, DBA shared how he experienced the negative effects of using CE off-label. "I believe Adderall had the opposite effect on me. I was very jittery and experienced zero focus and productivity". DBA explained that he obtained the pills from a friend who would frequently take CE while in nursing school to study. DBA, a single man, said he did not consider CE as risky but also did not consider them to be effective as a study drug and worried more about his students that were prescribed them but were not taking them. He said he definitely notices a difference when students are off their meds and how it affects their behaviors.

According to Arria and DuPont (2010), inequality of access will lead to an imbalance of competitive fairness. Participants were asked their opinions regarding equal access or availability to all. MHJ explained that there is no real leveling of the playing field when it comes to cognitive enhancement, in her opinion an equal baseline does not exist therefore if everyone was offered these pills the results would not be consistent. UMA agreed, noting that in academics, sports, or any skill set there will never be an equal playing field. Factors such as genetics, environment, or even birth order create an uneven field; therefore, adding an enhancer would not create equality.

Competitiveness. Competitiveness strongly tied in with the theme of fairness. Research reveals that increases in cognitive enhancers are associated with their off-label use for gaining an academic edge (Arria et al., 2008; Ford & Schroeder, 2008; McCabe et al., 2014; Sussman et al., 2006). Teacher responses gathered from the tolerance vignette’s competitive cognitive performance scenario divulge perceptions regarding the off-label use of CE for achieving a competitive edge. Forty-five percent of the respondents strongly disagreed with the characters decision to take cognitive enhancement medications in the competitive scenario for the purpose of achieving a higher score on an interview test. The majority of teacher participants also considered the characters decision to use CE drugs affected others a great deal.

Teacher participants included simple explanations for their responses such as, “unfair advantage” and “taking a prescription not prescribed is illegal and dangerous” to more elaborate descriptions; “I don't believe that anyone should take enhancers of any kind; however, I am not convinced that Ritalin, solely, impacted the results of the numerical reasoning test, and not the mathematical prowess of the character” and “It really reveals that he has low-self-confidence when it comes to preparation. He’ll probably be a DBA employee unless he keeps taking enhancers, which is a rough way to live life. I don't agree with his decision to take them, as he would have scored better. All it did was increase his need for chemical dependence.”

Presentation of the Data and Results

Data from all three sources were compiled to determine how 16 teachers and student participants perceive the ethical implication of the nonmedical use of cognitive enhancing CE drugs within an urban high school in Connecticut. Data analysis of a checklist matrix coupled with triangulation of results concluded that both teachers and students perceive the nonmedical

use of cognitive enhancement medication for academic achievement as wrong however teachers more than students view it as ethically wrong.

Teacher participant GSJ stated, “any enhancement used gain achievement is unethical and should not be tolerated.” Participant UMA who is also a coach explained that if a student athlete is caught using steroids, they are automatically disqualified from playing sports, he agrees that some rules should apply to academic enhancement. Some students candidly admitted that taking cognitive enhancers for their off-label effects was probably not a wise decision, for example, student participant CDE, said that students should spend more time studying and consider the risk of CE. However, others shared the opinion that students justifiably will do what is needed for academic achievement without regard to right or wrong. Student JGN said, “If students can get these drugs to help them succeed then I think they will take advantage of them.”

A checklist matrix was created for the purpose of highlighting similar themes from the semistructured interview transcripts. The checklist matrix served as a valuable tool to assist in organizing and creating categories of frequently occurring topics, which transferred into themes. Following the transcription of the audio recordings, the researcher inserted her notes from the interview. Interview notes were taken during and after the audio recording. In many instances, the participants continued speaking after the recordings ended. The researcher noted that participants were less formal and more candid when they were not recorded. Participant UMA spoke about his college roommate not only abusing Adderall but that he was also using other street drugs. The researcher also observed the teacher participants’ body language was more relaxed and student participants wanted to hear themselves on the recordings.

Grounded theory was used to organize, code, and identify themes from all data sources. The researcher reviewed each transcript first by simply making notes and color-coding similar terms throughout the transcriptions. The researcher then incorporated MS Word searching for key words and adding highlights to organize the data into codes. From the data, the researcher grouped the code into categories for codifying, which Saldaña (2016) described as arranging things in a systematic to be grouped, regrouped, and relinked to apply meaning (p. 8). The researcher found common themes that were matched with the data retrieved from the survey results and the findings of the tolerance vignettes and semistructured interview transcriptions. The researcher combined all data sets to construct themes, which generated analysis or theories.

A checklist matrix developed for each participant group was a helpful tool used to cross-reference and organize the data into categories (see Table 7 and Table 8). The following categories were configured and charted as; health concerns, fairness, doctor supervision, gateway drug, legal, and addiction. Amended teacher and student checklist are provided as examples of data collection.

Table 7

Teacher Amended Checklist

	Health Concerns	Fairness	Doctor Supervision	Gateway Drug	Legal	Addiction
VEM	All drugs have warnings. Not safe	Not fair to others				Students may become dependent
MHJ		If they got caught, they should be disqualified			Taking drugs w/o a prescription is illegal	
LMH	I worry most about how safe this would be. I worry about my kids taking any prescriptions			This can lead to taking other drugs to help them achieve their goals.		
EEZ			If it is not prescribed by the doctor, then it is definitely wrong.			
GSJ	The side-effects out way the risk					This can lead to taking more potent drugs
HRN	It comes down to safety. There are too many negative side-effects.				Taking any drugs off-label is illegal	
DBA			I know students who take it with a prescription from the Dr. It seems like it should be monitored by a physician			
UMA	Overall it is not a safe practice. Way too many side-effects.	Does not level the playing field. There is no fair way to justify enhancement for academics of sports		It worries me if students take CE what other drugs would they be willing to take		

Table 8

Student Amended Checklist

	Health Concerns	Fairness	Doctor Supervision	Gateway Drug	Legal	Addiction
GRZ		I think its unfair for the students who don't use drugs				
LOZ			If someone thinks they need them they should see a doctor			I know someone who will take Adderall and other drugs like marijuana
AWS		It isn't fair. It is like he cheated			I think selling or giving your prescription to someone else is illegal	
GSS	I wonder if students who take these for medical or nonmedical reason are aware of the many side-effects?			This could lead to taking other more serious drugs		
CDE		I guess everyone has a choice to make, whether its fair or not is up to them			I think if people sell their meds that it is illegal, and they would definitely get in trouble	

Table 8 (cont.)

Student Amended Checklist

	Health Concerns	Fairness	Doctor Supervision	Gateway Drug	Legal	Addiction
DAN		I don't consider it a problem in HS but think it will be more of an issue in college especially if it involved getting a job		It's the same as drinking a lot of coffee or one of those energy drinks		
KMN		You should not have to take pills to get good grades				
JGN	Some kids who are supposed to take them don't because they say they don't eat or sleep					

This case study utilized the traditional ethical decision-making model to base the argument of teacher and student perceptions. The ethical decision-making model outlines the three traditional frameworks most commonly utilized as defined in Chapter 2 as the utilitarian, the deontologist, and the agent-centered frameworks. These frameworks assisted in tying the data results by answering the research questions. Analysis from both participant groups and all data sets concluded that the nonmedical use of prescription stimulants raised ethical concerns.

A breakdown of results from the teacher assessments indicated that the nonmedical use of prescription stimulants was wrong in any situation and should not be used to gain an academic advantage. Deontological ethics or duty-based approach coincides with the reasoning that

judgments rely on rightness or wrongness, and consequences do not influence the decisions the goal here is to perform the correct action (Brown University, 2019); therefore, teachers support this ethical framework. Unanimously, teacher participants were against the nonmedical use of prescription stimulants for academic achievement under any circumstance.

Data from the student assessments signified that, when it came to determining the ethics of taking prescription cognitive enhancers nonmedically for academic achievement, their responses relate to all three frameworks. Responses collected from the Tolerance Vignettes highlights statements relating to all paradigms. Replies such as, “Succumbing to drugs is an awful decision and can cause problems because it is illegal to take any type of drugs that are not prescribed to you” related to the duty or deontology framework, highlighting that this decision is wrong and not acceptable. The statement, “I feel that as long as he does not abuse it, then he will be okay” demonstrates a utilitarian viewpoint. The participant perceived that taking CE will produce the most good with the justification of the ends justifying the means. This final example demonstrates virtue ethics, “some people just have different reasoning for what they need and do,” the participant is addressing character rather than actions.

Another interesting finding observed during the semistructured interviews among the participants was gender, parental status, and risk of exposure. The researcher examined that the female participants far more than their male counterparts showed greater concerns related to health issues and side effects. More male participants were okay with “occasional” or “casual” use or doing what needs to be done to get by. Female participants, especially within the teacher population, agreed that there was no justification to take prescription drugs without a prescription and also voiced their hesitation towards the use of legitimate prescription medications. Of the teacher participants who were also parents, several shared opinions regarding their own children

and how their perceptions as parents reflected in their roles as teachers. A final observation was the change in participant behaviors when the audio recording was turned off. The researcher noted that participants displayed a much more relaxed demeanor, often joking, and sharing more personal accounts.

Chapter 4 Summary

Overall, the findings of this case study have determined that teachers and student participants ethically perceive the NMUPS differently for academic achievement. While the consensus of teacher participants agreed that it is wrong to misuse cognitive enhancing medications for the purpose of academic achievement, student participants apply all ethical theories (utilitarian, deontology, and virtue) to how they perceived the NMUPS for academic achievement.

Semistructured interviews, survey questions, and tolerance vignettes were used to gather insightful data towards the perceptions of teachers and high school students regarding the NMUPS. The researcher acquired valuable information on the NMUPS by assessing and analyzing responses from both teachers and students, in addition, she was able to address how to close the gap between what is already know about the NMUPS for academic achievement and the ethical perceptions from high school students and teachers.

Data in forms of semistructured interviews, surveys, and tolerance vignettes provided relevant and valuable information for this case study. Participants were engaged and shared candid responses. Participants provided elaboration and detailed responses to all questions. Participants were also insightful in offering other alternative strategies in place of using CE drugs. Such suggestions include tutoring, study skills courses, summer bridge programs, student

service interventions, substance abuse classes, and physician-generated literature for parent and patient awareness.

Cognitive enhancing drugs such as Adderall and Ritalin are highly sought by students for their off-label effects including extending study sessions, increase focus, and improve academic success (Ford & Schroeder, 2008; Frati et al., 2015; Gallucci et al., 2014; Kerley et al., 2015; Partridge et al., 2013; Prosek et al., 2018). Surges in the production of these drugs resulting from the increases of diagnosis assist in saturating the market for easier access and providing a false sense of safety. Student and teacher participants concurred that they knew at least one person who had an ADD/ADH diagnosis with a legal prescription for CE drugs such as Adderall or Ritalin and agreed that they could be easily acquired. The participants differed in their perspectives on the drugs' safety. Data collected in this case study suggests that while teacher participants consider using cognitive enhancers as risky their student counterparts are less worried about potential side effects.

The case study findings correspond with the research found in the literature review regarding concerns from risky side effects, institution policy, to motives and efficacy. This study concluded that high school students required more information regarding stimulant medication and their potential side effects. Implications included study skills courses, which could assist students in learning alternate study habits, and organizational skills, as well as possibly implementing stricter diagnosis criteria, which may reduce the production of medication that ultimately saturates the market.

Teacher participants displayed the most concern regarding risky side effects, including addiction, mood alteration, and drug reactions, however, the majority of both participant groups concluded that there should be more awareness regarding the misuse or abuse of these substances

and their efficacy. Teacher participants more than students had the ability to cognitively foresee the bigger picture, which included health risk, addiction, CE leading to other substance abuse, and moral integrity whereas the majority of students witnessed this behavior as a personal choice or a quick fix with little if any regard to safety/health risks or long-term effects.

Chapter 5: Discussion and Conclusion

Introduction

The use of prescription cognitive enhancing medication for their nonmedical use is not a new phenomenon. For years, teens and college-aged students have engaged in taking medications such as Adderall and Ritalin for their off-label effects. Students seek these CE drugs to extend study sessions, increase focus, and enhance performance and motivation for achieving academic success (Ford & Schroeder, 2008; Frati et al., 2015; Gallucci et al., 2014; Kerley et al., 2015; Loe, 2008; Partridge et al., 2013; Prosek et al., 2018). Commonly prescribed adolescent medications such as Ritalin and Adderall used to treat ADHD are being illegally obtained and abused to maintain pace in our hyper-competitive society.

Reasons such as over-diagnoses, increased drug production, a lowered threshold in the diagnostic criteria, and student justification contribute to cognitive enhancement misuse. Within a four-year timeframe spanning from 2008 to 2012, Adderall prescriptions tripled to 16 million according to the DEA (DEA, 2018). The 2015 report conducted by the Federal Substance Abuse and Mental Health Services Administration revealed “roughly 137,000 American college students start abusing prescription stimulants each year” (Garasic & Lavazza, 2016).

Misconceptions regarding the safety of these drugs is also a contributing factor. The FDA approved direct to consumer advertising, which falsely misled students and parents and promised better grades in a pill (PBS, 2001a; Schwarz, 2015). What most consumers, especially students, do not realize is that Amphetamine (Adderall) and Methylphenidate (Ritalin) carry a schedule II classification assigned by the DEA for their potential for addiction and abuse, dependency, and adverse impact on physical and psychological health (Bavarian et al., 2013).

Prior literature concentrates its research on motives, acquisition, side effects, social implications, and policy regarding CE drug use. To date, there is little qualitative research to address the gap regarding the ethical perceptions for the nonmedical use of cognitive enhancement drugs specifically for academic achievement regarding high school students and teachers. Qualitative methods to investigate perceptions held by high school students and teachers need to be identified and incorporated into the larger body of research to address this issue. This research included semistructured interviews for rich descriptive personal experience, a survey to measure attitudes, and a tolerance vignette to determine whether or not a competitive versus non-competitive scenario affects perceptions. An analysis of the data from all three sources was used to prove the credibility of the research.

This chapter will discuss the summary of results, results in relations to the literature and any limitations of the study design. Chapter 5 will also provide suggestions for the implication of the results for practice, policy and theory of the research. Lastly, the researcher makes suggested recommendations for future research prior to concluding.

Summary of the Results

The researcher conducted a qualitative case study in an urban high school located in Connecticut. Eight high school students (at least 18 years old) and eight high school teachers were interviewed to investigate their perceptions of the nonmedical use of prescription cognitive enhancers (Adderall or Ritalin) for academic success. Students and teachers also completed an anonymous online Cognitive Enhancer Attitude Assessment (CEAA) survey to rate attitudes and offered their opinions towards a competitive versus non-competitive scenario tolerance vignette. The study was guided by the following two research questions:

RQ1: How do high school students perceive the ethical implication of using study drugs?

RQ2: How do teachers perceive the ethical implication of using study drugs?

Data collected via semistructured face-to-face interviews, CEAA survey, and opinions generated through tolerance vignettes based on character agreement via Qualtrics answered the research questions. Data were coded to establish patterns which intern generated themes to connect identified categories (Saldaña, 2016). Analysis of the semistructured interviews, CEAA survey and tolerance vignettes coupled with the three traditional ethical frameworks provided valuable information to answer the research questions and tie the ethical perceptions of students and teachers to their perceptions.

The purpose of this study was to gain insight into how students and teachers view the nonmedical use of cognitive enhancers for academic achievement. Perceptions were gauged on participants' knowledge of cognitive enhancers coupled with expounding on personal experiences and influences generated through environmental and media exposure. Prescriptions for stimulant medication have steadily increased over the past 10 years, with about 3% to 5% being college students who admit to diverting their medication either by selling, giving, or loaning them to someone (Ross, Flores, Bertram, Johnson, & Hyson, 2017). Information obtained in this study may be useful to provide preventative resources and alternative strategies for reducing these behaviors prior to entering college as well as implementing early intervention programs during secondary and formative education.

Discussion of the Results

The findings of this single case study revealed that ethical perceptions of high school students and teachers varied regarding the nonmedical use of cognitive enhancement medication when used for academic success. The research questions addressed the perceptions of high school students and high school teachers, which showed, mixed views. While some students

were not aware of using CE medications for academic success, some thought that it would be morally wrong to take prescription medications that were not prescribed to them. Meanwhile, others thought that it was okay occasionally to get by. Teacher respondents thought that some students benefited from doctor supervised medications for ADHD or medically needed CE; however, all teacher participants were morally against using them off-label for academic advantage.

The student population cited unfair advantages as the primary reason that they were against NMUPSs while teachers were more concerned with health issues. Participants stated that it would not be fair if some students had access to CE and or other enhancement aid. Some participants said that they were aware of students who took drugs like Adderall from their siblings to help them stay awake to complete assignments.

In responding to the vignettes, student participants either agreed or somewhat agreed with the characters' decision when taking CE in both competitive and non-competitive scenarios. Anonymous response from the student participants to the tolerance vignette stated, "I think the character made his own choice and he did what he thought was the best thing to do." Another anonymous student shared a similar response stating, "even though he did something not right he passed his class by himself even if he didn't do it by himself." Students also agreed that the characters decision to use CE had a moderate effect on others in competitive and non-competitive scenarios. An example is the following explanation provided by a student participant, "It's not fair to give yourself an edge to better your chances while everyone else has to deal with their regular ability to concentrate".

The majority, 70%, of teacher respondents strongly agreed that students should consider the risks of using "smart pills" before taking them. Teacher participants regarded the dangers of

taking CE without the supervision of a physician. They showed concern towards dosage amount and combining CE medications with other prescriptions. Teachers also regarded efficacy and students increasing doses to maximize their effects. Teacher participant HEM shared her fears that teens are not apprised of the dangers associated with prescription drugs. However, the majority of students (36%) were most concerned with being informed about the risk and possibilities of “smart pills.” Student participants stated that they either did not know about using CE for nonmedical reasons or that there should be more awareness or education regarding misuse.

Responses from the CEAA survey question "is illegal to take “smart pills” yielded that 39% of teachers agreed with this statement while only 18% of students shared this same response; furthermore, the majority 25% somewhat disagreed. Some students did not consider the use of CE as illegal because they view prescription drugs as safe and differentiate them from illegal street drugs. One student participant stated, “As long as it is not being abused, it is ok” therefore justifying the character's action.

Last, some responses included statements suggesting that if students felt the need to take pills to achieve better grades, they should seek out professional guidance to obtain a legal prescription. Participants stated that if a student felt the need to take CE to help them focus then they should seek a prescription from a physician. The majority of student participants (25%) somewhat disagree to the statement “I think that it is illegal to take smart pills”, 34% strongly disagreed that “smart pills should be freely accessible” and the highest consensus (49%) strongly agreed that “students should be informed about the risk and possibilities of smart pills.”

Participants from both groups stated that they did not know enough about CE being used to gain

achievement and where not aware of the risky side effects or the required monitoring associated with taking CE on or off label.

Tolerance vignettes were comparable for both competitive and non-competitive scenarios. When asked about the characters effects on others, students equally rated both scenarios as “moderate amount” however, more students (23%) “Somewhat disagree” to the character's decision in the competitive scenario, whereas (22%) “Agree” with the character's decision in the non-competitive scenario. Student responses included explanations such as, “The character has an unfair advantage due to his use of pharmaceuticals.”

Teacher respondents differed from student participants. In both competitive and non-competitive scenarios teachers “Strongly disagreed” with the characters decision to take CE drugs they also reported that the characters’ decision affected others “A great deal” for the competitive scenario however their responses were equally divided between “A great deal”, “A lot”, and “A moderate amount” for the non-competitive scenario. Teachers regarded the unfair advantage in the following statements, “I again feel this is an unfair advantage and could be the beginning of a pattern of usage’, “I do not agree with his decision to take the Ritalin. Many students take exams and experience pressure daily and need to take responsibility for their actions without taking a non-prescribed drug.”

Discussion of the Results in Relation to the Literature

The purpose of this study was to determine how high school students and teachers perceive the ethical implication regarding the nonmedical use of prescription stimulants for cognitive enhancement. Ford and Ong (2014) found that students, particularly emerging college-aged, are at the highest risk for illicit use of cognitive enhancers. *A National Internet Survey of Nonmedical Use and Diversion of ADHD Stimulants Among U.S. Adults Ages 18-49* reported the

primary motivation was increasing alertness followed by enhancing academic or work performance. Participants in this study considered the off-label use of CE as a potential stepping-stone to addiction and other health-related issues. Participants voiced their concerns regarding CE as a gateway to using other prescription drugs for nonmedical reasons or abusing street drugs to obtain other effects.

Participants expounded on past research concerning motives, acquisition, side effects, social implications, and policy. Participants candidly expressed their thoughts regarding the ease of acquiring CE whether through peer acquisition or falsifying symptoms to obtain a physician's prescription. Ross et al. (2017) concluded that about 3% to 5% of college students have a prescription for CE drugs and of that more than one-third report diversion.

Student participants said that they could easily obtain CE prescriptions from younger siblings and friends. Some also explained that it would be easy to get a legal prescription from their doctor. Cassidy et al. (2015) found that the primary source of diversion is among family and friends. Mohamed (2014) reports that the uses of pharmacological cognitive enhancers are becoming common due to increasing demands and overproduction. Students were confident that falsifying ADHD symptoms would not be difficult. Although other medications have approval for ADHD treatment, Cassidy et al. (2015) reported psychostimulants are typically the first line of drug treatment. Ultimately introducing adolescence as young as five and six years old to potentially dangerous drugs.

Intensified media exposure contributes to the social implications as noted by participants. Some participants credit television and news media as their source of education regarding CE taken off label for academic achievement while others claim that many media platforms dramatize the use of CE as acceptable or as a necessity for keeping up. Student and teacher

participants referenced popular television shows that highlighted the off-label use of drugs such as Adderall to maintain pace or advance academically for a competitive edge. The social learning theory described by Ford and Ong (2014) demonstrated that behaviors become normative due to social influences. Student behaviors reflect this phenomenon by merely accepting CE drugs use as normative for both medical and nonmedical uses. Infusing CE drugs into pop culture television adds as an additional layer for exposing the misleading effects of Adderall as a smart pill, which is still a debatable issue among researchers.

Participants agreed that preventative measures coupled with educational resources and early intervention strategies are a priority regarding the off-label use of cognitive enhancers for academic achievement. Both student and teacher participants were unapprised of the possible risky health and social side effects of taking CE's. Student and teacher participants confessed that they had little knowledge regarding CE potential for abuse and addiction.

Participants acknowledged the need for greater educational exposure towards the off label uses of taking prescription drugs that are typically considered harmless by most. Although current research is divided on whether preventative efforts are effective (Bavarian et al., 2013), others are hopeful that misuse will taper (Gallucci et al., 2014; Prosek et al., 2018; Stolz, 2012). Suggestions include incorporating the risks of CE drugs during substance abuse classes, stricter prescribing guidelines, integration of a physician, parent, patient education component, public service announcements, and freshman seminars may assist in reducing prescription stimulant misuse and abuse.

Student participants displayed the most significant concern towards fairness especially towards the use of CE during competitive situations whereas teacher participants displayed concerns towards risky behavior and health issues. Morally, teacher participants did not consider

any justifications towards the NMUPS, whereas student participants differed in their ethical viewpoints. While some students agreed that it was never acceptable others consider occasional use to be acceptable and or a personal choice, by statements such as, “if it is used to stay awake to complete work occasionally it is ok”. However, all participants agreed that there is a need for increased awareness and additional educational recourses for all stakeholders.

Limitations

The limitations of this study include sample size and demographics. Small sample sizes can make it difficult to find significant relationships, and “sample sizes that are too small cannot adequately support claims of having achieved valid conclusions” (USC Libraries, 2019). The study took place in one urban high school, which cannot be generalizable. In addition, it cannot be known if this high school prioritizes academic achievement by the student population.

Limitations of the combined teacher and student population included limited knowledge of CE drugs for academic achievement.

The sample size was a limitation based on the student participant’s age (18 or older) this decreased the size of the available student participant sample. Teacher participant sample was also limited. Many teachers stated that they either did not know if the survey was authentic and or that that they did not trust that the information was going to be anonymous. The data collection took place during the early part of the senior year, which could be a limitation because students may not be as concentrated on grades, standardized testing, and midterms or finals.

Valuable information gathered from the tolerance vignettes was collected via a written statement by participants which in some instances was incomplete and or could have generated greater rich descriptive feedback through probing techniques often conducted within the interview platform. Though the researcher noted that both participant groups spoke more openly

when the recording device was turned off, she still would have had the opportunity to take notes and make observations relative to the participants' responses.

In addition, the researcher cannot guarantee that the answers provided by the participants were truthful based on the sensitive nature of the studied topic. Self-reported data can be reported with bias and cannot be verified (USC Libraries, 2019). In addition, participants could have a guarded response to the interview questions because of the researchers' role as a school counselor.

Implication of the Results for Practice, Policy, and Theory

This case study was implemented to discover the ethical perceptions held by high school students and teachers regarding the NMUPS for academic achievement to evaluate the need for alternative study strategies. The results of the study suggest weighing the personal cost of taking illegal prescriptions for achievement. Reflecting on the pressure society continues to convey to students may assist in future research and propose alternative options for achieving academic success without engaging in risky behaviors.

Incorporating awareness education through substance abuse curriculums, and or youth coalitions may act as an initial step for early intervention and prevention initiatives. Participant responses indicated that the lack of education concerning NMUPS has resulted in a naïve audience. Educating students and parents on the chemical composition and physiological and psychological effects coupled with providing a greater understanding regarding the efficacy of prescription stimulants when used for nonmedical reasons could also work to reduce behaviors. Executing healthy alternatives for managing stress, developing organizational skills, and coping with academic pressures while balancing other responsibilities may also work to discourage the nonmedical use of prescription stimulant use. Finally, college and university leaders may want

to further investigate perceptions from professors and administrators regarding NMUPS as cheating with consideration of implementing a code of conduct, which could act as a deterrent towards potential use.

Addressing misconceptions in addition to highlighting potential risky side-effects students and parents can gain thoughtful insight regarding the NMUPS. Perceptions obtained through teacher and student surveys; interviews and questionnaires provided data that suggest the need for intervention through increased awareness, accurate information, and further education are necessary. Incorporating physicians as part of the conversation may act as an essential link for eliminating these behaviors and paying closer attention to why students are seeking CE drugs and providing detailed information regarding diversion and misuse. Parents may also consider being mindful of changes in moods, especially during stressful academic time frames such as standardized testing periods, exams, and finals. Additionally, they may want to discourage the use of any stimulant for nonmedical reasons and instead look to infuse healthy habits to reduce stress, establish structured study skills and effective time management strategies.

The lens of this case study was constructed through the traditional ethical framework to evaluate perceptions of high school students and teachers regarding the NMUPS for academic achievement. The results of this case study revealed through the conceptual framework were that student participants are morally confounded when applying ethical perceptions to the NMUPS. They can identify with all three traditional ethical frameworks and apply their views according to the individual situation. Whereas teacher participants were steadfast in their perceptions that under any circumstance NMUPS was morally wrong and should never be an option.

Recommendations for Further Research

Addressing ethical perceptions of high school students and high school teachers regarding the nonmedical use of cognitive enhancers for academic achievement fills a gap in the research that has not yet been explored in literary form. Although this case study explores perceptions towards the use of CE drugs within a small population, further exploration could prove invaluable towards tailoring CE misuse and abuse. Recommendations for further research include incorporating a broader sample size, parents as part of the sample, and a longitudinal design to track participants at various ages and educational levels.

Broader sample. This study should be replicated using a larger sample size including different demographics from economic, geographic locations, private high schools, and college students. Many participants in this study suggested that CE was not an issue in urban districts but may be more prevalent in a competitive suburban district or a higher social-economic district. Past literature highlights multiple studies regarding the NMUPS among college students nationwide however further investigation of perceptions across these demographics could close the research gap within the population of high school students.

Parent surveys. Five teacher participants were also parents of children ranging from pre-school age through college graduate. The researcher observed that these participants interjected their parental views when responding to interview questions. A replicated survey incorporating parents' feedback could provide information regarding how parents perceive the NMUPS for high school students. Parent surveys could also provide information regarding the need for parental awareness and education.

Longitudinal design. A study that considers perceptions of CE drugs at various ages (high school, college, post-college, and at specified ages) may provide information on how an

individual perceives NMUPS across time. Additional research could consider a comparative study regarding current knowledge to future knowledge following awareness education.

Additionally, data linking the NMPSU as a gateway drug to other drug use would also be beneficial to research.

Conclusion

Results from the semistructured interviews revealed that many participants in this study had limited knowledge regarding the nonmedical use of prescription stimulants for the purpose of academic achievement. Participants shared their concerns for safety, fairness, addiction, peer acceptance, media exposure, and efficacy. Themes emerged from the data collected through semistructured interviews, cognitive enhancing assessment survey, and a tolerance vignette ultimately drove this case study from research to theory.

Tolerance vignettes allowed participants to expound upon their opinions regarding the NMUPS in competitive and non-competitive situations. These scenarios uncovered that the teacher's level of tolerance remained consistent in either scenario, but that student responses were divided across levels of acceptance and views regarding affects on others. Teacher and student participants suggested if a student felt the need to take cognitive enhancements for any reason, they should seek the opinion of a physician.

The results of this study indicated that the nonmedical use of prescription stimulant for academic achievement was perceived more unethical by teacher participants than by student participants. Teachers were more than students to highlight harmful side effects, concern for addiction with the possibility of transitioning to other drug use and abuse. Student participants concentrated the majority of their concerns on fairness. All participants recognized the

importance for physician supervision however student participants were more lenient towards the occasional use.

This dissertation has addressed the gap in the literature regarding perceptions for the nonmedical use of prescription stimulants for academic achievement among high school students and teachers. This case study concludes that students and teachers perceive the use of prescription stimulants differently. Teacher participants revealed that using stimulant medications for academic achievement as morally wrong. The three traditional frameworks, Utilitarian, Deontology, and Virtue divide the perceptions of the student participants. Further analysis could reveal how these perceptions might shift with age, profession, and parental status.

References

- Adams, K., & Lawrence, E. (2015). *Research methods, statistics, and applications*. Thousand Oaks, CA: Sage.
- Advokat, C., & Scheithauer, M. (2013). Attention-deficit hyperactivity disorder (ADHD) stimulant medications as cognitive enhancers. *Frontiers in Neuroscience, 7*, 82, 1–8. doi:10.3389/fnins.2013.00082
- Aikins, R. D. (2011). Academic performance enhancement: A qualitative study of the perceptions and habits of prescription stimulant–using college students. *Journal of College Student Development, 52*(5), 560–576. doi:10.1353/csd.2011.0064
- Al Achkar, M., Revere, D., Dennis, B., MacKie, P., Gupta, S., & Grannis, S. (2017). Exploring perceptions and experiences of patients who have chronic pain as state prescription opioid policies change: a qualitative study in Indiana. *BMJ Open, 7*(11), 1–9. e015083. doi:10.1136/bmjopen-2016-015083
- Amonini, C., & Donovan, R. J. (2006). The relationship between youth’s moral and legal perceptions of alcohol, tobacco and marijuana and use of these substances. *Health Education Research, 21*(2), 276–286. doi:10.1093/her/cyh064
- Andersen, S. L. (2005). Stimulants and the developing brain. *Trends in Pharmacological Sciences, 26*(5), 237–243. doi:10.1016/j.tips.2005.03.009
- Arria, A. M., Caldeira, K. M., Vincent, K. B., O’Grady, K. E., & Wish, E. D. (2008). Perceived harmfulness predicts nonmedical use of prescription drugs among college students: Interactions with sensation-seeking. *Prevention Science, 9*(3), 191–201. doi:10.1007/s11121-008-0095-8

- Arria, A. M., & Dupont, R. L. (2010). Nonmedical prescription stimulant use among college students: Why we need to do something and what we need to do. *Journal of Addictive Diseases, 29*(4), 417–426. doi:10.1080/10550887.2010.509273
- Arria, A. M., Wilcox, H. C., Caldeira, K. M., Vincent, K. B., Garnier-Dykstra, L. M., & O’Grady, K. E. (2013). Dispelling the myth of “smart drugs”: Cannabis and alcohol use problems predict nonmedical use of prescription stimulants for studying. *Addictive Behaviors, 38*(3), 1643–1650. doi:10.1016/j.addbeh.2012.10.002
- Bavarian, N., Flay, B. R., Ketcham, P. L., & Smit, E. (2013). Illicit use of prescription stimulants in a college student sample: A theory-guided analysis. *Drug and Alcohol Dependence, 132*(3), 665–673. doi:10.1016/j.drugalcdep.2013.04.024
- Benson, K., Flory, K., Humphreys, K. L., & Lee, S. S. (2015). Misuse of stimulant medication among college students: A comprehensive review and meta-analysis. *Clinical Child and Family Psychology Review, 18*(1), 50–76. doi:10.1007/s10567-014-0177-z
- Benson, T. (2015). *The surprising history of Adderall*. Retrieved from <https://www.attn.com/stories/2000/history-amphetamines-united-states>
- Bertholet, N., Faouzi, M., Studer, J., Daeppen, J. B., & Gmel, G. (2013). Perception of tobacco, cannabis, and alcohol use of others is associated with one’s own use. *Addiction Science & Clinical Practice, 8*(1), 1–9. doi:10.1186/1940-0640-8-15
- Borgmann, A. (2006). *Real American ethics: Taking responsibility for our country*. Chicago, IL: University of Chicago Press.
- Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research, 8*(1), 137–152. doi:10.1177/1468794107085301

- Brown University. (2019). *Making choices: A framework for making ethical decisions*. Providence, RI: Self. Retrieved from Brown.edu/academics/science-and-technology-studies/framework-making-ethical-decisions
- Brugger, C. (2017, April 21). *Legalization of marijuana: Some ethical reflections on pot smoking*. Retrieved, from <http://www.cultureoflife.org/2013/02/20/legalization-marijuana-some-ethical-reflections-pot-smoking/>
- Cabrera, L. Y., Fitz, N. S., & Reiner, P. B. (2015). Reasons for comfort and discomfort with pharmacological enhancement of cognitive, affective, and social domains. *Neuroethics*, 8(2), 93–106. doi:10.1007/s12152-014-9222-3
- Cassidy, T. A., Varughese, S., Russo, L., Budman, S. H., Eaton, T. A., & Butler, S. F. (2015). Nonmedical use and diversion of ADHD stimulants among U.S. adults ages 18–49: A national internet survey. *Journal of Attention Disorders*, 19(7), 630–640. doi:10.1177/1087054712468486
- Centers for Disease Control. (2013). ADHD throughout the years. *Attention-Deficit/Hyperactivity Disorder (ADHD)*. Retrieved from <http://www.cdc.gov/ncbddd/adhd/timeline.html>
- Chatterjee, A. (2006). The promise and predicament of cosmetic neurology. *Journal of Medical Ethics*, 32(2), 110–113. doi:10.1136/jme.2005.013599
- Chatterjee, A. (2009). Is it acceptable for people to take methylphenidate to enhance performance? No. *British Medical Journal*, 338(June), 1532–1533. doi:10.1136/bmj.b1956
- Chatterjee, A. (2013). The ethics of neuroenhancement. *Handbook of Clinical Neurology*, 118, 323–334. doi:10.1016/B978-0-444-53501-6.00027-5

- Creswell, J. W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2013). *Qualitative research & inquiry design: Choosing among five approaches*. Thousand Oaks, CA: Sage.
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), 1–130.
- DeSantis, A., Noar, S. M., & Webb, E. M. (2008). Illicit use of prescription ADHD medications on a college campus: A multimethodological approach. *Journal of American College Health*, 57(3), 315–323. doi:10.3200/JACH.57.3.315-324
- DeSantis, A. D., & Hane, A. C. (2010). “Adderall is definitely not a drug”: Justifications for the illegal use of ADHD stimulants explanations for the illegal use of ADHD stimulants. *Substance Use and Misuse*, 45(1–2), 31–46. doi:10.3109/10826080902858334
- Dodge, T., Williams, K. J., Marzell, M., & Turrisi, R. (2012). Judging cheaters: Is substance misuse viewed similarly in the athletic and academic domains? *Psychology of Addictive Behaviors*, 26(3), 678–682. doi:10.1037/a0027872
- Dresler, M., Sandberg, A., Ohla, K., Bublitz, C., Trenado, C., Mroczko-Wasowicz, A., ... Repantis, D. (2013). Non-pharmacological cognitive enhancement. *Neuropharmacology*, 64, 529–543. doi:10.1016/j.neuropharm.2012.07.002
- Driver, J. (2014). The History of Utilitarianism, In E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2014 Edition). Retrieved from <https://plato.stanford.edu/archives/win2014/entries/utilitarianism-history/>
- Drugabuse.com. (2019). *Introduction to Adderall*. Retrieved from https://drugabuse.com/featured/rise-of-the-study-drug-adderall/#.XEE6ES_Mw_N

- Farah, M. J. (2015). The unknowns of cognitive enhancement. *Science*, 350(6259), 379–380.
doi:10.1126/science.5893
- Farah, M. J. (2002, November 1). Emerging ethical issues in neuroscience. *Nature Neuroscience*, 5(11), 1123. doi:10.1038/nn1102-1123
- Flick, U. (2013). *The SAGE handbook of qualitative data analysis*. Thousand Oaks, CA: Sage.
- Ford, J. A., & Ong, J. (2014). Non-medical use of prescription stimulants for academic purposes among college students: A test of social learning theory. *Drug and Alcohol Dependence*, 144, 279–282. doi:10.1016/j.drugalcdep.2014.09.011
- Ford, J. A., & Schroeder, R. D. (2008). Academic strain and non-medical use of prescription stimulants among college students. *Deviant Behavior*, 30(1), 26–53.
doi:10.1080/01639620802049900
- Ford, J. A., & Pomykacz, C. (2016) Non-medical use of prescription stimulants: A comparison of college students and their same-age peers who do not attend college, *Journal of Psychoactive Drugs*, 48(4), 253–260. doi: 10.1080/02791072.2016.1213471
- Franke, A. G., Lieb, K., & Hildt, E. (2012). What users think about the differences between Caffeine and illicit/prescription stimulants for cognitive enhancement. *PLoS ONE*, 7(6), 1–7. doi:10.1371/journal.pone.0040047
- Frati, P., Kyriakou, C., Rio, A., Marinelli, E., Vergallo, G., Zaami, S., & Busardo, F. (2015). Smart drugs and synthetic androgens for cognitive and physical enhancement: revolving doors of cosmetic neurology. *Current Neuropharmacology*, 13(1), 5–11.
doi:10.2174/1570159X13666141210221750
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9), 1408–1416.

- Gagnon, Y. (2010). *The case study as research method: A practical handbook*. Québec, Canada: Presses de l'Université du Québec.
- Gallucci, A. R., Usdan, S. L., Martin, R. J., & Bolland, K. A. (2014). Pill popping problems: The non-medical use of stimulant medications in an undergraduate sample. *Drugs: Education, Prevention and Policy*, *21*(3), 181–188. doi:10.3109/09687637.2013.848840
- Garasic, M. D., & Lavazza, A. (2016). Moral and social reasons to acknowledge the use of cognitive enhancers in competitive-selective contexts. *BMC Medical Ethics*, *17*(1), 1–12. doi:10.1186/s12910-016-0102-8
- Goode, E. (2012). *Drugs in American Society* (8th ed). New York, NY: McGraw Hill.
- Goodman, R. (2010). 11 Goodman 2010. *Kennedy Institute of Ethics Journal*, *20*(2), 145–160. doi:10.1353/ken.0.0309
- Harris, J., & Chatterjee, A. (2009). Head to head: Is it acceptable for people to take methylphenidate to enhance performance? *BMJ: British Medical Journal*, *338*, 1532–1533. doi:10.1136/bmj.b1955
- Hartung, C. M., Cleveland, C. S., Mignogna, M. J., Correia, C. J., Canu, W. H., Lefler, E. K., & Clapp, J. D. (2013). Stimulant medication use in college students: Comparison of appropriate users, misusers, and nonusers. *Psychology of Addictive Behaviors*, *27*, 832–840. doi:10.1037/a0033822
- Hoagwood, K., Duan, N., Horwitz, S. M., Wisdom, J. P., Palinkas, L. A., & Green, C. A. (2013). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, *42*(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>

- Hoskin, R. (2012, March 3). *The dangers of self-report*. Retrieved from <https://www.sciencebrainwaves.com/the-dangers-of-self-report/>
- Ilieva, I. P., & Farah, M. J. (2013). Enhancement stimulants: Perceived motivational and cognitive advantages. *Frontiers in Neuroscience*, 7, 1–6. doi:10.3389/fnins.2013.00198
- Ilieva, I. P., Hook, C. J., & Farah, M. J. (2015). Prescription stimulants' effects on healthy inhibitory control, working memory, and episodic memory: A meta-analysis. *Journal of Cognitive Neuroscience*, 27(6), 1069–1089. doi:10.1162/jocn_a_00776
- Jacobs, A. (2005, July 31). *The Adderall advantage*. Retrieved from <http://www.nytimes.com/2005/07/31/education/edlife/the-adderall-advantage.html>
- Jenkins, P. (1999). *Synthetic panics: The symbolic politics of designer drugs*. New York, NY: New York University Press.
- Kemerling, G. (2011). *Aristotle: Ethics and the virtues*. Retrieved, from <http://www.philosophypages.com/hy/2s.htm>
- Kent, J. L. (2013, October 29). *Adderall: America's favorite amphetamine*. Retrieved February 23, 2018 from https://www.huffingtonpost.com/high-times/adderall-amphetamine_b_4174297.html
- Kerley, K. R., Copes, H., & Griffin, O. H. (2015). Middle-class motives for non-medical prescription stimulant use among college students. *Deviant Behavior*, 36(7), 589–603. doi:10.1080/01639625.2014.951573
- Lange, K. W., Reichl, S., Lange, K. M., Tucha, L., & Tucha, O. (2010). The history of attention deficit hyperactivity disorder. *Atten. Defic. Hyperact. Disord.*, 2(4), 241–255. doi:10.1007/s12402-010-0045-8

- León, K. S., & Martínez, D. E. (2017). To study, to party, or both? Assessing risk factors for non-prescribed stimulant use among middle and high school students. *Journal of Psychoactive Drugs*, 49(1), 22–30. doi:10.1080/02791072.2016.1260187
- Loe, M. (2008). The prescription of a new generation. *American Sociological Association*, 7(2), 46–49.
- Low, K. G., & Gendaszek, A. E. (2002). Illicit use of psychostimulants among college students: A preliminary study. *Psychology, Health and Medicine*, 7(3), 283–287. doi:10.1080/13548500220139386
- Lichtman, M. (2010). *Qualitative research in education: A users guide*. Los Angeles, CA: Sage.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Lipari, R. N. (2015, August 27). *Monthly variation in substance use initiation among full-time college students*. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK343541/>
- Maier, L. J., Liechti, M. E., Herzig, F., & Schaub, M. P. (2013). To dope or not to dope: Neuroenhancement with prescription drugs and drugs of abuse among Swiss university students. *PLoS ONE*, 8(11), 1–11. doi:10.1371/journal.pone.0077967
- Maslen, H., Faulmüller, N., & Savulescu, J. (2014). Pharmacological cognitive enhancement how neuroscientific research could advance ethical debate. *Frontiers in Systems Neuroscience*, 8, 1–12. doi:10.3389/fnsys.2014.00107
- McCabe, S. E., West, B. T., Teter, C. J., & Boyd, C. J. (2014). Trends in medical use, diversion, and nonmedical use of prescription medications among college students from 2003 to 2013: Connecting the dots. *Addictive Behaviors*, 39(7), 1176–1182. doi:10.1016/j.addbeh.2014.03.008

- McMillan, J. H. (2012). *Educational research: Fundamental for the consumer* (6th ed.). New York, NY: Harper Collins College Publishers.
- Miller, R., & Prosek, E. A. (2013). Trends and implications of proposed changes to the DSM-5 for vulnerable populations. *Journal of Counseling & Development, 91*, 359–366. doi:10.1002/j.1556-6676.2013.00106.x
- Mohamed, A. D. (2014). Neuroethical issues in pharmacological cognitive enhancement. *Wiley Interdisciplinary Reviews: Cognitive Science, 5*(5), 533–549. doi:10.1002/wcs.1306
- Moore, D. R., Burgard, D. A., Larson, R. G., & Ferm, M. (2014). Psychostimulant use among college students during periods of high and low stress: An interdisciplinary approach utilizing both self-report and unobtrusive chemical sample data. *Addictive Behaviors, 39*(5), 987–993. doi:10.1016/j.addbeh.2014.01.021
- Outram, S. (2010). The use of methylphenidate among students: The future of enhancement? *Journal of Medical Ethics, 36*(4), 198–202.
- Palamar, J. J., & Le, A. (2017). Discordant reporting of nonmedical amphetamine use among Adderall-using high school seniors in the US. *Drug and Alcohol Dependence, 181*, 208–212. <https://doi.org/10.1016/j.drugalcdep.2017.09.033>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>
- Partridge, B., Bell, S., Lucke, J., & Hall, W. (2013). Australian university students' attitudes towards the use of prescription stimulants as cognitive enhancers: Perceived patterns of

use, efficacy and safety. *Drug and Alcohol Review*, 32(3), 295–302.

doi:10.1111/dar.12005

Petróczi, A., & Aidman, E. (2009). Measuring explicit attitude toward doping: Review of the psychometric properties of the Performance Enhancement Attitude Scale. *Psychology of Sport and Exercise*, 10(3), 390–396. doi:10.1016/j.psychsport.2008.11.001

Prosek, E. A., Giordano, A. L., Turner, K. D., Bevly, C. M., Reader, E. A., LeBlanc, Y. ... & Garber, S. A. (2018). Prevalence and correlates of stimulant medication misuse among the collegiate population. *College Student Psychotherapy*, 32(1), 10–22.

doi:10.1080/87568225.2017.1313691

Public Broadcasting System (PBS). (2001a). *Medicating kids: Interview with Dr. Lawrence Diller*. Retrieved from

<https://www.pbs.org/wgbh/pages/frontline/shows/medicating/interviews/diller.html>

Public Broadcasting System (PBS). (2001b). *Medicating kids: Statistics on stimulant use*.

Retrieved from

<https://www.pbs.org/wgbh/pages/frontline/shows/medicating/drugs/stats.html>

Rabiner, D. L., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., McCabe, S. E., & Swartzwelder, H. S. (2009). Motives and perceived consequences of Nonmedical ADHD medication use by college students: Are students treating themselves for attention problems? *Journal of Attention Disorders*, 13(3), 259–270.

doi:10.1177/1087054708320399

Rasmussen, N. (2008, June 1). America's first amphetamine epidemic 1929–1971: A quantitative and qualitative retrospective with implications for the present. *American Journal of Public Health*, 98(6), 974–985. doi:10.2105/AJPH.2007.110593

- Rosenman, R., Tennekoon, V., & Hill, L. G. (2011). Measuring bias in self-reported data. *International Journal of Behavioural and Healthcare Research*, 2(4), 320–332.
<https://doi.org/10.1504/ijbhr.2011.043414>
- Ross, M. T., Flores, D., Bertram, R., Johnson, F., & Hyson, R. L. (2017). Neuronal intrinsic physiology changes during development of a learned behavior. *Eneuro*,
[doi:10.1523/ENEURO.0297-17.2017](https://doi.org/10.1523/ENEURO.0297-17.2017)
- Saldaña, J. (2016). *The Coding manual for qualitative researchers*. Los Angeles, CA: SAGE
- Sattler, S., Sauer, C., Mehlkop, G., & Graeff, P. (2013). The rationale for consuming cognitive enhancement drugs in university students and teachers. *PLoS ONE*, 8(7), 1–12.
[doi:10.1371/journal.pone.0068821](https://doi.org/10.1371/journal.pone.0068821)
- Seaman, A. M. (2016, December 28). *Teens' view of pot changed in one state after legalization*. Retrieved, from <https://www.reuters.com/article/us-health-marijuana-teens/teens-view-of-pot-changed-in-one-state-after-legalization-idUSKBN14G1BG>
- Semans, D. (2009). *Qualitative research- When the “why” is more important than the “how many.”* Retrieved from <http://ezinearticles.com/?Qualitative-Research---When-the-Why-is-More-Important-Than-the-How-Many&id=2737268>
- Schelle, K. J., Olthof, B. M. J., Reintjes, W., Bundt, C., Gusman-Vermeer, J., & van Mil, A. C. C. M. (2015). A survey of substance use for cognitive enhancement by university students in the Netherlands. *Frontiers in Systems Neuroscience*, 9, 1–11.
[doi:10.1016/j.ijleo.2017.06.044](https://doi.org/10.1016/j.ijleo.2017.06.044)
- Schutt, R. K. (2012). *Investigating the social world: the process and practice of research*. Los Angeles, CA: Sage.

- Schwarz, A. (2015, April 19). Workers seeking productivity in a pill are abusing A.D.H.D. Drugs. *New York Times*, 1-6. Retrieved from <https://www.nytimes.com/2015/04/19/us/workers-seeking-productivity-in-a-pill-are-abusing-adhd-drugs.html>
- Silvestri, M. M., & Correia, C. J. (2016). Normative influences on the nonmedical use of prescription stimulants among college students. *Psychology of Addictive Behaviors*, 30(4), 516–521. doi:<http://dx.doi.org.cupdx.idm.oclc.org/10.1037/adb0000182>
- Smith, M. E., & Farah, M. J. (2011). Are prescription stimulants “smart pills”? The epidemiology and cognitive neuroscience of prescription stimulant use by normal healthy individuals. *Psychological Bulletin*, 137(5), 717–741. doi:10.1037/a0023825
- Stake, R. E. (2010). *Qualitative Research: Studying How Things Work*. New York, NY: Guilford Press.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Stoeber, J., & Hotham, S. (2016). Perfectionism and attitudes toward cognitive enhancers (“smart drugs”). *Personality and Individual Differences*, 88, 170–174. doi:10.1016/j.paid.2015.09.011
- Stolz, S. (2012). Chalk talks – Adderall abuse: Regulating the academic steroid. *Journal of Law and Education*, 41(3), 585–592.
- Sussman, S., Pentz, M. A., Spruijt-Metz, D., & Miller, T. (2006). Misuse of “study drugs:” prevalence, consequences, and implications for policy. *Substance Abuse Treatment, Prevention, and Policy*, 1, 1–7. doi:10.1186/1747-597X-1-15

- Szalavitz, M. (2012, June 11). *Teens taking ADHD drugs to get good grades: How big a problem is it?* Retrieved, from <http://healthland.time.com/2012/06/11/kids-taking-adhd-drugs-to-get-good-grades-how-big-a-problem-is-it/>
- Teter, C. J., McCabe, S. E., LaGrange, K., Cranford, J. A., & Boyd, C. J. (2006). Illicit use of specific prescription stimulants among college students: Prevalence, motives, and routes of administration. *Pharmacotherapy*, 26(10), 1501–1510. doi:10.1592/phco.26.10.1501
- The Yale Tribune. (2018, May 11). *College students continue abusing ADHD medications*. New Haven, CT: Self. Retrieved from <https://campuspress.yale.edu/tribune/college-students-continue-abusing-adhd-medications/>
- Time Inc. (1937, May 10). Medicine: Pep-pill poisoning. *Time*. Retrieved from <http://content.time.com/time/magazine/article/0,9171,757775,00.html>
- Urban, K. R., & Gao, W. J. (2014). Performance enhancement at the cost of potential brain plasticity: neural ramifications of nootropic drugs in the healthy developing brain. *Frontiers in Systems Neuroscience*, 8, 1–10. doi:10.3389/fnsys.2014.00038
- United States Drug Enforcement Administration (DEA). (2018). *Drug scheduling*. Washington, DC: Self. Retrieved February 23, 2018 from <https://www.dea.gov/drug-scheduling>
- U. S. Department of Health and Human Services (DHHS). (2016, March 02). *Stimulants*. Retrieved from <https://www.samhsa.gov/atod/stimulants>
- USC Libraries. (2019). *Research guides: Organizing your social sciences research paper: Limitations of the study*. Los Angeles, CA: Self. Retrieved from <http://libguides.usc.edu/writingguide/limitations>
- Vargo, E. J., James, R. A., Agyeman, K., MacPhee, T., McIntyre, R., Ronca, F., & Petróczi, A. (2014). Perceptions of assisted cognitive and sport performance enhancement among

- university students in England. *Performance Enhancement and Health*, 3(2), 66–77.
doi:10.1016/j.peh.2015.02.001
- Wagner, N. F., Robinson, J., & Wiebking, C. (2015). The ethics of neuroenhancement: Smart drugs, competition and society. *International Journal of Technoethics*, 6(1), 1–20.
<https://doi.org/10.4018/ijt.2015010101>
- Weyandt, L. L., Gudmundsdottir, B. G., Oster, D. R., Rathkey, E. S., McCallum, A., Marraccini, M. E., & Munro, B. A. (2016). Prescription stimulant medication misuse: Where are we and where do we go from here? *Experimental and Clinical Psychopharmacology*, 24(5), 400–414. <https://doi.org/10.1037/pha0000093>
- Whetstine, L. M. (2015, September 1). Cognitive enhancement: Treating or cheating? *Seminars in pediatric neurology*, 22(3), 172–176. doi:10.1016/j.spen.2015.05.003
- White, B. P., Becker-Blease, K. A., & Grace-Bishop, K. (2006). Stimulant medication use, misuse, and abuse in an undergraduate and graduate student sample. *Journal of American College Health*, 54(5), 261–267. doi:10.3200/JACH.54.5.261-268
- Yin, R. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: Sage.

Appendix A: Semistructured Interview Questions

1. What do you know about non-medical use of stimulant medications for cognitive enhancement?
2. How do you feel about a system that screens for the illicit use of these substances?
3. What is your opinion regarding the NMUPS?
4. How would you implement a code of conduct as part of a schools disciplinary program?
5. What concerns you the most in regards to the NMUPS?
6. What is your opinion regarding cognitive enhancement drugs being accessible to all?
7. What concerns you most about using cognitive enhancement drugs for their off-label effects?
8. In your opinion what consequence do you think is appropriate for a student who is caught using prescription stimulants without a prescription?
9. How difficult do you believe it would be to acquire cognitive enhancement drugs?

Appendix B: Cognitive Enhancement Assessment Survey (CEAA)

1. “Smart pills” are easily accessible on this campus.
2. “Smart pills” should be freely accessible.
3. I think that it is harmless to use “smart pills”.
4. I think students should consider the risks of using “smart pills” before taking them.
5. Students should be informed about the risk and possibilities of “smart pills”.
6. I think that “smart pills” provide an unfair advantage for students compared to those who don’t take the drugs.
7. I think that the University board on the campus is aware of the use “smart pills”.
8. The use of “smart pills” should be prohibited on this campus.
9. A policy surrounding “smart pills” would allow a fair academic standard for students.
10. I think that it is illegal to take “smart pills”.

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

Appendix C: Tolerance Vignette

Scenario 1 (competitive cognitive performance): Dave is applying for a graduate job; prior to the interview all applicants must complete an online math and reasoning test (numerical reasoning test). Dave takes Ritalin that is not prescribed by a doctor to increase his chances of achieving a higher score in the test. Dave gets the interview over others who scored lower in the test and obtains the job.

1. How much do you believe this affects others?

1	2	3	4	5
No Affect	Minor Affect	Neutral	Moderate Affect	Major

2. Do you agree with the character's decision

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

Scenario 2 (non-competitive cognitive performance): Martin is a final year student approaching his final exam. Although he has had good grades during his degree, he needs to get a good grade in his final exam to ensure a 1st. Due to this pressure Martin is struggling to focus when revising. While revising in the library, Martin is approached by someone of his course that is prescribed with Ritalin and offers some to him to help focus. Martin takes the Ritalin and performs well on the exam and attains the grade he wanted.

1. How much do you believe this affects others?

1	2	3	4	5
No Affect	Minor Affect	Neutral	Moderate Affect	Major

2. Do you agree with the character's decision?

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

Appendix D: Consent Form

Research Study Title: Students' and Teachers' Ethical Perceptions Regarding the Non-Medical Use of Prescription Stimulants for Academic Achievement

Principal Investigator: Wendy McLellan-Kelly

Research Institution: Concordia University–Portland

Faculty Advisor: Nicholas Markette, Ed.D.

Purpose and what you will be doing:

The purpose of this qualitative case study is to explore how high school students and teachers perceive the ethical implication of high school students and teachers regarding the non-medical use of prescription stimulants for cognitive enhancement. I expect approximately 16 volunteers. No one will be paid to be in the study. I will begin enrollment on September 12 and end enrollment on October 1, 2018. To be in the study, you will be asked to participate in an online survey followed by completing ratings to the tolerance vignette and engaging in a semistructured interview. Doing these things should take approximately one hour of your time.

Risks:

There are no risks to participating in this study other than providing your information. However, I will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be kept securely via electronic encryption on my personal password protected computer. I will refer to your data with a code that only I know connects to you. None of the data will have your name or identifying information. I will not identify you in any publication or report. Your information will be kept private at all times and then all study documents will be destroyed 3 years after we conclude this study.

Benefits:

Information you provide will help me understand how high school students and teachers perceive the non-medical use of cognitive enhancing drugs for academic achievement. You could benefit from participating in this study by increasing your knowledge regarding the non-medical use of cognitive enhancing drugs. This discussion may also heighten the conversation of awareness and prevention strategies.

Confidentiality:

This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.

Right to Withdraw:

Your participation is greatly appreciated, but we acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, we will stop asking you questions.

Contact Information:

You will receive a copy of this consent form. If you have questions you can talk to or write the principal investigator, Wendy McLellan-Kelly at [Researchers email redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email redacted).

Your Statement of Consent:

I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study.

_____	_____
Participant Name	Date
_____	_____
Participant Signature	Date
_____	_____
Investigator Name	Date
_____	_____
Investigator Signature	Date



Investigator: Wendy McLellan-Kelly email: [email redacted]
c/o: Nicolas Markette, Ed.D.
Concordia University–Portland
2811 NE Holman Street
Portland, Oregon 97221

Appendix E: Letter Requesting Permission for Off-Campus Research

[Research location redacted]

RE: Permission to Conduct Research Study

Dear [Principal's name redacted]:

I am currently an employee of [Redacted] and concurrently working towards my Ed.D. at Concordia University under the supervision of Dr. Nicholas Markette. I am writing to request your permission to conduct research regarding high school students' and teachers' perceptions of the off-label use of cognitive enhancers for academic success at [Research location redacted]. I think this study is of great importance and I hope that you will consider partnering with me and allowing me to conduct my study at [Research location redacted].

A proposal of the doctoral research study is attached for your review. The data collection instruments that I will use are semistructured interviews that will take place on multiple days (2), The Cognitive Enhancer Attitude Assessment (CEAA), and a two-scenario vignette to determine participant's level of agreement and tolerance. I have also attached a sample cover letter that will go to all potential participants.

Data collection will consist of interviewing (8 students, 8 teachers) total 16 participants from [Research location redacted] during non-teaching time. I will use the data gathered to make a recommendation on what the students' and teachers' perceptions of non-medical use of prescription stimulants are and incorporate strategies and prevention measures.

Before the study begins, an application will be submitted to the Institutional Review Board (IRB) to ensure that the research complies with Concordia University ethical standards as well as U.S. federal regulations. A copy of the approval will be provided to the district, if permission to conduct the study at [Research location redacted] is granted.

The confidentiality of all participants will be respected fully and information will be kept under secure conditions. The school district and the participants' identities will not be revealed in any way.

Thank you for your consideration. I would be pleased to share the results of this study with you if you are interested.

Respectfully yours,

Wendy McLellan-Kelly

Ed.D. Student

Appendix F: Sample Recruitment Letter or Email

Dear Colleague,

My name is Wendy McLellan-Kelly and I am a student from the Doctorate of Education program at Concordia University–Portland. I am writing to invite you to participate in my research study about Students’ and Teachers’ ethical perceptions regarding the non-medical use of prescription stimulants for academic achievement.

If you decide to participate in this study, you will be asked to take part in an interview along with completing an online survey, and an online tolerance vignette. The interview will last approximately 40 minutes. I will audio record your interview so that I can use the information for the study’s findings. Confidentiality is of the utmost importance to me as a researcher. Therefore, I will protect your information. I will transcribe the recording, and the recording will be deleted when the transcription is completed. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be kept securely via electronic encryption on my personal password protected computer. I will refer to your data with a code that only I know connects to you. None of the data will have your name or identifying information. I will not identify you in any publication or report. Your information will be kept private at all times and the recording will be deleted as soon as possible; all other study documents will be kept secure for 3 years and then be destroyed.

Your participation in this study is **completely voluntary**. You can choose to be in the study or not. If you would like to participate or have any questions about the study, please respond via my personal email ([Researcher email redacted]; subject: Research) or contact me at [Researcher phone redacted].

Sincerely,

Wendy McLellan-Kelly

Appendix G: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work (continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where informed and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly references and permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*.

Wendy McLellan-Kelly

Digital Signature

Wendy McLellan-Kelly

Name (Typed)

February 2019

Date