

Applying Social Learning Theory Constructs to Better Understand Non-Prescription
Stimulant Use in College Students

By

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Abstract

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Non-prescription stimulant use (NPSU) among young adults is a growing concern on college campuses, however there are only few studies that have empirically examined this phenomenon. The purpose of the present study was to measure the influence of social learning theory (measured as four independent constructs) and academic self-efficacy on NPSU among college students. An online survey was administered to 396 undergraduate students who classified as full-time sophomores, juniors, or seniors at a Midwestern university. The anonymous online survey included the College Self-Efficacy Inventory (Solberg et al., 1993) and the Social Learning Theory Questionnaire (Peralta & Steele, 2010) (consisting of differential association, definitions, imitation, and differential reinforcement subscales), as well as demographic questions. The results of this study provide empirical support for designing and developing interventions or programs aimed at educating college students and professors on the prevalence of and potential academic effect NPSU has on students. The study results extend awareness of factors, which might

enhance the probability of use. This study contributes to the literature by further exploring the intricate behavior of NPSU, specifically in the context of individual differences in academic self-efficacy and social learning. Additionally, findings may be helpful for those in the counseling field in further conceptualizing the increased use of NPSU among college students and helping students that may be at-risk. Lastly, these findings advance the current NPSU theoretical framework.

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Chapter 1: Introduction

According to The National Center on Addiction and Substance Abuse (CASA) at Columbia University (Califano, 2007), "half of all full-time college students" (3.8 million full-time college students) abuse prescription drugs and/or illicit drugs. Prescription drugs refer to the non-medical use of drugs prohibited by the international law (United Nations Office on Drugs and Crime, 2016). Likewise, nearly one out of four, that is 22.9% or 1.8 million, college students in the United States meet the diagnostic criteria for a substance use disorder and are also two and a half times more likely than the general population to meet the diagnostic criteria for substance abuse (Califano, 2007). The non-medical use of prescription stimulants is a significant problem for college students and higher education professionals that work with them. Califano showed that use of drugs such as cocaine and heroin had increased in use by 52% since 1990. Similarly, the abuse of prescription opioids, stimulants, and tranquilizers has markedly increased among college students (Califano, 2007).

The use of prescription stimulants among college students, both medically and non-medically, has increased. According to the Johnston, O'Malley, Miech, Bachman, and Schulenberg, J. E. (2016), amphetamine use among college students has increased dramatically from 5.7% in 2008 to 10.1% in 2014, with students reporting academic purposes for their use. For instance, according to the Clinton Foundation (2014), the use of stimulants by college students, such as Ritalin or Adderall, has increased by 93 percent from 1993 to 2005. Similarly, the rate of diversion of medication stimulants among college students has increased, with 62% of college students in one survey, reported having shared or sold their medication at least once in college (Garnier et al. 2010). Moreover, both increase and prevalence of college students engaging in

NPSU have called into question the use of these prescriptions and what is known about the long-term effects.

The present study addressed NPSU using the definition of Bavarian and colleagues (2013). According to Bavarian et al. (2013), the nonmedical use of stimulants is the “use of any prescription stimulant without a prescription from a healthcare provider, use for nonmedical purposes, and/or use in excess of what is prescribed” (p. 23). Moreover, stimulant medications are primarily used for treating attention deficit disorder (ADD) or attention-deficit hyperactivity disorder (ADHD) and are used to help with concentration, hyperactivity, and/or impulse behaviors. However, people who do not have ADD/ADHD sometimes abuse these types of prescription stimulants. Some of these efforts are to achieve some of the effects received from taking Adderall and/or Ritalin (e.g., enhanced mental and/or physical functions that tend to include enhanced alertness, concentration and overall sense of ability to function greater) (Substance Abuse and Mental Health Services Administration, 2016).

Significance of Study

Despite students’ positive beliefs toward using prescription stimulants, the Food and Drug Administration (FDA) emphasizes the potential for serious consequences resulting from misuse of ADHD medications. What factors lead to or are related to NPSU in college students remain unclear. Furthermore, in spite of the increased use of prescription stimulants, research on substance use among college students has primarily focused on alcohol use or binge drinking, leaving a significant gap in the literature in this growing epidemic of prescription drug misuse.

Furthermore, a limited number of studies have empirically tested intrapersonal or psychosocial predictors of NPSU among college students (McCabe & Boyd, 2005). Perkins, Meilman, Leichliter, Cashin and Presley (1999) found that students who engage in NPSU gauged their usage and norms of use by others, specifically gaining access through friends and family. Studies similar to Perkins, Meilman, Leichliter, Cashin and Presley (1999) help to identify other contributing factors that are involved in NPSU, such as those included in social learning theory. Furthermore, if the increased use and availability of prescription stimulants lead to a perception of normality, it is likely that the problem would only perpetuate itself. As counselors and educators, what can be done to help identify students at-risk for using non-prescribed stimulants and intervene promptly? McCabe and Teter (2007) found that some main motives for NPSU in college students included enhancing concentration, greater levels of energy, and improving performance on college tests. Given these motives for taking prescription stimulants, students' perceived ability of how well they can do academically might be another predictor of NPSU among college students.

Moreover, factors such as academic self-efficacy and those included in social learning theory play an important role in college substance use in general (Peralta & Steele, 2010). Most college students will engage in some substance use by the end of their first year in college, alcohol being the most common (Califano, 2007). Studies have attempted to delineate NPSU. However, very few studies have investigated a combined or integrated model. Both social learning theory and academic self-efficacy will be explored in an integrated model as potential explanatory factors in engaging in NPSU.

The purpose of this study was to investigate the relationship between social-learning and academic self-efficacy beliefs and their relationship with NPSU among college students, specifically addressing the following research question:

Research Question

To what extent does social learning theory and/or academic self-efficacy predict non-prescription stimulant use?

Illicit drugs often refer to drugs that are illegally manufactured and considered to be some of the most potent or addictive forming. Stimulants that are consumed that are not prescribed to the user, or are not used as prescribed and for non-medical purposes, such as Adderall for treating attention deficit hyperactivity disorder (ADHD), are considered NPSU.

Chapter II: Literature Review

According to the National Institute on Drug Abuse, prescription stimulant use can lead to abuse and dependence, depression and other mental health concerns, and for those that misuse prescription stimulants, may lead to serious adverse health ramifications, such as cardiovascular concerns, heightened body temperature, and seizures (Volkow, 2010). In general, NPSU has been on the rise among younger adults (Herman-Stahl, Krebs, Kroutil, & Heller, 2006). College students may be particularly at-risk for misusing prescription stimulants (Varga, 2012). For example, Low and Gendaszek (2002) found 36% of 150 undergraduate students in a psychology class at a small, competitive college reported misuse of stimulants in the past year. They found some of the most common motivators for using stimulants non-medically being cognitive enhancement, to help improve efficiency on academic assignments and to use in conjunction with alcohol (Low and Gendaszek, 2002). In general, students are faced with a multitude of demands, not only in the classroom, but also outside the classroom, and may perceive stimulants as a viable option in “getting ahead” or “caught up” with some of these demands. Moreover, since peer drug use and attitudes towards drugs can greatly affect the likelihood of drug use, college students may be faced with a variety of conflicting views and pressures, increasing their likelihood of engaging in NPSU or other drug use. As Varga (2012) indicated, college students are commonly engaging in late-night partying, all-night studying, and rigorous schedules, placing some of these students at a greater risk for substance use. Therefore, this population may inherently be at a greater risk for NPSU.

However, despite the common beliefs that college students have about using prescription stimulants to enhance academic performance, recent research challenges the accuracy of students' perceptions (Arria, Grady, Caldeira, Vincent, & Wish, 2008). For example, Arria et al. (2008) found that college students who engaged in NPSU in the past year were more likely to skip classes, spend more of their time socializing, and engage in less studying than non-users. Furthermore, students who used prescription stimulants non-medically within the past year had lower GPA's at the end of their first year in college. This finding is consistent with research such as McCabe, Knight, Teter, and Wechsler (2005), where undergraduates who reported having a GPA of a B or lower were two times more likely to engage in NPSU compared to peers who maintained a GPA of a B+ or higher.

Social learning factors, such as friend's use/views, etc. and individual characteristics, such as, stress related to grades, study skills, and overall ability to excel in the college setting, may influence the use of drugs among college students (Weyandt et al., 2012). The understanding of NPSU has come a long way in recent years. Researchers, such as Ford and Ong (2014) and Donaldson, Siegel, and Crano (2016), have examined NPSU more recently. Less emphasis on specific theories (e.g., social learning theory, academic strain theory, etc.) has been investigated in explaining NPSU and greater emphasis on motives has been researched to explain this behavior better. In general, NPSU has been inconsistently defined, which has created problems regarding research and making progress. For example, in a recent meta-analysis, the words/terms in defining the misuse of non-prescription stimulant were examined (Benson, Flory, Humphreys &

Lee, 2015). Benson, Flory, Humphreys, & Lee (2015) noted that one important implication of their findings was the interchangeable words/terms of the misuse of stimulant use, therefore creating greater difficulty for other studies to compare NPSU. Furthermore, they noted that previous studies have termed the misuse of stimulants as “illicit use,” “nonmedical use,” “recreational use,” and “misuse.” Therefore, it is important for future studies looking at NPSU in developing greater consistency with the words/terms used in defining NPSU. The following section will look at the different theories supporting some of these factors contributing to NPSU.

Theoretical Framework

Some researchers have attempted further to understand NPSU among college students from a theoretical perspective (Peralta & Steele, 2010). Theories such as general strain and academic strain, social control theory (social bonding), and social learning theory have been applied to further understanding NPSU among college students. Academic self-efficacy, along with these other theories is presented in the following section in order to provide a more thorough look at both social learning theory and academic self-efficacy as it relates to NPSU.

Academic Strain. There are multiple factors that influence a college student’s overall academic performance. Two of these areas are knowledge of study skills and support networks, such as friends, family, mentors, and/or peers (Looby, Kassman, & Earleywine, 2014). Students often face greater difficulty in the college setting when some of these factors, including study skills, support networks, are not as established as other students, which can ultimately lead to negative coping strategies (e.g., drug use). The

theory of academic strain is a component of Agnew's general strain theory. There are two specific sources of strain: a loss of positively valued stimuli and the presentation of negatively valued stimuli (Agnew, 1992). Agnew sought out and applied this theory to understanding disparities, such as criminal behavior, gender gaps, as well addiction. He posited that when one is exposed to strain, that they are at a greater likelihood of experiencing negative affect, such as depression, irritability, and anxiety (Agnew, 1992). Moreover, he argued that when faced with such negative affect, coping in more deviant and/or criminal behaviors, such as substance use, may be a form of coping for some (Lilly, Cullen & Ball, 2007). For example, a college student with lower self-efficacy may experience greater academic distress, often creating an increased risk for engaging in NPSU (Ford and Shroeder, 2008).

In general, academic strain has been researched more as it relates to NPSU among college students compared to academic self-efficacy. Therefore, further research integrating multiple theories, such as academic self-efficacy, may be important in further understanding NPSU among college students. A second theory, social control theory, can also be related to that of the current study in further understanding drug use, specifically NPSU.

Social Control Theory. Social control (bonding) theory (Hirschi, 1969) focuses on the intricate and diverse nature of deviant behavior, looking at the different motivators involved across different situations (Ford and Shroeder, 2008). This theory specifically looks at why some individuals engage in deviant behavior while others do not. Again, deviant behavior derives from social control, which stems from individuals being bonded

to others and society (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). Control theory maintains that the stronger a person's bond is to positively reinforced behavior, the more constrained towards conformity the person is. This theory hypothesizes that when individuals lack social connectedness to others and within the community, their chances of engaging in delinquent behavior increase (Dollar & Ray, 2013).

Social Learning Theory. Social learning theory postulates that humans are social beings and hold a need/desire to interact with other people, which sometimes result in negative behaviors, especially if the reward for that given behavior outweighs the consequences. Individuals learn to make that connection and increase their likelihood of committing that same behavior (e.g., taking prescription stimulants non-medically) (Akers 1985).

Sutherland (1947) examined the reasons why individuals commit crimes and first developed social control theory. Much like Sutherland's premise, Botvin (2000) and Akers (1985) applied this theory to better understanding addiction. Specifically, Botvin contributed to the literature on social learning theory by examining adolescent drug use and preventative measures through the integration of social influences, such as peer influences and behaviors towards NPSU. As a relatively more recent researcher on this topic of NPSU and social influences, Botvin's research was interesting in that he found the effects of peers to be influential in drug use among teenagers. Botvin specifically examined the likelihood of cigarette use among teenage high school students whose friends smoked cigarettes and held a more favorable opinion on cigarette use. This

correlation among social influences and drug use is consistent with other research such as Peralta and Steele (2010).

Moreover, social learning theory derives from a more behaviorist standpoint that further examines social factors (differential association, differential reinforcement, definitions, and imitation) influential in reward-seeking behaviors. The first construct, differential association, is based on the norms developed through peer interactions with primary relationships, such as significant others, close friends, and/or parents (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). The second construct, differential reinforcement, according to Akers (1985), is the perceived benefits and consequences of behavior. Behavior that is positively reinforced is likely to develop from rewarding outcomes or encouragement while negative reinforcement is likely to occur when an individual seeks to remove or avoid a more distressful event. In the context of the college setting, a perceived benefit of using prescription stimulants non-prescribed could be improved academic performance, while a perceived cost or consequence could be developing an addiction (Peralta & Steele, 2010). The third construct of social learning theory is definitions, which can be thought of as rationalizations or justifications for using prescription stimulants for non-medical purposes (e.g., taking stimulants non-medically to “get high”). Definitions refer to the meanings and attitudes connected to behaviors (Akers, 1985). Moreover, the more positive one views a behavior, the more likely they are to engage in that given behavior (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979).

Lastly, imitation is the construct that is most similar to that of modeling or observational learning (Akers 1985). Just like modeling, imitation occurs through the

reciprocal interaction between an individual and their environment (e.g., friends, family, etc.). Therefore, when the behavior is rewarded, the imitation or modeling of behavior is likely to repeat, as opposed to when the behavior is punished, decreasing the likelihood of repeated imitation/modeling of behavior (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). In line with this theory, it seems likely that college students with friends who explicitly endorse NPSU would be more likely to engage in such behaviors.

Furthermore, deviant or more risky behavior, such as engaging in drug use, can be learned from associations one has with their intimate social groups (Akers, 1985). These four constructs that comprise social learning theory have been thoroughly researched in the context of criminal behavior. For this paper, the four constructs of social learning theory, including differential association, differential reinforcement, definitions, and imitation, were applied to better understand NPSU among college students. This theory can be applied to current trends in deviant behavior such as the persisting prevalence of drug and alcohol abuse across college campuses. In the following section, the literature related to social learning theory and NPSU will be reviewed.

Peralta and Steele (2010) further examined social learning theory to better understand NPSU in college students. A pilot study was conducted at a Midwestern university in the United States, collecting data from 465 college students utilizing a self-administered questionnaire given to random classes in person. Similar to that of the current study, Peralta and Steele asked participants about their lifetime use and current use of NPSU. Again, consistent with findings from previous studies, Peralta and Steele

found Adderall (20.9%) and Ritalin (11.2%) to be two of the three (Vicodin falling at 22.4%) most commonly used drugs. Interestingly, and not surprisingly, they found that when these drugs were categorized, that opiates were one of the most common used drugs (27.3%) with stimulants closely behind at 26% and depressants at 12.5% (2010).

Peralta and Steele (2010) analyzed their data through OLS regression, looking at three separate models. The first model comprised of lifetime NPSU and demographic control variables. The second model included looking at lifetime NPSU and social learning variables. Similar to Ford and Ong (2014), Peralta and Steele (2010) found differential reinforcement to be significant, followed by imitation (friend's reactions) and differential reinforcement. This is consistent with previous research looking at the relationship between social learning theory constructs and NPSU (Ford & Ong, 2008).

However, Peralta and Steeles' (2010) study was not a complete test of social learning theory or an examination of likely moderating or mediating variables such as self-efficacy. Moreover, results from this study suggest that those who have friends or peer associations who engage in NPSU are at an increased chance of engaging in NPSU.

Ford and Arrastia (2008) also contributed to the literature by examining the relationship between both Hirschi's social control theory (1969) and Akers' social learning theory (1985) as theoretical predictors of NPSU and illicit drug use (Ford & Arrastia 2008). In a national study of undergraduates, Ford and Arrastia examined the correlates of substance use. Participants were split into three categories including non-users, NPSU only, and illicit/street drug use only. One important finding from their study was that social learning, conceptually defined by Akers was found to be a predictor of

NPSU. However, as Ford and Arrastia (2008) noted, the model they tested was not comprehensive and did not test psychological factors, such as academic self-efficacy, which could serve as mediating variables. Additionally, Ford and Arrastia used indirect proxy measures that appear to have questionable validity. More specifically, they used a psychometric instrument, which had not been validated to measure social learning.

Despite these limitations, Ford and Arrastia (2008) found risk factors, such as gender, race, marital status, sexual activity, marijuana use, and social bonding measures in further distinguishing the differences between illicit/street drug users and NPSU. They also noted that students who achieve higher grades are less likely to report substance use, again contrary to the belief that prescription stimulants are “smart pills” or “study aids” (Ford & Arrastia, 2008).

Furthermore, Ford and Arrastia (2008) aimed to look at the uniqueness of NPSU to see if it was indeed a unique form of substance use, that is whether the characteristics or risk factors associated with NPSU were different from other illicit drug use. Ford and Arrastia (2008) found the majority of participants reported no drug use, 85%, 11% reporting only NPSU, and 3.5 % reporting illicit/street drug use.

Ford and Ong (2014) also examined and applied social learning theory when further conceptualizing NPSU in college students. They administered a paper survey to 549 undergraduate students at a single university in the Midwest. Several logistic regression models were performed. Model one, or the baseline model, included only the control measures. The next four models added the social learning measures to the baseline model separately: Model two (friends use), Model three (acceptability), Model

four (risk), and Model five (effectiveness). Finally, Model six, the complete model, included all social learning measures and all controls.

Their final model included “friend use” (differential association) and “study aid effectiveness” (differential reinforcement) as significant predictors. Demographic variables, such as age, gender, race, resident status, Greek affiliation, and whether students worked 20 hours a week, were not significant predictors of NPSU. Moreover, Ford and Ong’s (2014) study was not a complete test of social learning theory or an examination of likely moderating or mediating variables such as self-efficacy (Goodnight et al., 2006; Rabaglietti et al., 2012). The social component is only one stream of influence in explaining NPSU. It is important to consider other sources of influences, such as psychological or interpersonal factors. The following section will focus on academic self-efficacy and academic strain with reference to NPSU.

Academic Strain and Academic Self-Efficacy. Academic self-efficacy is defined as one's belief in one's own ability to complete tasks and reach goals, related to the college setting. According to Bandura (1977), self-efficacy is defined as “the belief that one can achieve what one sets out to do” (Bandura, 1997, p. 193). Furthermore, Bandura (1995) posited that when individuals feel like they are not in control of their life, they run a greater risk of developing anxiety, feelings of depression, and engaging in substance abuse.

Self-efficacy can play an even greater role when looking at student’s perceived ability to excel in the college setting and how this plays into drug use, specifically NPSU (Ford & Ong, 2014). It is important to consider psychosocial or psychological variables,

when examining risk-factors for NPSU. Research has shown that students that tend to engage in NPSU tend to have lower GPAs (Ford & Blumenstein, 2012), which may be attributed to a lack of self-confidence in their ability to succeed academically. Due to the limited research directly looking at academic self-efficacy and NPSU, the focus of this section will integrate the use of academic strain, in addition to academic self-efficacy and its role in the academic setting as it relates to NPSU.

Studies such as Chemers, Hu, and Garcia (2001), observed not only a relationship between academic self-efficacy and academic achievement but also between academic self-efficacy and psychosocial adjustment among undergraduate students. Self-efficacy was also highlighted by DeLeon (2015), who referenced the use of drug instrumentalization theory in further understanding the association between NPSU and lower GPA. DeLeon emphasized that students with higher GPAs might not find it as pertinent to engage in NPSU because they may be more effective at regulating their effort without the help of prescription stimulants. This finding may be important when looking at risk factors, such as academic difficulties and increased NPSU among college students.

As noted earlier, college students are faced with a multitude of demands both academically and personally that can produce greater stress and demand on coping skills, especially those that may not have established a greater capacity to regulate stress or the demands that go along with being a college student. Furthermore, based on what is known about psychological risk factors related to NPSU, it seems possible that academic self-efficacy would be an important construct to test when looking at theoretical predictors of NPSU. One study by Aikins (2011) investigated perceptions of

undergraduate college students who took stimulants both prescribed and non-prescribed for academic purposes. The researcher conducted a qualitative study, interviewing twelve prescribed and non-prescribed students currently using stimulant medications at a competitive West Coast University.

Aikins (2011) examined the differences between licit and illicit stimulant users by conducting an hour-long interview with each participant (five licit, five illicit, and two “combined users”). Interviews were set up to look at “past and present use habits, ethical and health perceptions of benefits and harms (i.e., dependency) connected to personal and peer use,” and any solicitation or diversion of NPSU (Aikins, 2011, p. 564). Interestingly, students in both illicit and licit groups shared that the use of prescription stimulants “enhanced their ability to perform academic tasks” (Aikins, 2011, p. 566). Again, this matches previous research that indicates some of the motives to use or continue the use prescription stimulants.

Compared to Aikins (2011), Verdi, Weyandt, and Zavras (2014) looked more specifically at academic self-efficacy by surveying graduate students (master-level, specialist-level, and doctoral-level) at five different universities in the United States. They examined risk factors associated with NPSU (e.g., lower self-efficacy) and correlation to use patterns and continued use. Verdi, Weyandt, and Zavras compared students that used prescription stimulants medically, to students that used prescription stimulants non-medically.

Verdi et al. (2014) operationalized the comparison of students that used prescription stimulants medically versus those that used prescription stimulants non-

prescribed, by dividing groups based on their demographic questionnaire. They hypothesized that the rate of non-medical stimulant use would be reported similar to that of professional and medical students (8% or greater over 12 months) through the use of their Self-Reported Prescription Stimulant Use and Perception of Prevalence of Prescription Stimulant Use Among Peers subscales of the stimulant survey questionnaire (SSQ) (Verdi et al., 2014). Verdi and colleagues (2014) also hypothesized a greater increase in NPSU when students held higher views and perceived self-knowledge of stimulants and a greater increase in NPSU when reporting lower scores on academic self-efficacy, measured by the Academic Self-Efficacy (Santiago & Einarson, 1998) scale. They found no significant relationship between academic self-efficacy and NPSU, which suggested that students who reported previous NPSU did not report lower academic self-efficacy compared to peers who did not report any previous NPSU.

However, the authors were unclear about how they constructed the comparison groups for NPSU, which makes interpretation difficult. Their study also was more representative of doctoral students, as they comprised of the largest amount of participants in the study (53.9%) compared to master's level students (43.5%). A final limitation of their study was that their measure of academic self-efficacy in predicting differences between students with previous NPSU was not significant compared to non-using peers. Despite some of these limitations, Verdi et al. (2014) were able to extend the literature by including graduate students in their sample. They also explored academic self-efficacy as it relates to overall stress within the academic setting and NPSU.

While there has been research completed on NPSU in college students, there still lies the gap of literature connected to psychological predictors of NPSU, such as those included in social learning theory and academic self-efficacy, as explored in the present study. Moreover, greater research on psychological factors may help in further understanding NPSU among college students.

Chapter III: Methods

Overview

This quantitative exploratory study employed a cross-sectional, correlational survey research design to explore the relationship between Aker's (1985) Social Learning Theory constructs (SLT; i.e., differential association, definitions, imitation, differential reinforcement), academic self-efficacy (ASE), non-prescription stimulant use (NPSU), and demographics variables, and to determine their relative and combined influence in predicting NPSU in a sample of undergraduate students. This chapter provides an overview of the data collection procedures, sampling and recruitment procedures, and measurement of key variables.

Research Question

To what extent does social learning theory and/or academic self-efficacy predict non-prescription stimulant use?

Survey Procedure, Population, and Sample

An online survey instrument using Qualtrics Research Suite (Qualtrics, Provo, UT) was developed, which included three scales adopted from previous studies to measure SLT, ASE, NPSU, and demographic variables. Qualtrics.com provided a secure version of the software through a survey link that potential participants could access online through the Midwestern university. The survey was distributed to 7,714 undergraduate students, specifically students who were enrolled during the Fall 2015 semester and were classified as sophomores, juniors, or seniors. Of the 7,714

students invited, 396 responded, which resulted in a 4.8% response rate (See Table 3).

The rationale for excluding first-year students (i.e., students that have earned 29 college credits or less) is that the dependent variable (i.e., frequency of NPSU) is measured on a scale that is retrospectively self-reported (i.e., whether students have used NPSU in their lifetime, within the last year, and last 30 days), which would have occurred prior to matriculation and is beyond the scope of the present study.

After the project received Institutional Review Board (IRB) approval, the Registrar's Office distributed the survey invitation (See Appendix D) containing the anonymous survey link to 7,714 undergraduate students on Thursday, September 17, 2015. This represented all sophomore, junior, and senior undergraduates at the time the survey was administered. The survey remained open for almost one month and four follow-up reminder contacts were made to students in total. The three follow-up reminder emails were distributed on Tuesday, September 22, 2015 and Tuesday, October 13, 2015, with the final reminder email distributed on Friday, October 23, 2015 (See Appendices D, E, and F).

The first page of the survey contained the informed consent form in which participants agreed to prior to their participation. In total, participants were asked to respond to between 46 and 56 questions on the anonymous survey. A range was provided for participants that answered, "Yes" to "Have you used any of the following substances in the last 12 months?" And "Have you used any of the following substances in the last 30 days?" I estimated that the survey would take approximately

15 minutes or less to complete, which was an overestimate, with the average time participants actually took, being approximately six minutes.

Measurement

Social learning theory was operationalized and assessed using the Social Learning Theory Questionnaire (Peralta & Steele, 2010). Academic Self-Efficacy (ASE) was assessed and operationalized using the College Self-Efficacy Inventory (Solberg et al., 1993). NPSU was assessed and operationalized using the P value, spelling out the DV. Furthermore, participants were asked, “Have you used prescription stimulants (e.g., Adderall, Biphentin, Ritalin, Dextroamphetamine, Concerta, etc.) in the past 12 months for non-medical purposes or that were not prescribed to you?” Lastly, a brief demographic questionnaire was included at the end of the survey instrument.

Social Learning Theory Constructs. The Social Learning Theory Questionnaire (Peralta & Steele, 2010; $\alpha = .75$) includes four subscales: differential association, definitions, imitation, and differential reinforcement.

Differential association. The differential association subscale ($\alpha = .62$) included two questions that asked about prevalence of NPSU among friends and was assessed using a five-point Likert-type scale (1 = *None or almost none* and 5 = *All or almost all*). An example question included “what proportion of your close friends (or friends you associate with most frequently) take prescription drugs for recreational purposes?”

Definitions. The definitions subscale ($\alpha = .80$) included 6 items that assess rationalizations for NPSU and was measured on six-point Likert-type agreement scale (1 = *Strongly disagree* to 6 = *strongly agree*). An example item included “College students should not be held responsible for using prescription drugs without a prescription, such as Ritalin, to get ahead in school because they are under so much pressure.”

Imitation. The imitation subscale ($\alpha = .83$) included 3 items that asks about how their friends views on NPSU in terms of social acceptability. This subscale was measured using a five-point Likert-type scale (1 = *Very negatively* to 5 = *Very positively*). An example item included “How would most of your friends react if they discovered that you were using or had used illicit prescription drugs?”

Differential reinforcement. The differential reinforcement subscale ($\alpha = .73$) included 13 items that asked about the perceived cost (i.e., getting sick) and benefits (i.e., getting higher grades) associated with NPSU, and were measured using a five-point Likert-type scale (1 = *Very unlikely* to 5 = *Very likely*).

Academic Self-Efficacy (ASE) is defined as one’s confidence in their own ability to succeed academically. ASE was assessed and operationalized using the course self-efficacy subscale of the larger College Self-Efficacy Inventory (Solberg et al., 1993). The nine items on the subscale were measured using a 9-point Likert-type scale (1 = *Totally unconfident* to 9 = *Totally confident*). Example items included “manage time effectively” and “take good class notes.” This instrument overall has demonstrated strong internal consistency reliability ($\alpha = .93$; Solberg et al., 1993).

Demographics. Based on the review of the literature, a number of standard demographic questions that substance abuse researchers include were asked on the survey. The following pieces of demographic information were collected from participants' responses on the survey instrument: age, transfer status, year in school, race/ethnicity, gender, number of credits enrolled during the Fall 2015 semester, average hours per week worked, highest level of education expected, Greek status, resident/commuter status, and student athlete.

Data Analysis Procedures

Survey data was exported from Qualtrics server as a SPSS file. The analysis was performed in IBM SPSS Statistics, release version 22.0.0.2. First, the data were cleaned and examined for missing data. Distribution of scores was reviewed for all the variables and scanned for potential outliers. Descriptive statistics, including mean scores, standard deviations, and ranges were performed to obtain a broad understanding of the data. Data quality was assessed by measures of normality, including skewness, kurtosis, and histograms. Missing data was limited to entire responses that were unusable because of large numbers of missing items. In other words, there were a small percentage of students who responded to the survey but did not complete enough of the survey to constitute a valid response. Additionally, fifty cases (11%) were excluded from all analysis due to completely missing data.

Second, values on all the subscales of the Social Learning Theory Questionnaire were summed to create single score for each subscale. Additionally, all subscales of College Self-Efficacy Inventory were summed to create single score for each scale. For

example, a higher summed score on the ASE scale indicated a higher level of ASE for participants. Likewise, for the SLT scales, a higher score on the differential association subscale indicated a higher prevalence of NPSU among the participants' friends.

Third, scales were assessed for reliability using Cronbach's alpha internal consistency measure. Table 1 illustrates the internal reliability scores for the scales used in this study.

Table 1.

Reliabilities (Cronbach Alpha) of Scales (N =396)

Scale	α	# Of Items
Academic Self-Efficacy	0.86	7
Social Learning Theory		
Differential Associations	0.76	2
Definitions	0.78	5
Imitations	0.90	3
Differential Reinforcement	0.88	13

Data analytic strategies for addressing the research question. To answer the research question, a binary logistic regression analysis was conducted to predict NPSU based on social learning theory (SLT) and ASE. That is, NPSU was regressed on the five study variables, using a single model.

Chapter IV: Results

Participants

Participants included undergraduates ($n = 396$) at a large public, primarily residential university in the Midwest. Participants were primarily white (92%) and female (70%) and the mean age being 21.72. The largest group of participants was seniors (46%) followed by juniors (28%) and sophomores (23%). The majority of participants worked part-time (30 or less hours per week). More participants started at the Midwestern university (64%) than transferred in (36%). Table 2 illustrates the demographic breakdown of survey participants.

Table 2.

Demographic Breakdown of Survey Participants (N = 396)

Variable	N	%
Gender		
Male	118	30.1
Female	274	69.9
Ethnicity		
White	364	91.9
Asian	13	3.3
Hispanic	12	3
Black or African American	13	3.3
American Indian or Alaskan Native	7	1.8
Native Hawaiian or Other Pacific Islander	2	0.5
Year in School		
Freshman	3	0.8
Sophomore	90	22.8
Junior	109	27.7
Senior	182	46.2
Unclassified	10	2.5
Transfer Status		
Non-Transfer	252	64.1
Transfer	141	35.9
Work Status		
Part-time (less than 30 hours per week)	272	68.7
Full-time (30 or more hours per week)	40	10.2
Don't work during school year	81	20.6
Highest Level of Education Expected to Complete		
Master's degree	158	40.2
Bachelor's degree	140	35.6
Doctoral degree	53	13.5
Associates degree	9	2.3
Some college	27	6.9

Note: Percentages may not add up to 100% because of missing data.

Preliminary Analysis and Descriptive Statistics

Descriptive statistics, including means, standard deviations, and observed ranges for all predictor variables are presented in Table 3. Bivariate correlation analysis was used to evaluate the Spearman Rho correlation coefficient for all predictor variables, which are presented in Table 4. Additionally, there were 58 (14.6%) participants whom reported that they had used prescription stimulants in the past 12 months, whereas 85.4% reported they had not used prescription stimulants within the past 12 months. Table 3 illustrates the descriptive statistics of primary study variables, with Table 4 illustrating the Spearman Rho correlations between predictor variables.

Table 3.

Descriptive Statistics of Primary Study Variables (N = 396)

Variable	<i>M</i>	<i>SD</i>	Observed Range
Academic Self-Efficacy	38.47	6.93	7 - 49
Differential Associations	2.57	1.26	2 - 10
Definitions	9.351	4.5	5 - 30
Imitations	5.29	2.46	3 - 15
Differential Reinforcement	31.5	8.00	13 - 55

Table 4.

Spearman Rho Correlations Between Predictor Variables (N = 396)

	1	2	3	4	5
Differential Associations					
Definitions	.28**				
Imitations	.46**	.51**			
Differential Reinforcement	.36**	.42**	.55**		
Academic Self-Efficacy	-.113*	-0.07	-.114*	-.144**	

* $p \leq .05$, ** $p \leq .001$

Research question. To what extent does social learning theory and academic self-efficacy predict NPSU?

To answer the research question, a logistic regression analysis was conducted to evaluate the relative importance of each social learning theory construct, as well as academic self-efficacy in predicting past 12-month NPSU (dependent variable). All five continuous independent variable predictors, including the four social learning theory constructs and academic self-efficacy, were entered into the model simultaneously. Considering the current evidence supporting social learning theory and its influence on NPSU, the alpha value was set at .05 for all analyses.

This model ($n = 389$) was found to be significant ($p < 0.001$), with a Nagelkerke $R^2 = .309$, and correctly classified 87.1% of the participants ($df = 8$, $\chi^2 = 3.167$, $p < .001$) model ($n = 948$) was found to be significant ($p < 0.001$). Nagelkerke $R^2 = 0.482$, and correctly classified 87.1% of participants. This analysis revealed a model in which imitations ($p < .05$) and differential reinforcement ($p < .05$) emerged as significant predictors of NPSU based on the Wald Chi-Square Test.

Of these two significant predictors, imitations served as a stronger predictor of NPSU. This variable represents friends' beliefs towards NPSU. Results of the regression modeled suggested that a one-point increase on the imitation subscale increased the odds of NPSU by 28% (OR= 1.276, CI = 1.097–1.483). The results also suggested that the perceived costs and benefits of using prescription stimulants (differential reinforcement) were significantly related to NPSU. Specifically, a one-point increase on the differential reinforcement subscale increased the odds of NPSU by 6% (OR = 1.063, CI = 1.001–1.13). The Hosmer-Lemeshow goodness of fit test model revealed a significance level of .923, which indicated a properly fit model. Results from the logistic regression analysis are presented in Table 5.

Table 5.

Summary of Logistic Regression Analysis Predicting Past-Year NPSU (N = 396)

Predictor	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI	Wald Statistic	<i>P</i>
Differential Associations	0.19	0.12	1.211	[0.956, 1.532]	2.53	.112
Definitions	0.07	0.04	1.074	[0.995, 1.158]	3.36	.067
Imitations	0.24	0.08	1.276	[1.097, 1.483]	10.00	.002
Differential Reinforcement	0.06	0.03	1.063	[1.001, 1.13]	3.99	.046
Academic Self-Efficacy	-0.02	0.02	0.984	[0.941, 1.03]	0.47	.495

Note. CI = Confidence interval for odds ratio (*OR*)

Chapter V: Discussion

Overview

Overall, results indicated support for specific subscales of social learning theory, (i.e., differential reinforcement and imitations) as a theoretical predictor of NPSU and partial support for academic self-efficacy as a predictor for NPSU. However, it is unclear if the significant relationship found between differential reinforcement and NPSU is practically significant. The p-value indicated significance, however the lower level of the confidence interval neared zero, which would indicate a non-significant finding. Students who reported taking prescription stimulants within the past 12 months perceived the benefits of engaging in NPSU as more positively than the costs. Similarly, students who reported taking prescription stimulants within the past 12 months reported that their friends were more accepting of NPSU than those who reported that they have not engaged in NPSU, within the past 12 months. One interesting finding related to social learning theory constructs, was that students' use of NPSU had more to do with friends' beliefs than just the fact that a large number may use prescription stimulants.

As mentioned in chapter two, there have been limited empirical studies that have examined self-efficacy in predicting NPSU so direct comparison results are not available, however the results will be reviewed in the context of related theories, such as academic strain. While academic self-efficacy did show a significant relationship with past usage of NPSU, it was no longer significant when social learning theory constructs were added to the model. One possible explanation for this is that it is possible that academic self-efficacy could serve as a mediating or moderating variable between social

learning theory and NPSU. Another possible explanation for this finding is that it is also possible that social learning theory could just be a stronger predictor of NPSU.

Regardless, it is interesting that although academic self-efficacy was not ultimately predictive of NPSU, there were two questions from the the academic self-efficacy scale that were significantly related to NPSU, including “managing time effectively” and “researching a term paper.” These are two important college-level academic tasks that require sustained attention, concentration, continuous self-assessment, and adjustment. Furthermore, these two items contract with the remaining items on the scales used in the present study. These findings are consistent with research exploring the academic motives of NPSU. For example, Rabiner et al. (2008) found 41.4% of students who used prescription stimulants non-medically, to engage in such behavior to enhance their concentration when studying, similar to researching a term paper. Similarly, when asked whether students had engaged in NPSU within the past 12 months, 14.6% of students reported that they had engaged in NPSU within the past 12 months, while 85.4% reported that they had not. This finding is interesting in that it matches similar studies’ (Ford and Ong, 2014) prevalence rates of students engaging in NPSU in the college setting. It is also interesting since the 14.6% of students who reported engaging in NPSU within the past 12 months likely underrepresents the actual amount of students engaging in NPSU. In general, it is difficult to capture everyone that is engaging in NPSU.

Implications for Higher Education and Counselors

As highlighted earlier, a basic understanding of the prevalence and correlates related to overall mental health and alcohol and other drug abuse (AODA) concerns

among college students is markedly increasing. Despite this increase, there remain limited approaches that target preventative measures in the college setting related to drug abuse, specifically stimulant use.

Furthermore, in order to address the high rates of NPSU in college students, professionals both in the college setting and in the mental health profession, need to work collaboratively to target both the prevention and treatment of prescription stimulant abuse. Further advocacy from health professionals, researchers, and college professionals should take action in greater monitoring of prescription use programs and advocacy in the development of alternative medications that have less abuse potential (e.g., Strattera) (Tapscott & Schepis, 2013). Counselors can also integrate some of this knowledge on social influences and psychological factors when looking at non-medical use of stimulants by college students. Likewise, trainings or workshops could be integrated within the campus setting, focused on healthier ways of coping and stress management skills training as a way to reduce the non-medical use of prescription stimulants (Lewis and Myers, 2012).

Specific strategies focusing on the prevention of NPSU among college students has been explored in research such as Arria and Dupont (2010). They provided eight specific recommendations based on other professionals and clinicians' recommendations and opinions that have examined and worked directly with college students taking prescriptions stimulants non-medically. Some of the following strategies may be helpful for educators and counselors in the college setting in greater awareness and preventative efforts of NPSU among college students. Arria and Duponts' (2010) strategies encompass

educating students on some of the myths (e.g., used as a smart pill) regarding NPSU, promoting greater awareness of ramifications (e.g., possession of stimulants not prescribed is considered a felony) in diversion of stimulants for non-medical purposes, creating greater dialogue surrounding campus action plans to decrease NPSU among college students, encouraging greater research on benefits of non-addictive forms of stimulants, and lastly acknowledging students that engage in proper use of prescription stimulants (e.g., taking it as prescribed for diagnosis of ADD) and encourage their peers of the consequences of NPSU.

Limitations

There are limitations to the present study that should be addressed in future research. This study was cross-sectional, meaning data was collected at one point in time, which also makes it difficult to gather causal inferences. Furthermore, future studies should control for factors such as GPA (Aikins, 2011). Additionally, the present study ended up having a relatively small sample size, particularly for those that reported taking stimulants, both medically and non-medically, however ended up having a relatively decent turnout given the sampling method used (i.e., convenient sampling). A challenge of the current study was in reference to the replication purposes of the target population. The study's sample size consisted of primarily White college students (91.9%) and was neither reflective nor generalizable to non-White college students. Gathering data from a more diverse makeup of college students may help future studies in collecting more generalizable findings of NPSU among college students. Lastly, the present study's convenience sampling method served as a limitation. Random sampling would have been

more generalizable to the entire population of all undergraduate college students at the Midwestern university, however the sample used in the current study did not allow for this.

Recommendations for Future Research

Further research on this topic should focus more on the integration of theoretical approaches, as opposed to motives in predicting the NPSU due to research that has supported greater correlation between theoretical approaches and stimulant use in college students (Donaldson, Siegel, and Crano, 2016). Additionally, research looking at psychological variables, such as stress, anxiety, and depression, should also be considered and investigated when examining and predicting non-medical use of stimulants on college campuses. The current findings related to the integration of social learning theory constructs and academic self-efficacy when looking at NPSU, may offer insights for those involved in research on NPSU. Lastly, future research on this subject should consider time-series research design, which is more appropriate for looking at mediating and moderating variables.

Overall, the development of research in this area of NPSU and college students has evolved throughout the years. While much research has explored NPSU, more recent research has utilized the integration and development of greater theoretical approaches, such as vested interest theory (Donaldson, Siegel, and Crano, 2016). Future research integrating greater social influences and psychological factors may be helpful in both understanding and developing and integrating greater preventative measures related to the concern of NPSU among college students (Lewis and Myers, 2012).

Conclusion

The purpose of this study was to measure the influence of the constructs of a model that includes social learning theory (measured as four independent constructs) and academic self-efficacy on nonprescription stimulant use (NPSU) in college students. The purpose was achieved through the administration of the Social Learning Theory Questionnaire (Peralta & Steele, 2010) and the College Self-Efficacy Inventory (Solberg et al., 1993) and greater questions on drug use, specifically the use of prescription stimulants non-medically. The results of this study, taken together with recent studies investigating predictors to increased NPSU among college students, support the notion that social learning theory may serve as a partial indicator in increased NPSU among college students. Research efforts focused on more theoretical approaches may help the direction of future research by honing in on more specific causes to the increase use of NPSU among college students and help those, such as counselors, in helping students that may be at-risk in engaging in NPSU. Recommendations for organizations and educators are put forth in hopes of facilitating greater dialogue among practitioners in the field of higher education relating to concerns of increased NPSU among college students.

One interesting finding from the research highlighted in chapter two, is that the concern of increased drug use in general among college students has become an increasing concern, specifically as it relates to NPSU among college students. Clearly, future research is needed to better delineate NPSU and its potential effects on learners, institutions, and society, as NPSU continues to serve as a growing concern among college campuses. If we can target specific areas of concern, such as college campuses, we can

try and identify the cause and approach in further addressing and resolving this problem.

Research on the theoretical predictors of NPSU will be useful for both researchers and practitioners in developing effective interventions for identifying at-risk students and developing effective interventions.

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Appendix A: IRB Approval Letter

Date: 16-Jun-15

IRB Protocol Number: O14505117Q

Title: Applying Social Learning Theory to Better Understand NPSU in College Students

Principal Investigator: Aneneosa Okocha

Faculty/Staff Investigator(s): Scott Peters and David Van Doren

Student Investigator(s): Natasha Hillman

Expiration Date: 13 May 2016

Modification(s) to your University of Wisconsin-Whitewater Institutional Review Board for the Protection of Human Subjects (IRB) protocol were reviewed and approved by the IRB Chair. You may now proceed with your research. If you should make any future changes in the protocol involving 1) method, 2) subjects, 3) informed consent, and/or 4) subject identification, you must submit a protocol modification. Instructions for protocol modification may be found in the IRB GUIDE.

The protocol code assigned to this project is referenced above; please specify this code in all future correspondence. You are responsible for maintaining all records related to this project for at least three years after completion of the research project. If you have questions or require additional information, please do not hesitate to contact me (rsp-compliance@uww.edu, 262-472-5288).

Kind regards,

Carol

CAROL KATCH, Compliance Manager

Office of Research and Sponsored Programs University of Wisconsin-Whitewater 2245

Andersen Library, 800 West Main Street Whitewater, Wisconsin 53190-1790

Telephone: 262.472.5288 Fax: 262.472.5214

E-Mail: katchc@uww.edu URL: www.uwworsp.org

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Appendix B

Online Survey - Research Participant Information and Informed Consent Form

Title: “Applying Social Learning Theory Constructs to Better Understand NPSU in College Students”

Description of the research

You are invited to participate in a research study about factors that influence drug use and college students. You have been asked to participate because you are an undergraduate student currently enrolled at UW-Whitewater and classify as a sophomore, junior, or senior, and are *at least* 18 years of age or older, and have completed at least 30 credits. The research will be conducted over the Internet using an online survey tool, Qualtrics.

What will my participation involve?

If you decide to participate in this research, you will be asked to complete a questionnaire that inquires about one’s own confidence in academic abilities. You will also be asked to complete a questionnaire inquiring about psychological and social influences on drug use. The number of questions you will be asked, if you choose to participate, is between 46 and 56 questions. Most people can complete this survey in no more than 15-20 minutes. This questionnaire will be conducted with an online Qualtrics-created survey. It is important for you to understand that participation is entirely voluntary. You may choose not to participate or to withdraw from the study at any time.

Are there any risks or benefits to me?

There are no direct benefits to you for participating in this study. However, participants may develop an increased awareness of NPSU, and contributing factors that may influence one to engage in the use of non-prescription stimulants. Any information or responses you provide will be held to the highest level of confidentiality. Possible/potential risks to taking this survey include feeling some discomfort about the questions or answers; however, you may skip any questions that you are not comfortable with. Likewise, if you may need assistance, or are having issues or concerns around a substance use disorder, please feel free to contact UW-Whitewater’s University Health and Counseling Services:

University Health and Counseling Services (UHCS)
Ambrose Health Center
710 Starin Road

Whitewater, WI 53190-1790
Telephone: 262-472-1300

Confidentiality

Please be assured that the responses and information you provide will be strictly confidential. All study data will be collected through an online survey-collection program called Qualtrics. Qualtrics is a secure site with SAS 70 certification for rigorous privacy standards. Any data that you provide through this program will be encrypted for security purposes using Secure Socket Layers (SSL). Only the Student Investigator (SI) and her Faculty Research Advisor will have access to the data on Qualtrics. To protect your privacy, all participants' IP addresses will be masked by Qualtrics and will be unavailable to, and unidentifiable by, investigators or others. Qualtrics' privacy policy can be obtained at <http://www.qualtrics.com/privacy-statement>. Your responses will be pooled with other participants' responses so that no one will be able to determine how any one person responded to any item. The data collected will be stored in the Qualtrics-secure database until the primary investigator has deleted it following the data analysis stage.

While the student investigator has taken several measures to maintain confidentiality, as an online participant in this research, there is always the risk of intrusion by outside agents, i.e., hacking, and therefore the possibility of being identified.

Compensation

There is no direct compensation.

Consent and Participation

Participation in this research study is completely voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your academic status, GPA or standing with the University of Wisconsin-Whitewater. Submission of the completed survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

Questions about the Research

If you have questions regarding this study, you may contact Natasha Hillman, Student Investigator, at (608) 371-7235 or HillmanNE11@uww.edu.

Questions about your Rights as Research Participants

If you have questions and you do not feel comfortable asking the investigator, you may contact the Research Advisor, Dr. Aneneosa Okocha, at (262) 472-1940 or Okochaa@uww.edu. Alternatively, you may contact the chair of the IRB, Carol Katch:

Carol Katch, IRB Chair
LPC

Office of Research and Sponsored Programs
University of Wisconsin-Whitewater
800 W. Main Street, 2245 Anderson Library
Whitewater

Whitewater, WI 53190-1790

Telephone: 262-472-5288

Fax: 262-472-5214

E-Mail: katchc@uww.edu

Aneneosa Okocha, Ph.D., NCC,

Professor, Counselor Education
Winther, Room 6044

University of Wisconsin-

Whitewater, WI 53190-1790

Telephone: 262-472-1940

E-Mail: okochaa@uww.edu

By clicking this box, you are indicating that:

You are at least 18 years old.

You have read the consent form and your questions have been answered to your satisfaction.

Your completion of the surveys implies your consent to participate in this study.

If you have read and understood the above information and are willing to participate in this research study, please click “Yes, I accept...” If you would prefer to not participate in the study, please click “No, I decline...” to exit this website.

- Yes, I accept to participate in the research study described in the text above
- No, I decline to participate in the research study described in the text above

If *No, I disagree to participate in the study described in the text above* is selected, Then

SKIP TO END OF SURVEY.

***NOTE: Once you have completed the first portion of this survey you will be**

automatically redirected to a second survey that contains the demographic

questions. By collecting this information on an external survey, we can ensure that no

identifying information will be linked to your responses on the research survey.”

Appendix C: Survey Instrument:

Course Self-Efficacy Scale (Solberg et al., 1993):

Q1. Instructions: For each statement below, fill in the number that best represents how confident you that you could successfully complete the following tasks (*Fill in one choice*)

Q1 Instructions: For each statement below, fill in the number that best represents how confident you that you could successfully complete the following tasks (Fill in one choice):

Aker's Social Learning Theory Scale (Peralta & Steele, 2010)**Q2 Please respond to the following questions: (*Differential association* subscale)**

	1 (None or almost none)	2	3	4	5 (All or almost all)
What proportion of your close friends (or friends you associated with most frequently) take prescription drugs for recreational purposes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have any of your friends ever pressured you to take prescription drugs for recreational purposes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

heroin, etc.						
Prescription drugs are less addictive than other illegal drugs such as cocaine, heroin, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 Please respond to the following questions: (*Imitations* subscale)

	1 (Very negatively)	2	3	4	5 (Very positively)
How would most of your friends react if they discovered that you were using or had used illicit prescription drugs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How would your best friends react if they discovered that you were using or had used illicit prescription drugs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How do you feel your friends view illicit prescription drug use?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 Please respond to the following questions: (Differential reinforcement subscale)

	1 (Very unlikely)	2	3	4	5 (Very likely)
Will become sick	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get arrested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If arrested, severely punished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop an addiction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit into the group better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relief from boredom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a good time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Achieve better grades	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel buzz or high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suffer a serious physical side-effect that can affect one's health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suffer from a serious mental-side effect that can affect one's mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lose weight or look more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

attractive					
Improve focus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 Have you used any of the following substances in the last 12 months?

	Yes	No
Alcohol	<input type="radio"/>	<input type="radio"/>
Marijuana	<input type="radio"/>	<input type="radio"/>
Prescription stimulants (e.g., Adderall, Biphentin, Ritalin, Dextroamphetamine, Concerta, etc.) for non-medical purposes or that were not prescribed to you.	<input type="radio"/>	<input type="radio"/>
Prescription painkillers (e.g., Morphine, Codeine, Hydrocodone, Vicodin, Percocet, etc.) for non-medical purposes or that were not prescribed to you.	<input type="radio"/>	<input type="radio"/>
Cocaine	<input type="radio"/>	<input type="radio"/>

Q7 Have you used any of the following substances in the last 30 days?

	Yes	No
Alcohol	<input type="radio"/>	<input type="radio"/>
Marijuana	<input type="radio"/>	<input type="radio"/>
Prescription stimulants (e.g., Adderall, Biphentin, Ritalin, Dextroamphetamine, Concerta, etc.) for non-medical purposes or that were not prescribed to you.	<input type="radio"/>	<input type="radio"/>
Prescription painkillers (e.g., Morphine, Codeine, Hydrocodone, Vicodin, Percocet, etc.) for non-medical purposes or that were not prescribed to you.	<input type="radio"/>	<input type="radio"/>
Cocaine	<input type="radio"/>	<input type="radio"/>

Q8 Demographic Questions (Header)**Q9 What year were you born?**

- 1997
- 1996
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- 1902
- 1901
- 1900

Q10 Did you begin at University of Wisconsin – Whitewater as a first time college student out of high school?

- Yes
- No

Q11 What is your class standing?

- First-year student
- Sophomore
- Junior
- Senior
- Unclassified

Q12 Race/ethnicity (Check all that apply):

- American Indian or Alaskan Native
- Asian
- Black or African American
- Hispanic
- Native Hawaiian or Other Pacific Islander
- White
- Other

Q13 Which gender do you identify most with?

- Male
- Female

Q14 How many credits are you enrolled in this semester? (Example: 14)

Q15 How many hours do you work per week?

- 1-10 hours
- 11-20 hours
- 21-30 hours
- 31-40 hours
- More than 40 hours
- I don't work during the school year

Q16 What is the highest level of education you ever expect to complete?

- Some college
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral degree
- Other (please specify): _____

Q17 Are you a member of a social fraternity or sorority?

- Yes
- No

Q18 Which of the following best describes where you are living while attending college?

- Dormitory or other campus housing (not fraternity or sorority house)
- Fraternity or sorority house
- Residence (house, apartment, etc.) within walking distance to the institution
- Residence (house, apartment, etc.) farther than walking distance to the institution
- None of the above

Q19 Are you a student-athlete on a team sponsored by UW-Whitewater's athletics department?

- Yes
- No

Appendix D

Cover Letter Email to Student Participants

Dear student,

My name is Natasha Hillman and I am a graduate student in the Master of Science in the Counselor Education program at the University of Wisconsin – Whitewater. I am conducting research under the direction of Dr. Aneneosa Okocha, to fulfill my thesis as a part of the Counselor of Education program. You are invited to participate in this research study exploring your ability to be successful in college. You have been asked to participate because you are an undergraduate student currently enrolled at the University of Wisconsin-Whitewater.

This research will be conducted over the Internet using an online survey tool. You will be asked a series of questions regarding your attitudes and beliefs, followed by a brief demographic section. Participation in this study should take no more than 15-20 minutes. Participation in this study is voluntary and you may withdraw from participation at any time. Lastly, any information or responses you provide will remain strictly anonymous. Remember, your participation is completely voluntary and you may choose to skip any questions you would not like to answer.

Follow the link below to take the survey:

<Insert Survey Link>

If you have any questions about the research, please contact Natasha Hillman, Student Investigator, via email at HillmanNE11@uww.edu or by phone at (608) 371-7235.

Thank you for your participation!

Sincerely,

Natasha Hillman
Graduate Student
Pursuing Master of Science in Counselor Education
University of Wisconsin – Whitewater

Appendix E

First Survey Reminder Email to Participants

Dear student,

Last week you received a communication requesting your participation in a survey. If you have completed the survey, thank you. If you have not, please consider participating in this study. Again, this is a research study being conducted as part of my Master's research project under the direction of Dr. Aneneosa Okocha in the Master of Counselor of Education program at the University of Wisconsin – Whitewater.

The survey is 8 pages in length. The first page is instructional in nature, so read over the information before taking the survey. The subsequent pages contain questions or statements for you to respond to. The last page contains a brief demographic questionnaire. It should take you no more than 15-20 minutes to complete the anonymous survey. To get to the survey, click on this link:

<Insert Survey Link>

Thank you for taking the time to complete the survey.

Sincerely,

Natasha Hillman
Graduate Student
Pursuing Master of Science in Counselor Education
University of Wisconsin – Whitewater

Appendix F

Final Survey Reminder Email to Participants

Dear student,

Thank you to all those that completed the survey that came out a couple of weeks ago. You are helping a graduate student complete her Master's, and I am grateful to you. To those that have not filled out the survey, I will keep the link open for another week or so. I would be extremely grateful to anyone else who would be willing to complete the survey. Again, this is a research project being conducted as part of my Master's capstone project under the direction of Dr. Aneneosa Okocha in the Master of Science Counselor of Education program at the University of Wisconsin – Whitewater. The survey is 8 pages in length. The first page is instructional in nature, so read over the information before taking the survey. The subsequent pages contain questions or statements for you to respond to. The last page contains a brief demographic questionnaire. It should take you no longer than 15-20 minutes to complete the survey. To get to the survey, click on this link:

<Insert Survey Link>

Thanks kindly,

Natasha Hillman
Graduate Student
Pursuing Master of Science in Counselor Education
University of Wisconsin –Whitewater