SCHOOL ENCOURAGEMENT, SUBSTANCE USE, AND THE IMPORTANCE OF VALUING EDUCATION IN AFRICAN AMERICAN ADOLESCENTS

A THESIS

SUBMITTED ON THE TWENTY-SEVENTH DAY OF FEBRUARY 2015

TO THE DEPARTMENT OF PSYCHOLOGY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

OF THE SCHOOL OF SCIENCE AND ENGINEERING

OF TULANE UNIVERSITY

FOR THE DEGREE

OF

MASTERS OF PSYCHOLOGY

BY

Xzania White Lee

Approved:

Michael Cunningham, Ph.D., Chair

Courtney Baker, Ph.D.

Stacy Overstreet, Ph.D.

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School Encouragement, Substance Use, and the Importance of Valuing Education in African American Adolescents

"Would you close your eyes for a second, and envision a drug user, and describe that person for me?" A study conducted in 1989 by Watson and Jones asked this precise question to approximately 400 adults in the Washington, DC community to gather empirical data on substance use stereotypes. The researchers discovered that over 95% of the participants, both Black and non-Black, identified their imaginary drug user as African American (as cited in Burtson & Roberson-Saunders, 2001). Burtson and Roberson-Saunders (2001) ascertain that such a widely held negative belief may cause African Americans to be under closer scrutiny than their White counterparts in almost all institutional relationships, which may result in many negative outcomes for those of African descent. The racial stereotype related research that has been conducted in the field of social psychology, such as that of Correll and colleagues (2015), has demonstrated that stereotypes guide visual processing. For instance, past research has found that, due to stereotypes, Black stimuli promote more hostile responses than White stimuli (Correll, Wittenbrink, Crawford, & Sadler, 2015; DeHouwer, 2003; Payne, B. K., Shimizu, Y., & Jacoby, L. L.., 2005). More specifically, in the Correll and colleagues study (2015), information about guns accumulated more quickly if the perceived target was Black holding an ambiguous object, resulting in a quicker shooting response. While information about cell phones and wallets accumulated more quickly if the target was

White holding an ambiguous object, resulting in a slower, more accurate shooting response.

Given this information, it is appropriate to surmise that the maintenance of inaccurate perceptions and beliefs about African Americans can have devastating effects for those belonging to this racial and ethnic group. For example, law enforcement officers who believe many substance users are African American may intentionally or unintentionally arrest Blacks more than Whites (Burtson & Roberson-Saunders, 2001). This sort of ethnographically skewed enforcement effort may be the cause for much of the reported racial disproportionality in the incarceration system. Sources, such as the National Association for the Advancement of Colored People (NAACP), frequently collect data on these matters, in which they have noted that about 14 million Whites and 2.6 million African Americans report using an illicit drug. However, African Americans are sent to prison for drug offenses at ten times the rate of their White counterparts (NAACP, 2015). Furthermore, negative stereotypes may hinder members of this racial and ethnic group from obtaining highly valued social or economic achievements in American culture, such as: desirable employment positions, attending prestigious universities, or securing homeowners and business loans.

Considering all of these matters, it is necessary for researchers to debunk the myth that most substance users are African American. This can be done through culturally sensitive empirical explorations and the dissemination of the truth concerning substance use patterns in the African American community. Unfortunately, not much work has been disseminated to the community about the resilience of this population; and even less has been done to explore factors that contribute to their resilience and help buffer against

substance use engagement. Their resilience concerning substance use is especially interesting considering many of the major drug trafficking "retail centers" are disproportionally located in urban, low-income African American communities (Burtson & Roberson-Saunders, 2001), and many of them manage to steer clear of participating in the drug culture in their neighborhoods. Thus, conducting research that focuses on their resilience, instead of their deficits, may help reduce the perpetuation of negative stereotypes, which may hinder their social and economic progression.

In examining substance use patterns among African Americans, it is important to focus on the particular developmental period of adolescence, because past research has shown that early onset of substance use has been associated with drug abuse and experimentation with more serious drugs in adulthood (Anderson, Sitney, & White, 2015; Patrick, Schulenberg, Omalley, Johnston, & Bachman, 2011). Typically, most people begin to experiment with drugs and alcohol prior to the age of 25 years old.

Therefore, adolescence seems to be an opportune time to investigate factors that are maintaining the low national substance use rate among African Americans (National Survey on Drug Use and Health, 2011). More empirical investigation of these undetermined factors may assist in keeping substance use rates low in African American communities, which is important because African Americans are considered to be a vulnerable population. This means that they are more susceptible to many injustices such as: racial discrimination (Seaton & Douglass, 2014), high unemployment rates (Schaffer & Taylor, 2012), high incarceration rates (Mukku et al., 2012), poverty (Macartney, Bishaw, & Fotenot, 2013), and negative stereotyping. Therefore, it would not be beneficial for African Americans to be vulnerable to high rates of substances use because

they are already at risk for many other social and economic challenges. In fact, a significant rise in their substance use patterns may negatively impact and worsen their aforementioned conditions. Moreover, investigating factors that may be contributing to their current resilience against substance use engagement may make it possible to prevent any further increases and lower their use even further. Subsequently, empirically demonstrating and publicizing African Americans' overall low use of substances and the associated factors may positively affect the adverse conditions experienced by this group through the reduction of negative stereotyping.

It is not uncommon for many adolescents to illegally experiment with substances. The most common substances: alcohol, cigarettes, and marijuana, have been referred to as gateway drugs (Merrill, Kleber, Shwartz, Liu, & Lewis, 1999). The gateway drug theory suggests those who use non-deleterious substances have an elevated risk of using more serious substances than youth who do not use gateway drugs. Additionally, the theory points out that not all youth who smoke or drink alcohol will engage in harmful drug use behaviors later in life (Merrill et al., 1999). But, there have not been any concrete conclusions or explanations of individual differences that may convey why some who experiment with gateway drugs go on to use more dangerous substances or become more heavily involved in drugs and others do not.

As mentioned earlier, African American adolescents have lower rates of substance use than their White American peers (National Survey on Drug Use and Health [NSDUH], 2011). However, the national averages indicate that there is a fairly recent change in African American adolescents' substance use engagement, in which they continued to have a lower national average rate of past month substance use compared to

other racial and ethnic groups, but have increased their consumption of marijuana. According to the 2011 National Survey on Drug Use and Health, African American adolescents, aged 12 to 17, increased their rate of past month marijuana use from 5.9 percent in 2008 to 7.5 percent in 2010 (NSDUH, 2011).

While reports of substance use for the U.S. population are available (see NDSUH, 2011), the research on patterns *and* associated variables for African American substance use is minimal. Instead, the extant literature associated with African American adolescents is full of examples of the negative consequences associated with substance usage (e.g., early school exits, mental health challenges, antisocial behaviors) (Bryant & Zimmerman, 2002; Friedman, Terras, & Zhu, 2004; Kandel et al., 1986; Newcomb & Bentler, 1985). Investigating attitudes, processes, and precursors that may contribute to or buffer against African American youth's pattern of substance use may help stop their marijuana rates from rising further.

Earlier literature has found that there are negative short-term and long-term consequences of adolescent substance use, such as low academic achievement, behavior problems, job instability and unemployment (Friedman, Terras, & Zhu, 2004; Kandel et al., 1986; Newcomb & Bentler, 1985). However, some authors have found no such affect (Bachman et al., 1997). Bachman and colleagues (1997) posited that poor outcomes may be negatively correlated with individual differences in school investment, which may be inferred as the value one places on education. This means, as a person's value for education increases, the prevalence of negative outcomes decreases and vise versa. The concept of valuing school and its relevance is discussed more in depth further along in the current study.

When individual differences have been explored in the past to explain differential levels of substance use engagement in African American samples, academic performance variables are utilized most often. Previous work has found a strong relationship between low academic achievement and substance use (Williams & Davis, 2007). However, focusing only on academics and its association with substance use may not be sufficient with racial and ethnic minority populations. For instance, research by Bryant and Eccles (2007), which included an ethnically diverse population, posited that students who have high academic achievement also experiment with substances, and that not all students with academic difficulties engage in substance use.

Other studies have consistently linked adolescents' school experiences to substance use engagement (Bryant & Zimmerman, 2002). This research has indicated that negative school experiences, such as disciplinary problems and weak bonds to school, are risk factors for substance use (Bryant et al., 2003; Dryfoos, 1990; Voelkl & Frone, 2000). However, the relationship between positive school experiences, such as teacher support, and substance use is very seldom investigated in the literature. One would assume that because negative school experiences have a positive relationship with substance use, positive school experiences would have a negative relationship with substance use. However, there is not much empirical evidence to support this. Typically, positive school experiences, such as teacher support, are associated with academic outcomes (Hayes & Cunningham, 2003). But, researchers know very little of how positive experiences like teacher encouragement or support impact the student outside of the classroom.

Moreover, looking at experiences alone does not seem adequate, as there are

many students that have similar school experiences but may have different outcomes. For instance, two students may both receive complimentary levels of school encouragement, but, one may experiment with substances and the other may not. The dissimilarity in substance use outcomes suggests that some individual difference exist. Previously conducted research has demonstrated that having positive attitudes toward academics and valuing school may serve as a protective factor against substance use for high-achieving students (Evans & Skager, 1992). However, empirical research investigating these factors among high-achieving African American adolescents is scarce, so it is unknown if similar patterns would emerge. A study by Conner, Mason, & Mennis (2012) found that among their sample, which consisted of majority African American, urban adolescents, having greater negative school experiences, operationalized as dissatisfaction with school and teachers, were associated with greater substance usage; however, valuing school was not related to substance use engagement. Though a unique study, Conner and colleagues' (2012) work did not examine whether or not valuing school moderated the relationship between school experiences and substance use, which may have provided some additional useful information to the study. The qualitative component of this study revealed an interesting trend: many of the students, who were attending an urban, public school in an East Coast city, reported that school was seen as a pathway to attain later goals, which increased its overall value and allowed them to persist in school despite having negative school experiences. From the theme the authors noted in their participants' responses, it appears that a positive view of school serves as a protective factor that contributes to the resilience of this particular group of adolescents.

Despite the findings in the Conner and colleagues' study (2012), college plans—a

future goal that will be referred to as academic future expectations in the current study, have been strongly and negatively associated with concurrent substance use in other studies (Bryant et al., 2002 & 2003). Understanding the relationship between adolescent substance use, school experiences, and academic future expectations in African American adolescents may provide an explanation for their nationally low substance use engagement rates. More specifically, it is important to investigate how academic future expectations impact the relationship between school experiences and substance use, as that component is missing from the existing literature. Further understanding of the specific types of school experiences that are related to subsequent drug use, and how academic future expectations impact that relationship, may add to the existing educational research literature. Such research may inform methods to assist in maintaining low drug initiation in urban, African American populations, advocate for the advancement of school-level factors (e.g. better technology and more experienced teachers) in low resource neighborhoods, and combat negative stereotyping of this group. Additionally, these discoveries may help stop the rising rates of African American marijuana use. In conducting this research, a theoretical framework that is useful in deciphering the experiences of African Americans is needed.

Theoretical Framework

The proposed research will use the phenomenological variant of ecological systems theory (PVEST) (Spencer, 1997, 2006) to help explain why some African American adolescents engage in high levels of substance use and some do not. PVEST extends Bronfenbrenner's (1979) ecological systems theory to take into account how the environment can present both challenges and supports. It also includes how individuals

perceive these challenges and supports, and how they respond to them (Spencer, 1997, 2006). PVEST is a cyclical model that consists of five parts. Those elements are net vulnerability, net stress engagement, reactive coping strategy, emergent identity, and life-stage outcome.

Net vulnerability, which is the first component of the PVEST model, is the sum total of the individual's risk and protective factors. Single parent homes, living in impoverished communities, and poor school quality are examples of risk factors. Protective factors may consist of having a supportive network of extended family (e.g., biological as well as fictive) and friends, having economic resources, and receiving encouragement at school. It is the combination of the risk and protective factors that make up an individual's net vulnerability. Every person has their own unique risk factors and protective factors, and it is the way these factors balance out one another that contributes to an individual's long-term outcomes. For instance, this may explain why some people who live in poverty do not always have negative life outcomes because they have many protective factors to buffer the effects of the risk factors. Hence, it is important to consider net vulnerability—how risk and protective factors interact with each other—when examining vulnerable populations such as African Americans.

How one forms opinions about the factors that contribute to their net vulnerability is greatly impacted by what one believes others think about him or her. According to Spencer (2007), this self-evaluative and appraisal process is unavoidably linked to the experience of stress. Therefore, the second component of PVEST is net stress engagement. Net stress engagement is the sum total of the current challenges and supports available to the individual. Spencer (1997) points out that it is very likely that

individuals may experience several challenges and supports simultaneously. Many of these challenges and supports are directly and reciprocally linked to components of net vulnerability. That is, net stress engagement can be viewed as a person's evaluation or perception of their inherent net vulnerability. The challenges, which Spencer (1997) refers to as the first level of stress engagement, is a self-report of whether an adolescent has experienced certain stressful events in the past, such as growing up in a stressful neighborhood and witnessing community violence or exposure to overt substance use. The second level of net stress engagement is perceived social support, which is concerned with the phenomenological experience of stress. Examples of this include perceived level of popularity with peers and social support from teachers. It also includes, whether or not the adolescent views parenting practices as intrusive or attentive. Because stressful experiences require a response, it is important to note that adolescents' view of parental monitoring may result in their execution of good stress management or poor stress management, which is directly related to the third element of PVEST: reactive coping strategy.

Reactive coping strategy is the way that the individual chooses to cope with challenges and supports from the previous component. It is possible for individuals to cope with a challenge in an adaptive or maladaptive fashion. For instance, substance use may be considered a maladaptive coping strategy for adolescents who are experiment with using drugs to deal with their academic failure. However, adolescents with high academic achievement may view occasional substance use as an adaptive coping method if it is helping them achieve peer popularity. Thus, PVEST encourages researchers to consider the contextual relations of coping behaviors.

Following reactive coping strategies is emergent identities. This is the way that individuals interpret or perceive their abilities to cope with environmental challenges. Stable coping strategies may be positive or negative. The way individuals view their coping strategies affect the way they handle similar situations in the future. The last component of the PVEST model is the life-stage outcome. This is the outcome that follows challenges or supports that the individual encounters in the environment. Life-stage outcomes can be considered either productive or unproductive. Adaptive coping behaviors are likely to produce emergent identities that are linked to productive life stage outcomes, and maladaptive coping behaviors are likely to be linked to an emergent identity that may produce unproductive life stage outcomes. As a cyclical model, life stage outcomes may influence net vulnerability. For example, if you an African American adolescent who grew up in poverty and was exposed to several life stressors such as community violence, the adolescent who used maladaptive coping strategies (e.g., experimentation with illegal substances) may have an emergent identity that devalues school achievement. Thus, the life stage outcome is low academic achievement. The low achieving student may be viewed, or tracked, as a challenging student as a part of the net vulnerability. Alternatively, the same adolescent who grew up in poverty and was exposed to neighborhood challenges may have supportive adults in school that encouraged the teen to focus on academic achievement. Thus, the coping method used to deal with the net stressors is one of valuing school, which is associated with an emergent identity of a scholar. The life stage outcome is more likely to be school success. This later example, in a PVEST framework, would recycle through the ecological process impacting the net vulnerability level as being seen as the adolescent who grew up in

poverty, but is resilient despite the challenges that the teen experienced. The cyclical process continues throughout the life-course. Spencer (2006) encourages researchers to use developmentally specific considerations to understand how the PVEST components impact human development over time.

Overall, PVEST supplies a comprehensive framework for thinking about how individuals perceive and respond to their environment. PVEST is especially useful for the current study, thus it focuses on a portion of this all-inclusive model, specifically: net stress engagement and reactive coping strategies. Hence, the current study seeks to understand how urban, African American adolescents perceive certain challenges and supports in their academic environment and how it affects the coping strategies they chose to employ. More specifically, this study seeks to use PVEST to help theorize how these adolescents' perception of their school experiences is related to their substance use engagement, and how their academic future expectations impacts that relationship.

Throughout the years, existing literature has framed adolescent substance use and academic experiences as an almost domino effect. First, researchers proposed that adolescents are more inclined to cut class, fail to complete their schoolwork, and misbehave when they are not behaviorally or psychologically engaged in the classroom (Brophy, 1996; Steinberg, 1996). Second, the feelings of frustration that accompanies the poor academic performance may lead to increased school misbehavior and weakened bonds to school (Hawkins & Weis, 1985; Simmons & Blyth, 1987; Sommer, 1985). Consequently, the resulting misbehavior and school disengagement provides adolescents with more opportunities to use substances by forming attachments to delinquent peers who encourage truancy and substance use, or they may be using substances as a coping

mechanism to deal with the school failure (Bryant et al., 2000, 2003; Hawkins & Weis, 1985).

Examining adolescent substance use in this manner completely ignores the perceptions and experiences of the individual. In fact, this sort of view is examining adolescence from a deficit perspective—attempting to point out what is wrong with the substance using teenagers. Instead, it seems more efficacious and culturally sensitive to consider the adolescent's perspective of the many contributors and motives that may lead to substance use. For this reason, the current study examines substance use patterns of urban, African American youth from a PVEST perspective.

With PVEST as a theoretical framework, the current research is focused on the relationships between adolescent school experiences, specifically perceived school encouragement, and frequency of substance use, with academic future expectations (AFE) as a moderating variable (see *Figure 1*). The present study's model encompasses a portion of the larger PVEST model, in which the participant's demographic variables, such as race and ethnicity, socioeconomic status (SES), and neighborhood quality are apart of their net vulnerability. The independent variable, school encouragement, is considered a part of their net stress engagement; and the dependent variable, frequency of substance use, is a reactive coping response to perceived stress. The moderating variable, academic future expectation (AFE) is viewed as a part of their emergent identity because it is indicative of whether or not he or she views himself or herself as a scholar. In line with the PVEST framework, it is one's view of his or her identity and self-efficacy that reciprocally impacts coping strategies and directly contributes to life stage outcomes. For instance, if an adolescent views himself as a scholar he may chose to experiment with

substances due to social pressures. However, he may not experience the same negative life stage outcomes as his counterpart that does not view himself as a scholar. This is because he realizes that he cannot let substance use hinder his desire to attain certain academic goals.

Literature Review

This conceptual model is based on the literature that demonstrates how adolescent school experiences are associated with substance use during adolescence (Bryant et al., 2003; Dryfoos, 1990; Voelkl & Frone, 2000). However, the majority of the studies have investigated these relationships primarily with samples that have included little to no African American students. Only a few studies have focused on the relationship between substance use and academic performance specifically among African American students (Conner, Mason, & Mennis, 2012; Zimmerman & Schmeelk-Cone, 2003). Furthermore, many of these links have not been extensively examined among African American adolescents that live in urban environments, neither have explanations been provided as to why students with academic difficulties seem to be more likely to use substances (Bryant & Zimmerman, 2002).

Like most studies, the present study considers substance use to be an outcome measure. Therefore, it is important to first discuss the literature that outlines the effects of substance use on adolescent functioning. Then, it is necessary to disentangle what is currently known about the precursors to adolescent substance use, including the role of school experiences and valuing education. These constructs and some of their correlates are explained in more detail in the following sections.

Adolescent Substance Use

The dependent variable in the current study, adolescent substance use, has many

consequences that affect the individual and the society. For an adolescent, consistent drug and alcohol use can lead to drug abuse that may weaken motivation, interfere with cognitive processes, contribute to debilitating mood disorders, and increase risk of accidental injury or death (Hawkins, Catalona, & Miller, 1992). For the society at large, adolescent substance abuse can lead to a high cost in health care, educational failure, increase the need for more mental health services, and drug and alcohol treatment, and increase the prevalence of juvenile crime (Hawkins, Catalona, & Miller, 1992). Because of the possibility of the occurrence of these negative outcomes on the individual and societal levels, it is necessary to discover the factors that contribute to adolescent drug initiation, so that preventative measures can be taken. The issue lies with the lack of attention that is being given to the motive or reasons to why adolescents use substances.

At the outset, it is critical to differentiate between drug use and abuse. Over the years, the distinction between substance use and abuse has been difficult to determine because abuse is such a multidimensional construct, and it may look very different with each individual (Newcomb & Bentler, 1989). However, negative reactions or adverse consequences to self, others, or property provides the backbone to defining abuse (Long & Scherl, 1989). The consumption of substances in inappropriate settings such as the workplace, classroom, or driver's seat, or consumption in isolation is also a characteristic of drug abuse even though potential consequences may not have occurred yet (Newcomb & Bentler, 1989). Furthermore, regular use of substances during critical life periods, such as when a person is young or has not yet reached puberty, can also be considered abuse as it can interfere with crucial cognitive and physical development. It is possible to tell that a person's drug use has progressed into abuse when they begin to have declining health,

impaired relationships, criminal behavior, an increase in physical or verbal altercations, or black outs (Newcomb & Bentler, 1989).

Unsurprisingly, it is more challenging to differentiate between adolescent drug use and abuse, as all substances are illicit for this age group. Therefore, it is difficult to imagine any type of adolescent substance use that would not be considered abuse (Newcomb & Bentler, 1989). But in our society, guided experimentation, in which a parent allows a child to occasionally sample alcohol, is not considered abuse. Infrequent use of alcohol, marijuana, or cigarettes with peers is also considered substance use and not abuse. However, a review of the literature on youth's substance use and abuse by Newcomb and Bentler (1989) stated that over indulgence of any substance to the point of being extremely intoxicated is considered acute or temporary abuse; and if it continues it is considered chronic abuse.

The National Institute of Drug Abuse (2010) stated that there are four primary reasons why people abuse substances: (a) to feel good, (b) to feel better, (c) to do better, and (d) out of curiosity or because others are doing it. Though there are a wide variety of influences that impact the initial engagement of drug use, peer influences have been identified as the most consistent and strongest of all factors (Kuntsche, Knibbe, Engels, & Gmel, 2010; Newcomb & Bentler, 1989). Thus, those who use substances tend to have friends who use substances as well (Hawkins & Weis, 1985; Reinherz, 2000). The relationship between peer influences and its relation to substance use is overwhelmingly discussed in the literature. The impact of academic experiences and perspectives is less frequently discussed in the literature. Therefore, the present study seeks to understand what other factors, other than peer influence, may motivate adolescents to engage in

substance use, as there are many understudied factors, especially within African American communities. Due to the strong impact of peer influence on adolescent substance use, having friends that use substances will be included as a control variable in the present study.

Kuntsche and colleagues (2010) demonstrated that along with peer influence, there are other factors that contribute to adolescent substance use. The authors reported on the results of the European School Survey Project on Alcohol and Drugs. In their study, they examined alcohol use motives among Swiss adolescents, aged 13-17 years old that engaged in heavy episodic drinking. They referred to this type of substance use as risky single occasion drinking (RSOD), which entails an adolescent consuming five or more drinks during a single occasion. Kuntsche and colleagues measured RSOD by asking the following survey question: “Think back once more over the last 30 days. How many times (if any) have you had five or more drinks in a row?” The response categories ranged as follows: “None, 1, 2, 3–5, 6–9, and 10 or more times.” Though this measure’s primary purpose is to determine overconsumption of alcohol, this scale specifically focuses on frequency of usage, much like the scale that is used in the present study.

Moreover, adolescents who met the RSOD criteria were coded into two broad groups based on their responses on a drinking motives scale known as the DMQ-R. The categories were “enhancement drinkers” and “coping drinkers.” Characteristics of enhancement drinkers denoted use for positive reinforcement, including drinking to get high or because they liked it, whereas characteristics of coping drinkers denoted use for negative reinforcement, which included using alcohol to forget problems or when experiencing negative affect, such as depression or anxiety. This study found that

negative reinforcement drinking, and not positive reinforcement drinking, was associated with problems, such as drinking at home alone and poor relationships with family and peers. Hence, this group may be more vulnerable to have a more serious use with substances later in life because they are ineffectively using alcohol to cope with problems. This is a profound discovery, as it appears teens that engage in substance use to have a good time often do not encounter negative outcomes as their peers who are using substances to escape perils or relieve themselves from stress. Therefore, the current study seeks to explore a group of seemingly well-adjusted African American adolescents who may use substances for positive reinforcement. This group is not frequently studied.

Though the Kuntsche and colleagues (2010) study provided a novel way to think about adolescents who engage in substance use, it is not without limitations. A potential drawback to this study is that the dichotomous grouping of RSOD adolescents as either coping or enhancement drinkers creates the possibility of the misclassification of those who do not clearly fit into a particular category. For this reason, the proposed study will not group the participants into these sorts of categorical variables and will simply explore the self-reported frequency of substance use.

Despite this methodological limitation, the results are consistent with a longitudinal study done by Patrick and colleagues (2011), which found that negative reinforcement drinking was more related to heavier use and alcohol use disorder symptoms at age 35. The participants in this study are a part of *Monitoring the Future*, which is an ongoing project in the United States that surveys a nationally representative sample of about 16,000 high school seniors every year since 1975. Those included in this study were 1,015 seniors from the high school classes of 1976 to 1990 who had used the

specified substance within the last 12 months, responded to the reasons for using substances at age 18, and participated in a follow-up at age 35. The participants were asked how many times in the last 12 months did they use alcohol. They were also asked the same question regarding their marijuana use. To assess their reason for engaging in substance use, the participants were asked "What are the most important reasons for using alcohol/marijuana (Check all that apply.)?" There were 13 response options that were conceptually grouped into social/recreational reasons (*to have fun*), coping with negative affect reasons (*to relax*), compulsive use reasons (*to get through the day*), and drug effect reasons (*to increase the effect of some other drug*). Lastly, the authors assessed whether the participants were still using substances at age 35. Those that were still engaging in substance use completed a survey item that assessed if their use of substances was negatively impacting functioning in certain domains of their life (e.g. finances, criminal behavior, and relationships with spouse or parents).

The robust discoveries from Patrick and colleagues' (2011) project and the previous study indicate that it is not just the substance engagement behavior itself that creates poor outcomes, but the experiences and motives that guide the behavior that influences the future of the individual. The study's findings are in line with the PVEST framework, which stresses the importance of incorporating participants' experiences and perspectives when conducting research in order to make more accurate empirical conclusions. It is important to note that the two studies' findings do parallel one another even though they were performed in different countries and were conducted with different racial and ethnic populations, which further validates Kuntsche's claim that drinking motives have been shown to be highly stable across cultures (2010).

As mentioned previously, studies that include a multitude of African American participants are scant. However, a few scholars have dedicated their work to this cause. A study published by Williams and colleagues in 2007 examined substance use patterns with 212 urban, African American students located in the Midwestern United States. The mean score of three survey items measured alcohol use: On how many occasions (if any) have you (1) "Had beer, wine, or hard liquor in the past 30 days?" (2) "Had beer, wine, or hard liquor in your lifetime?" and (3) "Think back over the past two weeks. How many times have you had five or more alcoholic drinks in a row?" Each item was measured on a 7-point Likert scale with 1= 0, 2= 1-2, 3= 3-5, 4= 6-9, 5= 10-19, 6= 20-39, and 7= 40 or more occasions. The first two questions were also used to assess marijuana usage. Similar to the previous studies mentioned, the present study utilizes questions such as the first two questions in the Williams and colleagues (2007) study, in which the participants in the present study are asked to recount their frequency of substance use within the last twelve months.

Moreover, the authors found that the participants had higher marijuana rates than alcohol rates; however, the overall usage of both substances was relatively low. In fact, fewer than 4% (3.8%, $n = 8$) of the students reported alcohol use 10 or more times over the past 30 days, while 13.2% ($n = 28$) of the students reported marijuana use 10 or more times over the past 30 days. Despite this study's modest sample size, their results still reflected the information provided by the 2011 *National Survey on Drug Use and Health*. The results also parallel other literature that suggests that African American youth have lower rates of lifetime substance use than other racial and ethnic groups (Johnston, O'Malley, & Bachman, 2011).

It is important to note that cigarette use, alcohol use, and marijuana use often co-occur, meaning that some individuals who use one of these substances are at risk for use of the others (Degenhardt, Hall, & Lynskey, 2001; Duhig et al., 2005). For instance, Schulenberg and colleagues (2005), who also utilized the nationally representative sample from the *Monitoring the Future* data, were able to show that membership in the chronic marijuana group predicted the highest rates of binge drinking and tobacco use among emerging adults, while the abstainer marijuana use groups predicted the lowest rates. For this reason, the current study not only examines substances individually, but also examines them collectively to yield a global substance use assessment. This should allow for a broader view of substance use patterns among urban, African American adolescents.

Sex differences in African American adolescent substance use. Additionally, this review of the literature sought to note sex related trends in studies with predominately African American samples. However, it failed to do so. Despite the purposeful search, there is blatant inconsistency in the literature regarding sex's association with adolescents' frequency of substance use and academic factors that impact that use (i.e. school encouragement and teacher involvement). Sex differences among African American adolescents have been both detected (Zimmerman & Schmeelk-Cone, 2003) and undetected (Conner et al., 2012; Williams et al., 2007) when examining frequency of alcohol, cigarette, and marijuana use. When examining factors that impact substance use patterns (i.e. academic motivation and school encouragement) among African American adolescents, sex differences have been both present (Bryant & Zimmerman, 2002; Hayes & Cunningham, 2003; Zimmerman & Schmeelk-Cone, 2003) and absent (Bryant &

Eccles, 2007; Conner et al., 2012). Thus, when looking at the pattern of sex differences across the ethnic group, there are no existing normative trends. At times, males have higher levels of substance use than females and sometimes the opposite pattern emerges. Additionally, when correlational analyses reveal sex differences, it is not uncommon for sex to not significantly contribute to the study's regression analysis. With that being said, there are a still many inconsistences in the literature concerning sex effects. It is likely that these inconsistences are due to the closing of gender gaps as it relates to substance use. Due to the inconsistencies, the current study does not make any sex related hypotheses, instead, sex is investigated in an exploratory manner.

School Experiences

Historically, failure in school was linked to drug use and abuse (Jessor, 1976; Robins, 1980). However, focusing only on academics and its relationship with substance use may not be sufficient because it lacks context and does not account for the experiences of the individual. Consistent with the PVEST model, it is important to consider adolescents' perceptions of their environment (Bryant et al., 2003). Decades of research have shown that negative school experiences are known risk factors for substance use (Bryant et al., 2000, 2003; Dryfoos, 1990; Voelkl & Frone, 2000). These negative school experiences in these studies include low academic achievement, low motivation, truancy, weak bonds to school, and acting out in the classroom.

More specifically, Bryant and colleagues (2000) found that academic achievement and school misbehavior are associated in a reciprocal relationship. Therefore, low levels of one are associated with increases in the other over time, particularly during early adolescence. Some research, such as that conducted by Bryant and Zimmerman (2002),

has concluded that students that have these negative experiences are more likely than those with more positive school experiences to use alcohol, cigarettes, and marijuana. The sample used in this study included 785 students from working class families that attended public high schools in a large, urban city. The majority of the participants were African American (79.8%), and gender was evenly split (50.6% female). As with the aforementioned studies, the authors obtained self-report frequency counts of their participants' alcohol use, cigarette use, marijuana use, and binge drinking habits. They also examined factors such as academic achievement, truancy, parental and peer support, perceptions of friends' positive school experiences, and achievement-related motivational beliefs and values.

Overall, the authors discovered that concurrent substance use was impacted by school related factors. For example, those with higher levels of academic achievement used substances less than those with lower levels of academic achievement, and those with higher levels of truancy used substances more often than those with lower levels of truancy. It is important to note that adolescents who reported that their friends have positive school experiences and use fewer substances reported lower levels of overall substance use themselves. These results extend previous findings that adolescents' school experiences are related to their substance use, and emphasize the importance of examining the role of having positive experiences in the school setting. This study was groundbreaking because it extended previous literature that claimed adolescent substance use is related to their experiences, but had only been tested with large national samples. Bryant and Zimmerman (2002) were able to replicate findings that were previously done with majority middle class Caucasians, with African Americans in an urban, working

class setting.

For instance, the aforementioned Bryant and colleagues (2000) sample consisted of 3,056 participants that were part of a larger ongoing study. They considered themselves to have a nationally representative sample with 65.8% of the sample being Caucasian, 10.3% African American, 6.9% Hispanic, 5.4% Native American, and 1.8% Asian American, 7.2% reported ‘‘Other’’, and 2.6% had missing data. The sample was almost evenly split by gender with 54% of the participants identifying as female (Bryant et al., 2000). A potential problem with samples such as these, when applying the discoveries to racial and ethnic minority populations, is that they do not properly represent the minorities’ household or familial makeup. The Bryant and colleagues (2000) study consisted of a sample in which 80% of the youth lived in a two parent household, 14% lived with mothers only, and 2% lived with grandparents or other relatives. These demographics are not reflective of many African American families today. For instance, past literature with African American samples have reported that many of their participants lived in single parent homes that are typically headed by mothers, and they also have resident extended kin such as grandparents (Blair, Blair, & Madamba, 1999; Francois, Overstreet, & Cunningham, 2012) Such demographic factors of African Americans is distinctly contradictory to the previously listed statistics from the nationally representative sample. The contradiction is essential to note because family environments, parental support, and parents’ norms concerning substance use impact adolescents’ academic achievement levels and substance use involvement (Bryant et al., 2000; Bryant & Zimmerman, 2002). Thus the findings, from these representative samples may not generalize to populations of color.

Furthermore, students who use substances have more reported instances of truancy and disciplinary problems, such as suspensions and expulsions, than students that do not use substances (Bryant et al., 2000; Shannon, James, & Gansneder, 1993; Welte & Barnes, 1987). In fact, Bryant and colleagues (2000, 2003) found in their nationally representative sample that truancy, school misbehavior, and low academic achievement are among the strongest predictors of cigarette use and negative school outcomes. Additionally, students who reported high levels of school misbehavior and low levels of academic achievement use marijuana more than others (Bryant et al., 2003). These correlations are reciprocal in nature; hence low levels of one are associated with increases in the other over time (Bryant et al, 2000).

Though this relationship between disciplinary problems, academic achievement, and substance use has been found many times, it is not an all-inclusive model. At best, it is omitting two categories of adolescents that are not referenced often in the literature: Youth that have poor school experiences but do not use substances and youth that are high achieving and value their education, but still engage in substance use. Not much work has been done to investigate this, despite some existing work that has been done to show the great prevalence of these two youth groupings. This body of literature will be discussed further in a subsequent section.

Furthermore, the aforementioned studies in this section examine positive experiences in very broad terms, in which the constructed scale is a composite measure of a few different items. Thus, it is uncertain which specific positive experience is most impactful or beneficial to the adolescents. Because there is an abundance of literature that focuses on specific negative factors, such as school misbehavior, experienced by minority

populations, it is vital that research also seeks to discover what specific positive experiences in the school setting contribute to success. The present study, attempts to do just that, in which the specific positive experience, school encouragement, is explored. But, due to the overwhelming amount of literature that suggests that school misconduct is related to subsequent substance use (Bryant et al., 2000; Shannon, James, & Gansneder, 1993; Welte & Barnes, 1987), school behavior problems was included as a control variable in the present study.

School encouragement. Feeling encouraged and supported within an academic institution is considered by some to be one of the most important school experiences (Wentzel, 1994). This is because if students perceive a continuous lack of support for their teachers, it is possible for them to become disengaged from school even though their parents are involved in their lives at home and at school (Hayes & Cunningham, 2003). Additionally, adolescents' reports of supportive teachers are linked to a decrease in challenging achievement attitudes (Cunningham, Corprew, & Becker, 2009). In fact, Wentzel (1994) reports that there is a positive relationship between teacher support and African American students' effort; however, African American students frequently perceived less support from teachers than Caucasian students.

Results from the Hayes and Cunningham (2003) study revealed that the adolescents' perceived teacher support was more influential than the perceived parental involvement in predicting academic outcomes in their sample. The analyses were performed with 86 African American 9^{th}-12^{th} grade students, in an urban city that came from working poor class families. Moreover, results from this study are important because support and encouragement from the academic institution are often

deemphasized, while parental support, particularly a lack thereof in African American families, is typically the focal point in the literature. Additionally, Cunningham et al. (2009) linked perceptions of school social support to academic attitudes in a study of 206 African American students. Again, the emphasis was that support from school personnel was associated with academic outcomes. This type of support is important because it helps students to start viewing themselves as scholars, or within a PVEST framework, student's emergent identities are associated with valuing school as an important part of who they are.

Valuing Education

Adolescents that have high levels of achievement motivation report that: they like and are interested in school, have high self-perceptions of academic competence, and high academic values. They are also less likely to use cigarettes, alcohol, and marijuana than their less engaged peers (Bryant & Zimmerman, 2002; Hawkins & Weis, 1985; Roeser, Eccles, & Freedman-Doan, 1999). However, past research has suggested that these positive attitudes toward academics serve as a protective factor against substance use for high-achieving students (Evans & Skager, 1992), but it has not shown to be a substantial protective factor for low-achieving students (Bryant et al., 2003).

This body of work by Evans and Skager (1992) was important to the field because it debunked the myth of the adolescent substance user being the "stoner," "loser," or "dropout." Instead, their study exposed the existence of the academically successful substance users, who they found tend to have high educational aspirations during early adolescence. Their sample included 2,288 9th-grade and 2,653 11th-grade students from 6 regions in California and 1,043 9th-grade and 862 11th-grade students from a large

suburban county in California. Forty-two percent of the sample was Caucasian, 3% were Native American, 12% Asian American, 10% African American, 27% Latino, and 6 % identified as “other”. Evans and Skager discovered that over 70% of the academically successful students from both samples reported some drug use. They categorized the academically successful students as abstainers, conventional users, or high-risk users. Those in the successful student group reported significantly less school enjoyment as their levels of substance use increased. Interestingly, high-achieving abstainers reported the least amount of participation in extracurricular activities, and they also had lower life satisfaction than academically successful high-risk users. This may lead one to believe that the utility or role that drugs play in the lives in adolescents is widely misunderstood. It appears that, depending on the context, substance use may actually be an adaptive coping mechanism for some adolescents.

Furthermore, Bryant and colleagues (2000) proposed that it is likely that the combination of high achievement, high motivation, and positive attitudes that protects against increases in substance use overtime, which halts their experimentation with more serious drugs later in life. Hence, individuals who are academically driven and value education seem to be quite successful throughout their life, despite the fact that they may experiment with substances. The Bryant and Zimmerman (2002) study measured achievement-related motivational beliefs and values by combining constructs that assessed importance of school success, value of school experiences, academic self-efficacy, school bonding, and college plans. Similarly, the present study seeks to examine the effects of adolescents valuing education by inquiring about their educational goals in a construct referred to as *Academic Future Expectations (AFE).*

As mentioned earlier, many of the studies that have made these connections did not contain African American adolescent participants, nor were they from urban environments, so it is unknown if similar substance use patterns exist in these communities. Previous work with urban youth has found that they can be highly critical of their schools: expressing dissatisfaction with the conditions of the schools, quality of the teachers, administrative policies, and the content of the curriculum (Zenkov & Dutro, 2009). Despite these negative experiences or lack of school bonding, these students still graduate from high school, avoid involvement with the criminal justice system, establish adaptive coping behaviors, go on to be quite successful, and become healthy adults (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Smith, Lizotte, Thornberry, & Krohn. 1995). This suggests that even though they view school as an important place, they may not feel that their current academic institution is meeting all of their educational needs (Conner, Mason, & Mennis, 2012). There has not been much work done to explain the paradox concerning urban youth who have negative experiences in school, but continue to see school as important and go on to be successful later in life (Conner et al., 2012). The presence of students who are successful despite experiencing negative situations highlights the need to differentiate between school experiences and the value placed on school, because their value of school may serve as a buffer against negative outcomes when experiencing adversity. The distinction between school experiences and valuing school should especially be made when studying school attitudinal variables in low socioeconomic status, urban youth.

Contradicting previous claims, work by Bryant and Eccles (2007) discovered that high and low academic achievers may both be users and nonusers depending upon many

different factors. The study, which comprised 58.4% African Americans and 31.0% European Americans, concluded that high achievers are likely to be using substances as well. Their work also points out that there are groups of students with low achievement and low school importance that do not use substances. High academic achievement was a protective factor against substance use when paired with low SES, having fun at school, and lower positive self-regard. However, high achievers who had positive self-regard and are from high SES backgrounds were considered at risk for high substance use. This concept of perils of privilege is not uncommon and is frequently noted in the literature (Luthar, 2003).

Another suggestion from the Bryant and Eccles (2007) study, and probably one of the most notable, was that academically successful, well-adjusted students with social reasons for going to school, which was the largest group of users in the study, might also be at risk for substance use. Bryant and Eccles state that this finding deviates from the notion of stereotyping the substance user as a "school burnout" or "loser." Instead, the results show how adolescents who use cigarettes, alcohol, or marijuana may actually have profiles that include academic achievement and may not indicate high risk (Bryant & Eccles, 2007). These results closely mirror the previously mentioned work by Evans and Skager (1992).

Moreover, academic success is known to be highly valued in the African American community because it has significant implications for future earning potential and life options (Williams & Davis, 2007). Therefore, it is important to consider that African Americans' recent rise in marijuana rates may not be indicative of an increase in academic failure or negative school experiences. In fact, while negative outcomes of

African Americans seem to be central in the literature, many of these youth have protective factors and adaptive coping skills, which contribute to their resilience. The presence of protective factors may prevent youth from experiencing a host of negative outcomes even if they choose to experiment with substances. In fact, those protective factors may lead them to have many positive outcomes despite the use of substances.

Literature Review Summary

Substance use has many different short and long term consequences, such as low academic achievement, behavior problems, job instability, and unemployment (Friedman et al., 2004). Gateway drugs, such as alcohol, marijuana, and cigarettes are thought to open the door to more serious drug use and are more commonly used by adolescents. However, not all adolescents that experiment with gateway drugs go on to use more serious drugs, like cocaine, and do not experience severe negative outcomes. It is still not completely understood why some adolescents have dire consequences and others go on to be healthy adults. Furthermore, the national averages indicate that African Americans are using cigarettes and alcohol less than others, but that they are increasing their marijuana use. Because research on patterns and outcomes of African American substance use is minimal, it is not known why there is a change in the aforementioned substance use patterns.

In short, much of the literature describes student's involvement with substance use as a steady progression that begins with school difficulties. This body of research suggests that students are more inclined to cut class and experience school failure when they are not engaged in the classroom (Brophy, 1996; Steinberg, 1996). Then, students get frustrated with their failure and this leads to increased school misbehavior and

weakened bonds to school (Hawkins & Weis, 1985; Simmons & Blyth, 1987; Sommer, 1985). The resulting misbehavior and school disengagement provides adolescents with more opportunities to befriend risk engaging peers who may encourage truancy and substance use. It is also possible that substance use may be used as a coping mechanism for dealing with the school failure (Bryant et al., 2000, 2003). Unsurprisingly, this sort of linear progression to substance use engagement does not incorporate two broad categories of adolescents: (1) those that do not perceive that they have many positive school experiences, but do not use substances, (2) and those that value their education, have good grades, but use substances. The presence of the first group indicates that even though some students may report negative school experiences, all of them will not experiment with drugs, and will learn to establish adaptive coping skills (Conner et al., 2012). The presence of the second group indicates that there is a group of high academically achieving substance users that do not experience many negative outcomes and still manage to become successful adults (Bryant & Eccles, 2007; Evans & Skager, 1992). Previous research with samples of high achieving adolescents is scant, and research studies with African American populations are even fewer.

The Current Study

The current study seeks to contribute to the current literature related to African American adolescents' substance use patterns. Based on the existent literature and the PVEST framework, the present study addresses two primary hypotheses (see Figure 1). Past literature has demonstrated that risk and protective factors impact frequency of adolescent use across substances (Kuntsche, Knibbe, Engels, & Gmel, 2010; Myers, 2013). Based on these findings, I hypothesize that school encouragement and academic future expectations will impact use of marijuana, alcohol, and cigarettes in a similar manner. The hypotheses associated with Figure 1 are presented below. Furthermore, this study has two control variables: friends that use substances and school discipline problems. These variables were chosen as controls due to the overwhelming amount of literature that suggests that substance using peers and school misconduct are strongly associated with both academic future expectations (Grodsky & Riegle-Crumb, 2010; Merolla et al., 2012; Riegle-Crumb & Callahan, 2009; Suzuki, Nishimura, & Takahashi, 1982) and substance use (Bryant et al., 2000; Kuntsche, Knibbe, Engels, & Gmel, 2010; Newcomb & Bentler, 1989; Welte & Barnes, 1987). Therefore, controlling for these two variables is an attempt to account for a significant proportion of the variance to observe the unique relationship between AFE and substance use. Not accounting for the proportion of the variance that is contributed by school misconduct and substance using peers may lead to the overestimation of the relationships between the variables of

interest.

Hypotheses

- Hypothesis (1) states that there will be a statistically significant and inverse relation between school encouragement (SE)—a specific positive school experience—and frequency of substance use. Thus, as school encouragement (SE) increases, substance use will decrease.
- Hypothesis (2) states it is expected that academic future expectations (AFE) will moderate the relationship between school encouragement and substance use. More specifically, for students that have low AFE, higher levels of school encouragement are likely to be associated with higher levels of substance use because exceling in academics may not be considered a priority for those students. Therefore, the higher levels of school encouragement may be disregarded and viewed as a stressor because the support is not wanted and is conflicting with the students' personal goals. Hence, students may utilize substances as a coping mechanism to deal with what may be perceived as unwanted academic stress from teachers. In contrast, for students with high levels of AFE, higher levels of school encouragement are likely to be associated with lower levels of substance use because these students value their education, which allows the encouragement from teachers to be more meaningful and impactful for those with high levels of AFE. This welcomed encouragement from teachers may result in positive school experiences, which are known to be protective factors against substance use. Thus, the relationship between school engagement and

substance use will be dependent upon the participants' level of academic future expectations.

Method

Participants

The participants were 206 African Americans (females = 65.7%) residing in an urban community, aged 13-18 years old (M = 15.78, SD = 1.18). Approximately 46% of the current sample resided in a single parent household. According to school records, 90% of the students in the school qualified for free or reduced lunch programs, which classifies them as "working poor" (Slaughter-Defoe, 1997) or low-resource families because qualification in the free or reduced lunch program was based on the household income level of the student that varied according to the number of people living in the household (Louisiana Department of Education: Planning, Analysis, and Information Resources, 2006).

Although the students lived in families that had economic challenges, they attended a center with a history of producing resilient graduates, and they were recruited for the study from this center. The students were given more intensive instruction in the academic areas of science and math than what was offered at their home high schools. Although there was no test to gain admittance to the center, personal interviews were conducted by the center's teachers with each prospective student. The teachers determined acceptance based on the interview. The students, male and female, who attended this center, were considered high achieving. These students were considered high achieving not only because of their decision to attend the math and science center

but also due to their performance on the state graduation exit exam. School records indicate 93% of the graduating students passed the exit exam by the 12th grade. This is in stark contrast to the disappointing performance of other area public schools. In 2002, the unsatisfactory rate on the state high school exit exam was at 50% and 67% in English and math, respectively (Thevenot, 2003).

Procedure

The participants completed a self-report questionnaire as part of a larger study concerned with their social and educational experiences. The larger study, entitled the Youth Empowerment Project (YEP), began in 2000 and explored the academic achievement and resilience of African American adolescents. The data for the present study were previously collected, therefore other information about the project is cited elsewhere (Cunningham & Swanson, 2010; Cunningham et al., 2009; Cunningham, Hurley, Foney & Hayes, 2002; Trask-Tate & Cunningham, 2010). The students and their guardians signed adolescent assent and parental informed consent forms, respectively, and they were informed that their responses were confidential. The surveys were dispersed in small groups of students in a large meeting area at the math and science center. The surveys included additional measures not included in this report, and participants took approximately one hour to complete it. At least one African American graduate student experimenter was present at all times. Participants were given five dollars upon final completion of the study.

Measures

School experiences. This construct was created from two survey items to measure a specific affective school experience, school encouragement (r = .62). The

students were asked to rate the following items on a 5-point Likert like scale: (1) " My teachers really care about me." (2) "I get a lot of encouragement at my school."

Academic future expectations. AFE was measured by using an item from the survey that asked what level of education they planned to attain. The students were asked the following question: "How many years do you think you will go to school?" The one-item construct has been shown as be a good indicator of academic resilience in African American populations in distinct samples (Cunningham & Swanson, 2010; Cunningham et al., 2009; Trask-Tate, Cunningham, & Francois, 2014; Spencer, 2008).

Substance use. The students also reported how many times they had used cigarettes, alcohol, and marijuana in the past year, which were combined to yield a global substance use assessment. Sample item: "How many times, if any, have you smoked cigarettes during the last 12 months?" The responses are grouped as follows: number of times 0, 1-2, 3-5, 6-9, 10-19, 20-39, 40+. The participants answered subsequent items related to marijuana and alcohol. The measure is similar to past measures of substance use (Kuntsche et al., 2010; Williams et al., 2007). For the purpose of this study, the frequencies were grouped into three categories because the frequency data were negatively skewed, with the majority of the participants reporting little substance use. Because the data were not normally distributed and the most of the extreme frequency responses were rarely endorsed, the ranges were truncated in a way that would meaningfully reflect participant responses. For instance, those who reported using alcohol 0-2 times in the past year were given a score of 1 to represent infrequent-drinkers. Participants that reported drinking alcohol 3-5 times a year were given a score of 2 to represent occasional drinkers; and participants that reported drinking 6 or more drinks

were given a score of 3 to represent moderate drinkers. Similar categories were made for the marijuana and cigarette items and the global substance use assessment.

School disciplinary problems. School disciplinary problems, particularly receiving a school suspension, was a control variable in the current study. Participants were asked if they had been suspended from school in the past year.

Friends that use substances. The present study also controlled for risk engaging peers, specifically those who have friends that drink alcohol or use drugs. A construct was created from two survey items (r = .53). The participants were asked: "Among the people you consider to be your closest friends, how many would you say: (1) drink alcohol once or week or more. (2) have used drugs such as marijuana or cocaine." They had the option to respond: "None, A few, Some, Most, All."

Results

Descriptive Statistics

The present study is an analysis of how positive school experiences are associated with substance use patterns in urban, African American adolescents. More specifically, this study examines the influence of school encouragement on substance use. This study also investigates whether or not having hopes of exceling in one's academic career impacts the relation between school encouragement and substance use. The descriptive findings are reported prior to delving into the results related to the specific hypotheses.

Overall, participants reported low levels of substance use, with approximately 90% of the sample falling into the "infrequent user" category within the global substance use assessment. That is, the majority of the sample reported using substances two times a year or less. When examining the frequency of the individual substances, cigarette and marijuana use followed a similar usage pattern as the global substance use assessment. However, almost 10% of the participants reported being occasional drinkers, in which they reported consuming three to five drinks in the past year; and almost 15% of the participants reported being moderate drinkers, in which they reported consuming six or more drinks in the past year. Paired samples t-tests were conducted to determine if alcohol was used significantly more than other substances. The analysis revealed that the participants reported using alcohol significantly more than marijuana ($t(206) = 5.53$, $p < .001$) and cigarettes ($t(206) = 5.37$, $p < .001$) (see *Figure 2*). Moreover, when comparing

average substance use across sex, males and females did not significantly across substances (see *Figure 3*).

Zero-order correlations between all of the variables in the study were conducted to examine the relationships between the participants' overall experiences and perspectives concerning school and substance use. As indicated in Table 1, school encouragement (SE) and academic future expectations (AFE) were not significantly correlated (r = .06, p = n.s.), which suggests that the variables are independent from one another and measure different academic experiences and perspectives. The independence from one another observed in analysis of these variables supports the current assertion that there is a distinction between school experiences and value placed on education. Therefore, both must be considered when working with adolescents in low-resource communities, especially considering that they may serve as protective factors against negative outcomes for African American adolescents who experiencing adversity.

Additional correlational analyses were conducted to explore grade level trends amongst the study variables. Examining the variables by grade level revealed that the 11th graders had a negative, trend level relation, between school encouragement and alcohol ($r(56)$ = -.23, p = .09.), school encouragement and marijuana ($r(56)$ = -.25, p = .07), and school encouragement and global substance use ($r(56)$ = -.26, p = .052) (see *Table 5*). This finding is consistent with the results from the ANOVA, which showed that SE had an inverse association with substance use. Also, for 11th graders, all of the different substance use reports were highly correlated with each other (see *Table 2*), demonstrating that substance use often co-occurred among this group No other grade levels contained statistically significant correlations for the variables of interest.

Lastly, it is important to note that self-reported grades were not significantly correlated with any substance use variables (see *Table 1*). Contrary to the previous literature that indicated a negative association between academic achievement and substance use, for the current sample of high-achieving, African American adolescents, self-reported grades did not have a statistically significant association with reported use of marijuana (r = -.09, p = n.s.), alcohol (r = -.06, p = n.s.), or cigarettes (r = .03, p = n.s.).

Hypothesized Results

To examine the relation between school encouragement (SE) and global substance use (Hypothesis 1) and to determine whether academic future expectations (AFE) moderate that association (Hypothesis 2), a hierarchical regression was performed to predict global substance use, with main effect variables centered to avoid multicolinearity (Aiken & West, 1991). Additionally, a 2-way, SE by AFE interaction term was computed to test for the proposed moderation effect. The present study controlled for having friends that used substances and for school discipline problems, and they were entered in the first step. Consistent with past empirical studies and the correlational findings presented in Table 2, the regression results revealed that having substance using friends is positively related to the participant's report of global substance use (β = .48, p < .001). Similarly, school disciplinary problems were positively related to global substance use (β = .16, p < .01). Hence, having friends that use substances and receiving school suspensions were associated with a significant increase in overall substance use.

In the second step, the independent variable (SE) and the potential moderator (AFE) were entered into the model. As indicated in Table 3, school encouragement has a

weak, negative trend level association with global substance use (β = -.11, *p* = .07). Thus, these results lend some support to Hypothesis 1, once controlling for school disciplinary problems and friends that use substances. The relation between academic future expectations and global substance use was not statistically significant (β = -.06, *p* = n.s.).

The SE by AFE interaction term was entered in step 3 to evaluate the moderating effects of AFE on the relationship between SE and global substance use. As predicted, a statistically significant interaction between SE and AFE was detected (β = -.25, $p < .001$; $\Delta R^2 = .05$). Simple slope analysis, in which the moderator was evaluated at one standard deviation above and below the mean (Aiken & West, 1991; see *Figure 5*), revealed that the regression line that represented the relationship between SE and global substance use was significantly different from zero (β = -0.21, $p < .05$) for participants who reported low levels of AFE. For these participants, as school encouragement increased, substance use decreased. In contrast, school encouragement had no statistically significant effect on global substance use among those participants that reported high levels of AFE (β = 0.03, *p* = n.s.) These results suggest that for students with low levels of academic future expectations, increasing levels school encouragement may serve as a buffer against substance use engagement, but not for students with high academic future expectations. Thus, the moderation effect partially supports the hypothesis that the impact of school encouragement on substance use engagement will vary across different levels of AFE. Instead SE seems to be most impactful for those with diminished levels of AFE, which is contrary to the hypothesized effect that those with low AFE would have a positive association between school encouragement and substance use.

Three additional hierarchical regression analyses were conducted to examine

whether these findings held for each type of substance. Results of these analyses are presented in Tables 4-6. For both marijuana and cigarette use, significant interactions between SE and AFE were found and were in the same direction as the interaction described for global substance use. Specifically, for marijuana use, the regression line that represented the association between SE and marijuana use was significant for participants who reported low levels of AFE ($\beta = -0.20$, $p < .05$), but not for participants who reported high levels of AFE ($\beta = 0.08$, p = n.s.). Similarly, the regression line that represented the relationship between SE and cigarette use was significantly different from zero for participants who reported low levels of AFE ($\beta = -0.20$, $p < .05$) but not for students who reported high levels of AFE ($\beta = 0.10$, p = n.s.). Taken together, these results suggest that for students with low levels of academic future expectations, increasing levels school encouragement may serve as a buffer against cigarette and marijuana use, but not for students with high academic future expectations.

Despite the fact that alcohol was reported as the most frequently used substance, this pattern of results did not hold for alcohol use. None of the variables of interest made a statistically significant contribution to the model (see *Table 6*), suggesting that neither Hypothesis 1 nor Hypothesis 2 were supported for alcohol use.

Exploratory Analyses

Due to the many aforementioned discrepancies in the literature regarding the association between sex and adolescent substance use, sex differences were explored. In assessing the relation between sex and the study variables using correlational analysis, there was a trend level relationship between sex and self-reported grades ($r = .13$, $p < .10$). With females coded as 1 and males coded as 0, the correlation implies that females

in the sample tend to have higher grades than the males. Additionally, sex had a statistically significant and positive relation with school encouragement (r = .17, p < .05), which demonstrates that females reported more school encouragement than males. There was also a negative, statistically significant relationship between sex and school disciplinary problems (r = -.17, p < .05), suggesting that males reported receiving more suspensions than females.

Regression analyses were conducted to determine whether the relations among school encouragement, academic future expectations, and substance use engagement were susceptible to sex effects. Sex was entered along with SE and AFE as a predictor in the second step of the analyses and two interaction terms were computed and entered in the third step of the analyses: (1) Sex by AFE, (2) Sex by SE, and (3) AFE by SE. Additionally, a 3-way interaction term of Sex by AFE by SE was computed and entered into the fourth step of the analyses. No statistically significant interactions with sex were observed in any of the analyses (see *Tables 7, 8, 9, 10* respectively).

In an effort to gain a more complete picture of substance use patterns among this sample, grade level differences were further explored based upon previously mentioned grade level correlations (see *Table 1 & 2*). A Multivariate Analysis of Variance (MANOVA) was performed on the means of the dependent variables to observe if substance use engagement varied by grade level. A MANOVA was conducted to help protect against the inflation of the Type 1 error rate in the follow-up post-hoc mean comparisons (Cramer & Bock, 1966). As indicated in Table 1, the moderate range of the Pearson correlations (i.e., .20 - .60) between the dependent variables (global substance use, marijuana use, cigarette use, and alcohol use) satisfy on of the assumptions of

MANOVA, which is that the dependent variables would be substantially correlated with each other (Meyers, Gampst, & Guarino, 2006). The Box's M value of 46.90 ($p < .001$) was significant, suggesting that MANOVAs assumption of homogeneity of variance was violated. However, Box's M is known to be sensitive to sample size and normal distributions, so the significant result should be interpreted with caution (Huberty & Petoskey, 2000). Tabachnick and Fidell, (2012) assert that the violation of the assumption is not problematic as long as the groups being compared have similar sample sizes, and Pillai's Trace multivariate test should be utilized because it is known to be less sensitive to the violation of the homogeneity of variance assumption. The sample sizes for the current study's group comparisons are as follows: 9^{th} grade (n = 46), 10^{th} grade (n = 51), 11^{th} grade (n = 56), 12^{th} grade (n = 54). The similarity of the sample size across the grade level groups validates the appropriateness of reporting Pillai's Trace. The results of the one-way MANOVA revealed that there was a statistically significant MANOVA effect, Pillai's Trace = .12, $F(12, 606) = 2.05$, $p < .05$. The multivariate effect size was approximately .04, which indicates that about 4.0% of the variance of the dependent variables was accounted for by grade level.

The significant MANOVA justified performing a series of one-way ANOVAs on each of the four dependent variables. Before subsequent ANOVAs were conducted, the homogeneity of variance assumption was tested for the dependent variables. Results from Levene's F tests revealed that ANOVAs homogeneity of variance assumption was violated because each of the four tests reached statistical significance ($p < .001$). Therefore, results from the ANOVAs should be interpreted with caution. As presented in Table 11, the ANOVA results for global substance use ($F(3, 203) = 6.15$, $p < .001$,

partial η2 = .08), alcohol use ($F(3, 203) = 3.67$, $p < .05$, partial η2 = .05), cigarette use ($F(3, 203) = 3.80$, $p < .05$, partial η2 = .05), and marijuana use ($F(3, 203) = 3.78$, $p < .05$, partial η2 = .05) were statistically significant. These results suggest that there is at least one significant grade level difference between the four dependent variables.

Fisher's LSD tests were performed as post-hoc analyses to observe specific grade level mean differences across substances. Compared with the other grades, participants in the 11th grade consistently reported the highest frequency of use. Overall, 11th grade students used more substances than 9th graders ($p < .001$), 10th graders ($p \leq .001$), and 12th graders ($p < .01$). Specifically, students in the 11th grade reported more alcohol use than those in 9th ($p < .01$) grade and those in 10th grade ($p < .05$). The 11th graders also reported significantly more marijuana use and cigarette use than those in 9th ($p < .01$), 10th ($p < .05$), and 12th ($p < .05$) grades. Other mean comparisons revealed that students in 12th grade used almost significantly more alcohol than students in the 9th grade ($p = .06$). Please see Figure 4 to pictorially view the aforementioned grade level trends and see Table 12 to observe the statistical significance of those trends.

The varying substance use engagement levels by grade prompted further grade level correlational exploration. It was noted that grade level had a positive, statistically significant relation with school encouragement ($r = .25$, $p < .01$), meaning that an increase in grade level was related to increased reporting of school encouragement. Also, grade level was positively related to alcohol use ($r = .17$, $p < .05$), but not with any of the other substance use variables. The finding may imply that this group of students experiment more with alcohol as they matriculate in school than any of the other substances.

Discussion

The primary goal of this study was to examine the influence of school encouragement and academic future expectations on frequency of substance use, specifically alcohol use, marijuana use, and cigarette use, in a sample of urban, high achieving, African American adolescents. Given the lack of literature surrounding high achieving, African American adolescents, it is important to increase understanding about the specific types of scholastic experiences and perspectives that may serve as protective factors for non-academic outcomes. Currently, there is a lack of empirical research being conducted with racial and ethnic minority groups regarding their substance use patterns. Most of the available literature examines the relation between objective measures, such as grade point averages and attendance records to predict substance use outcomes. This approach is completely void of context, and minimal research studies have considered the personal experiences and perspectives of African American adolescents. Investigating experiences and perspectives of this population is necessary because past research (Bryant & Eccles, 2007) has demonstrated that focusing only on school performance variables and their association with substance use may not be an adequate research approach when working with racial and ethnic minorities because it lacks context. Thus, students' experiences have shown to have a stronger association with substance use. Research approaches that are not culturally appropriate or culturally sensitive may lead to investigators obtaining misleading data and disseminating false conclusions about a

minority population, which could further stigmatize the group (Trimble, Scharron-del Rio & Casillas, 2014). It is vital to avoid such research pitfalls when conducting studies with a population that is vulnerable to many social injustices and economic challenges (Macartney et al., 2013; Mukku et al., 2012; Seaton & Douglass, 2014; Schaffer & Taylor, 2012).

Therefore, the current study aimed to discover the specific school factors that may contribute to the resilience of African American adolescents based on the subjective report of their experiences. Overall, the data from this sample are congruent with national data, which states that African American adolescents consistently report low levels of overall substance use (NSDUH, 2011). Approximately 90% of the adolescents in this study reported using substances 0-2 times in the past year. These sorts of results are important for researchers to publicize as African Americans are continuously stereotyped as being heavy drug users, which is contrary to empirical sources. In fact, the National Association for the Advancement of Colored People (NAACP) reported that there are five times as many Whites who are using drugs as African Americans, yet African Americans are sent to prison for drug offenses at a rate that is 10 times higher than that of Whites (NAACP, 2015). Through the dissemination of facts, research such as the current study can aid to dispel some of the stereotypes and misconceptions that contribute to racial disparities by informing those who lack knowledge of these matters.

Moreover, the results from this study lend marginal support to Hypothesis 1, which proposed that there would be an inverse relation between school encouragement and subsequent substance use when examining each substance individually and collectively. This relation was more clearly observed once controlling for having friends

that use substances and disciplinary problems. Though small, school encouragement's impact on substance use demonstrates that school experiences contribute to more than just academic outcomes. Typically, previous research connects school variables to students' academic outcomes (e.g. teacher support to GPA). Parent support and parental monitoring are usually connected to non-academic outcomes, such as substance use engagement. The current study demonstrates that scholastic experiences crossover to impact non-academic variables. This sort of evidence advocates for the improvement of schools and acquisition of supportive teachers in economically disadvantaged communities, as doing so may buffer against adolescent substance use engagement, delinquency, and other negative outcomes that are frequently associated with low resource neighborhoods.

Moreover, the results from the regression analyses indicated that academic future expectations significantly moderated the relation between school encouragement and global substance use, as well as cigarette and marijuana use. Although there was no detected moderation effect with alcohol use, it is plausible that the normalization of adolescent alcohol use makes it less susceptible to teacher intervention due to prominent peer pressure to engage in drinking (Kuntsche, Knibbe, Engels, & Gmel, 2010; Newcomb & Bentler, 1989). Compared to other substances, the more frequent use of alcohol among adolescents may indicate that these users are a heterogeneous group, composed of students that possess many different academic and social identities. As discovered by Bryant and Eccles (2007) and Evans and Skager (1992), adolescents who use substances such as alcohol had differential academic achievement and educational aspiration profiles. Hence, substance users in their studies did not belong to a specific socially

constructed category (e.g. “stoners” and “nerds”). Instead, users were evenly distributed across academic identities, debunking the myth that only students with academic challenges experiment with substances. This sort of diversity within the group may have made it difficult to detect a significant effect of SE and AFE on alcohol use. Therefore, it may be possible that academic factors, such as receiving school encouragement and valuing school, may not always impact or have an association with substances that are perceived as “normal” or are common among a particular group of people or regional culture.

When taking a closer look at the interaction between school encouragement and academic future expectations, it was observed that for those who reported having low academic future expectations, higher levels of substance use were associated with lower levels of school encouragement. This association was not observed for participants who reported high AFE. These results indicate that school encouragement may serve as a protective factor against substance use for those with low academic future expectations, but not necessarily for those with high academic future expectations. The same pattern of results was found when examining marijuana use and cigarette use individually. This finding adds a caveat to past research that suggests low aspirations and weak bonds to school are risk factors for substance use engagement (Bryant et al., 2000, 2003; Dryfoos, 1990; Voelkl & Frone, 2000). The current study demonstrates that increasing the amount of encouragement students receive in academic settings can possibly circumvent the negative impact of these risk factors.

The exploratory analyses revealed some notable findings as well. First, the lack of sex differences among this study’s sample lends additional support to the claims that the

gap between substance us patterns of males and females is narrowing (Zimmerman & Schmeelk-Cone, 2003). Many studies with similar sample demographics have also detected a null effect of sex (Bryant & Eccles, 2007; Conner et al., 2012; Williams et al., 2007;). While it is commonly expected for substance use patterns to be different among males and females, and past research has traditionally supported these assertions (Bryant & Zimmerman, 2002; Zimmerman & Schmeelk-Cone, 2003), it is important for researchers to note that may not always be the case among certain populations.

Moreover, the higher prevalence of substance use within the 11th grade sub-sample cannot be ignored. What is it about junior year of high school that caused a spike in substance use? Many contextual factors may play a role in increasing substance use during this adolescent period. For instance, it is plausible that at the age of 16 years, the age of most 11th graders, youth are beginning to be viewed as young adults by their parents, teachers, and other important adult figures. This transitional period in which an adolescent goes from being viewed as a child to a young adult may be accompanied with more adult like expectations and responsibilities, such as: doing homework or school projects independently, preparing family meals, obtaining a part-time job, and monitoring younger siblings. Junior year of high school is also when students may begin future planning by considering which colleges they are interested in attending, establishing a career plan, and taking college entrance standardized tests (e.g., ACT and SAT). Additionally, this is the time period when many adolescents learn to operate a motor vehicle; therefore, having their own source of transportation makes the acquisition of drugs and alcohol more accessible for adolescents. In taking a PVEST approach, these new roles that have been ascribed to their new “young adult” identity may initially serve

as stressor as he or she learns to navigate and balance this new part of life, thus, becoming a part of their net stress engagement. These stressors may induce maladaptive coping skills, such as substance use. Alternatively, the cross-sectional nature of the data may be a factor. Perhaps students who persist at the math and science school are similar to students described in the literature. For example, Bryant and Eccles (2007) posited that academically engaged students might experiment more with substances.

The evidence gathered in the current study suggests that 11th grade may be an opportune period for intervention with adolescents because they had the greatest frequency of substance use across substance type. However, it is uncertain if the subsequent decline in substance use during 12th grade is due to an actual decrease in frequency of use by students, or due to students that were experiencing some challenges discontinuing their attendance from the accelerated math and science school in which the participants were recruited. It is also plausible that students may begin to engage in substance use less as they begin to prepare for college and plan for their future during their senior year of high school.

Importantly, this study contradicted previous claims that school grades are directly related to subsequent substance use (Bryant et al., 2000 & 2003; Bryant & Zimmerman, 2002; Williams & Davis, 2007). The current study did not find any relation between self-reported grades and frequency of substance use, which further supports the assertion, that concentrating only on academics and its association with substance use is not always sufficient with all populations. Instead, in accordance with the PVEST model, it is important to consider the perspectives and experiences of the population that is being studied in order to get an adequate understanding of the factors that contribute to the

execution of particular behaviors.

Limitations

There are some noteworthy limitations of the present study that must be considered when interpreting the findings. First, the results may not generalize to all urban, African American adolescents because the sample consists of students that are considered to be high achieving, in that they attended an area public high school for half of the day and a school for advanced study in science and math for the other half of the day. However, this unique sample is also a strength of this study because high achieving, African American adolescents are seldom discussed in the literature, and working with this sample provided some unique results that may not have otherwise been observed. Second, the recruitment method of the participants may have resulted in selection bias, because parents were required to return a consent form in order for their child to participate. Therefore, it is possible that the parents who consented may be qualitatively different—in terms of their investment in their child's education and parenting practices—from those that did not return the consent form.

Third, because the findings were based on self-report data, there was no objective measure to determine the accuracy of the student's reports. However, Spencer's PVEST model stresses that actual reality may not be very important to the outcomes of an individual because it is ultimately about how that individual perceives and experiences his or her environment that contributes to his or her life outcomes. Additionally, as with most self-report questionnaires, researchers run the risk of participants not answering sensitive questions honestly, such as frequency of substance use, due to fear of negative judgment or perception from others. Another limitation is the low end skew of the

dependent variables of global substance use, marijuana use, alcohol use, and cigarette use. The study attempted to account for the low report of substance use by creating three categories for types of users for each substance (infrequent users, occasional users, and moderate users).

Fourth, the cross-sectional nature of the study makes it impossible to determine if the observed results are due to developmental trends or cohort-effects. Furthermore, correlational and regression analyses reveal the presences of relationships between variables but do not establish directionality or causal relationships. Therefore, it is necessary for future research to conduct longitudinal or quasi-experimental studies to definitively determine developmental trends and causation.

Lastly, a potential limitation lies with the measurement of a few of the constructs. For instance, the moderating variable and the dependent variables in the study were all measured by using one item form the larger survey project. Utilizing one item constructs for measurement has some drawbacks. A major drawback, is that it lacks a system of checks and balances; therefore, there is no way for the researcher to be privy to whether or not participants answered items truthfully, haphazardly, or in a manner in which they understood what was being asked of them. Instead, the researcher must rely solely on the response to a single item, which jeopardizes both internal and external validity. However, the dependent variables did highly correlate to one another, suggesting that the participants responded in a consistent manner. Finally, the school encouragement measure was created specifically for this study from existing survey items. Though it is similar to measures used in the past, it is not an exact match; so complete construct validity has not yet been established.

Conclusion

A major goal of the present study was to generate empirical data that would assist in debunking the myth that most substance users are African American. This study also hoped to discover academic factors that contribute to the their resilience and help buffer against substance use. Both of those goals were accomplished by first demonstrating that overall, the sample reported very low rates of substance use, thus not conforming to the stereotype. Second, the current study demonstrated that school encouragement has a negative association to substance use, and school encouragement appears to be most impactful for those that reported low levels of academic future expectations. This indicates that school encouragement may be a protective factor against substance use for those that have low academic future expectations.

The findings of this study add to the existing educational literature, with the hopes of informing teacher trainings, school board decisions, and the implementation of school-based preventative intervention programing. This data can provide effective methods to assist in maintaining low drug initiation in urban, African American populations because it highlights the need to advocate for the advancement of school-level factors, such as: the need for school boards to hire more experienced teachers and implement trainings for student-teacher relationship building in low resource neighborhoods. The maintenance of low rates of African American substance use is important because this population is already at risk for many social and economic challenges. Thus, being vulnerable to rising rates of substance use would not be beneficial for this group and may negatively affect their existing conditions. Acquiring more experienced teachers and implementing professional developments that emphasize school encouragement and relationship

building may reduce substance use among those that have low aspirations or experiencing other academic challenges.

Future research should consider further investigating perspectives, experiences, and behaviors of 11th grade students since they displayed the highest substance use engagement in this sample. The data suggests that junior year of high school may be an opportune time for additional support and school-based interventions for students. However, more research must be done in this area to create targeted interventions. It is vital that researchers continue to investigate specific ecological variables that contribute to the increase of substance use during junior year of high school. Motives for using substances are a key component that must be considered because different motives for using substances impact future outcomes (Kuntsche, Knibbe, Engels, & Gmel, 2010). Furthermore, it is important that specific variables are pinpointed because past research has shown little evidence that universally applied prevention programs produce effective results (Masterman & Kelly, 2003). In fact, programs such as Drug Abuse Resistance Education (DARE) have been found by the United States Department of Education to be more than ineffective, in that the program actually increased the occurrence of substance use (Hanson, 2014). Therefore, it seems intuitive to move towards more targeted preventative measures that are specific to the adolescents' experiences and perspectives in which the program is intended to serve.

Furthermore, Bryant and Zimmerman (2002) posited that prevention programs that focus on only one or two factors, such as low academic achievement and school misbehavior, omit other groups of youth who may be at risk for increased substance use. High achieving students have been identified as at risk for increased substance use both

in their study and in the current study. Bryant and Zimmerman (2002) also suggest that having a high grade point average is not sufficient protection against increased substance use over time; and that it is the combination of motivation and positive attitudes with academic success that is associated with lower substance use over time.

The current literature would benefit from further investigation of the phenomena observed by Bryant and Eccles (2007) and Evans and Skager (1992), in which many high achieving students engaged in substance use and many low achieving students did not engage in substance use as frequently as anticipated. The results from the current study suggest that this phenomenon may depend on regional or cultural acceptability of a particular drug or substance. For instance, the current study did not detect any effect of school encouragement and academic future expectations on alcohol use, but an effect was present for the other dependent variables. A notable difference between alcohol and the other substances is that it is known to be a widely accepted substance among teenagers and adults. Therefore, future research should attempt to determine if there is more group variation when the consumption of a particualr substance is viewed as socially acceptable or popular in that population's culture.

Lastly, future research needs to further examine the role of sex on substance use and investigate factors that may be contributing to the narrowing sex difference gap. Currently, there are blatant discrepancies in the literature regarding sex's association with adolescents' frequency of substance use and academic factors that impact that use. Thus, more research in this area may help provide more information regarding male and female substance use.

The results from the present study should be considered as a starting point for

examining urban, African American adolescents' substance use engagement from an approach that includes their academic experiences and perspectives. The study was able to demonstrate that school encouragement and academic future expectations impact frequency of substance use. However, there is still a great deal that is unknown and must continue to be discovered.

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Table 1. Correlations between variables of interest for all students (N = 206)

	Using Friends	Discipline Problems	Sex	Grade	GPA	AFE	SE	Marijuana	Cigarettes	Alcohol	Global Use
Using Friends	1	.12	.06	.20*	-.03	-.12	.07	.46**	.48**	.50*	.50**
Discipline Problems		1	-.17*	-.07	-.10	-.22**	-.19**	.18**	.22*	.14*	.23**
Sex			1	.12	.13+	.10	.17*	-.08	-.05	0.02	-0.07
Grade				1	.73	.11	.25**	.11	.09	.17*	0.11
GPA					1	.04	-.14	-.09	.03	-0.06	-0.01
AFE						1	.06	-.16*	-.16*	0.11	-.15*
SE							1	-.08	-.07	-0.05	-0.11
Marijuana								1	.66**	.40**	.87**
Cigarettes									1	.35*	.81**
Alcohol										1	.51**
Global Use											1

+ = $p < .10$ * = $p < .05$ ** = $p < .01$ *** = $p < .001$

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 2. Correlations of variables of interest for 11th graders (n = 56)

	Using Friends	Discipline Problems	Sex	GPA	AFE	SE	Marijuana	Cigarettes	Alcohol	Global Use
Using Friends	1	.18	.01	-.02	-.13	-.10	.40**	.59**	.58**	.30*
Discipline Problems		1	-.16	-.04	-.41*	-.27*	.26	.35*	.27*	.53**
Sex			1	.14	.11	.30*	-.16	-.17	.07	-.15
GPA				1	.12	-.12	.01	.09	-.04	.07
AFE					1	.04	-.23+	-.14	.08	-.13
SE						1	-.25+	-.20	-.23+	-.26+
Marijuana							1	.66***	.50***	.89***
Cigarettes								1	.45***	.81***
Alcohol									1	.61***
Global Use										1

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 3. Moderating Effects of Academic Future Expectations (AFE) on the Relation Between School Encouragement (SE) and Global Substance Use

Variable	*B*	*SE*	*β*
Step 1: Control Variables			
Friends that use Substances	0.13***	0.02	0.48
School Discipline Problems	0.20**	0.08	0.16
$F(2, 204) = 37.90, p < .001$			
Step 2: Independent Variables			
School Encouragement (SE)	-0.05+	0.03	-0.11
Academic Future Expectations (AFE)	-0.05	0.05	-0.06
$\Delta F(3, 201) = 2.30, p < .001; \Delta R^2 = .02$			
$F(4, 202) = 20.34, p < .001$			
Step 3: Moderator Variables			
AFE x SE	-0.29***	0.07	-0.25
$\Delta F(1, 201) = 15.75, p < .001; \Delta R^2 = .05$			
$F(5, 201) = 20.61, p < .001$			

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 4. Moderating Effects of Academic Future Expectations (AFE) on the Relation Between School Encouragement (SE) and Marijuana Use

Variable	*B*	*SE*	*β*
Step 1: Control Variables			
Friends that use Substances	0.12^{***}	0.02	0.44
School Discipline Problems	0.13^{+}	0.07	0.11
$F(2, 204) = 37.90, p < .001$			
Step 2: Independent Variables			
School Encouragement (SE)	-0.04	0.03	-0.09
Academic Future Expectations (AFE)	-0.07	0.05	-0.09
$\Delta F(3, 201) = 2.10$, p = n.s.; $\Delta R^2 = .02$			
$F(4, 202) = 15.71, p < .001$			
Step 3: Moderator Variables			
AFE x SE	-0.28^{***}	0.07	-0.25
$\Delta F(1, 201) = 14.81, p < .001; \Delta R^2 = .05$			
$F(5, 201) = 16.40, p < .001$			

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 5. Moderating Effects of Academic Future Expectations (AFE) on the Relation Between School Encouragement (SE) and Cigarette Use

Variable	*B*	*SE*	*β*
Step 1: Control Variables			
Friends that use Substances	0.12***	0.02	0.47
School Discipline Problems	0.13+	0.07	0.11
F(2, 204) = 37.90, p < .001			
Step 2: Independent Variables			
School Encouragement (SE)	-0.04	0.03	-0.08
Academic Future Expectations (AFE)	-0.07	0.05	-0.09
$\Delta F(3, 201) = 1.90$, p = n.s.; $\Delta R^2 = .01$			
F(4, 202) = 17.49, p < .001			
Step 3: Moderator Variables			
AFE x SE	-0.31***	0.07	-0.28
$\Delta F(1, 201) = 19.82$, p < .001; $\Delta R^2 = .07$			
F(5, 201) = 19.26, p < .001			

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 6. Moderating Effects of Academic Future Expectations (AFE) on the Relation Between School Encouragement (SE) and Alcohol Use

Variable	*B*	*SE*	*β*
Step 1: Control Variables			
Friends that use Substances	0.20***	0.03	0.49
School Discipline Problems	0.18	0.11	0.10
$F(2, 204) = 36.30$, $p < .001$			
Step 2: Independent Variables			
School Encouragement (SE)	-0.05	0.04	-0.07
Academic Future Expectations (AFE)	0.13	0.08	0.10
$\Delta F(3, 201) = 1.90$, p = n.s.; $\Delta R^2 = .01$			
$F(4, 202) = 19.22$, $p < .001$			
Step 3: Moderator Variables			
AFE x SE	-0.11	0.12	-0.06
$\Delta F(1, 201) = .98$, p = n.s.; $\Delta R^2 = .00$			
$F(5, 201) = 15.57$, $p < .001$			

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 7. Interaction Effects of Sex on the Study Variables for Global Substance Use

Variable	*B*	*SE*	*β*	
Step 1: Control Variables				
Friends that use Substances	0.13***		0.02	0.48
School Discipline Problems	0.20**		0.08	0.16
F(2, 204) = 37.90, p < .001				
Step 2 - Independent Variables				
School Encouragement (SE)	-0.05+		0.03	-0.11
Academic Future Expectations (AFE)	-0.05		0.05	-0.06
Sex	-0.05		0.06	-0.05
ΔF(3, 201) =1.74 , p = n.s.; ΔR^2 = .02				
F(5, 201) = 16.37, p < .001				
Step 3: Moderator Variables				
AFE x SE	-0.32***		0.08	-0.28
AFE x Sex	-0.11		0.11	-0.92
SE x Sex	-0.41		0.06	-0.04
ΔF(3, 198) = 5.93, p ≤ .001; ΔR^2 = .06				
F(8, 198) = 13.21, p < .001				
Step 4: 3-way interaction				
AFE x SE x Sex	-0.35*		0.17	-0.14
ΔF(1, 197) = 4.18, p ≤ .05; ΔR^2 = .01				
F(9, 197) = 12.34, p < .001				

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 8. Interaction Effects of Sex on the Study Variables for Marijuana Use

Variable	*B*	*SE*	*β*	
Step 1: Control Variables				
Friends that use Substances	0.12***		0.02	0.44
School Discipline Problems	0.13+		0.07	0.11
F(2, 204) = 29.03, p < .001				
Step 2: Independent Variables				
School Encouragement (SE)	-0.04		0.03	-0.08
Academic Future Expectations (AFE)	-0.07		0.05	-0.08
Sex	-0.06		0.06	-0.07
$\Delta F(3, 201) = 1.73$, p = n.s.; $\Delta R^2 = .02$				
F(5, 201) = 12.77, p < .001				
Step 3: Moderator Variables				
AFE x SE	-0.30***		0.08	-0.27
AFE x Sex	-0.04		0.11	-0.04
SE x Sex	-0.04		0.06	-0.04
$\Delta F(3, 198) = 5.30$, p < .01; $\Delta R^2 = .06$				
F(8, 198) = 10.48, p < .001				
Step 4: 3-way interaction				
AFE x SE x Sex	-0.03		0.17	-0.01
$\Delta F(1, 197) = .04$, p = n.s.; $\Delta R^2 = .00$				
F(9, 197) = 9.27, p < .001				

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 9. Interaction Effects of Sex on the Study Variables for Cigarette Use

Variable	*B*	*SE*	*β*	
Step 1: Control Variables				
Friends that use Substances	0.12***	0.02	0.47	
School Discipline Problems	0.13+	0.07	0.11	
F(2, 204) = 32.79, p < .001				
Step 2: Independent Variables				
School Encouragement (SE)	-0.03	0.03	-0.08	
Academic Future Expectations (AFE)	-0.07	0.05	-0.08	
Sex	-0.04	0.06	-0.04	
$\Delta F(3, 201) = 1.43$, p = n.s.; $\Delta R^2 = .02$				
F(5, 201) = 14.06, p < .001				
Step 3				
AFE x SE	-0.30***	0.08	-0.30	
AFE x Sex	-0.03	0.11	-0.02	
SE x Sex	-0.05	0.05	-0.06	
$\Delta F(3, 198) = 7.08$, p < .001; $\Delta R^2 = .07$				
F(8, 198) = 12.24, p < .001				
Step 4: 3-way interaction				
AFE x SE x Sex	0.09	0.17	0.04	
$\Delta F(1, 197) = .31$, p = n.s.; $\Delta R^2 = .00$				
F(9, 197) = 10.90, p < .001				

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 10. Interaction Effects of Sex on the Study Variables for Alcohol

Variable	*B*	*SE*	*β*	
Step 1: Control Variables				
Friends that use Substances	0.12***		0.02	0.47
School Discipline Problems	0.13+		0.07	0.11
F(2, 204) = 32.79, p < .001				
Step 2: Independent Variables				
School Encouragement (SE)	-0.03		0.03	-0.08
Academic Future Expectations (AFE)	-0.07		0.05	-0.08
Sex	-0.08		0.06	-0.08
$\Delta F(3, 201) = 1.43$, p = n.s.; $\Delta R^2 = .02$				
F(5, 201) = 14.06, p < .001				
Step 3				
AFE x SE	-0.30***		0.08	-0.27
AFE x Sex	-0.04		0.11	-0.04
SE x Sex	-0.04		0.06	-0.04
$\Delta F(3, 198) = 7.08$, p < .001; $\Delta R^2 = .07$				
F(8, 198) = 12.24, p < .001				
Step 4: 3-way interaction				
AFE x SE x Sex	-0.03		0.17	-0.19
$\Delta F(1, 197) = .35$, p = n.s.; $\Delta R^2 = .00$				
F(9, 197) = 9.30, p < .001				

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. AFE = Academic future expectations, SE = school encouragement, GPA = self-reported grade point average.

Table 11. ANOVAs Assessing Grade Level Differences After Significant MANOVA

	ANOVAs			9th		10th		11th		12th	
	F(3, 203)	*p*	η^2	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global Substanc Use	6.15	$\leq$.001	0.08	1.02	0.15	1.08	0.34	1.38	0.75	1.09	0.35
Marijuana Use	3.78	<.05	0.05	1.00	0.00	1.08	0.34	1.29	0.71	1.09	0.40
Cigarette Use	3.80	<.05	0.05	1.00	0.00	1.10	0.41	1.29	0.68	1.07	0.38
Alcohol Use	3.67	<.05	0.05	1.15	0.51	1.31	0.68	1.61	0.85	1.43	0.74

Note. Substance use scale: 1 = infrequent-user (used 0-2 times per year), 2 = occasional user (used 3-5 times per year), 3= moderate user (used 6 or more times per year)

Table 12. Post- hoc Fisher's LSD to Determine Mean Substance Use Differences by Grade Level

(N = 206)

Grades	Means	Mean Difference			
		9th	10th	11th	12th
Global Substance Use					
9th	1.02		n.s.	-.35***	n.s
10th	1.08			-.30***	n.s.
11th	1.38				.28**
12th	1.09				
Alcohol					
9th	1.15		n.s.	-.46**	-.28+
10th	1.31			-.29*	n.s.
11th	1.61				n.s.
12th	1.43				
Marijuana					
9th	1.00		n.s.	-.29**	n.s.
10th	1.08			-.21*	n.s.
11th	1.29				.19*
12th	1.09				
Cigarettes					
9th	1.00		n.s.	-.29**	n.s.
10th	1.10			-.19*	n.s.
11th	1.29				.22*
12th	1.07				

+ = p < .10 * = p < .05 ** = p < .01 *** = p < .001

Note. Substance use scale: 1 = infrequent-user (used 0-2 times per year), 2 = occasional user (used 3-5 times per year), 3= moderate user (used 6 or more times per year)

Figure 1.

Academic future expectations moderating the relationship between school encouragement and substance use (alcohol, cigarettes, marijuana, and global substance use assessment)

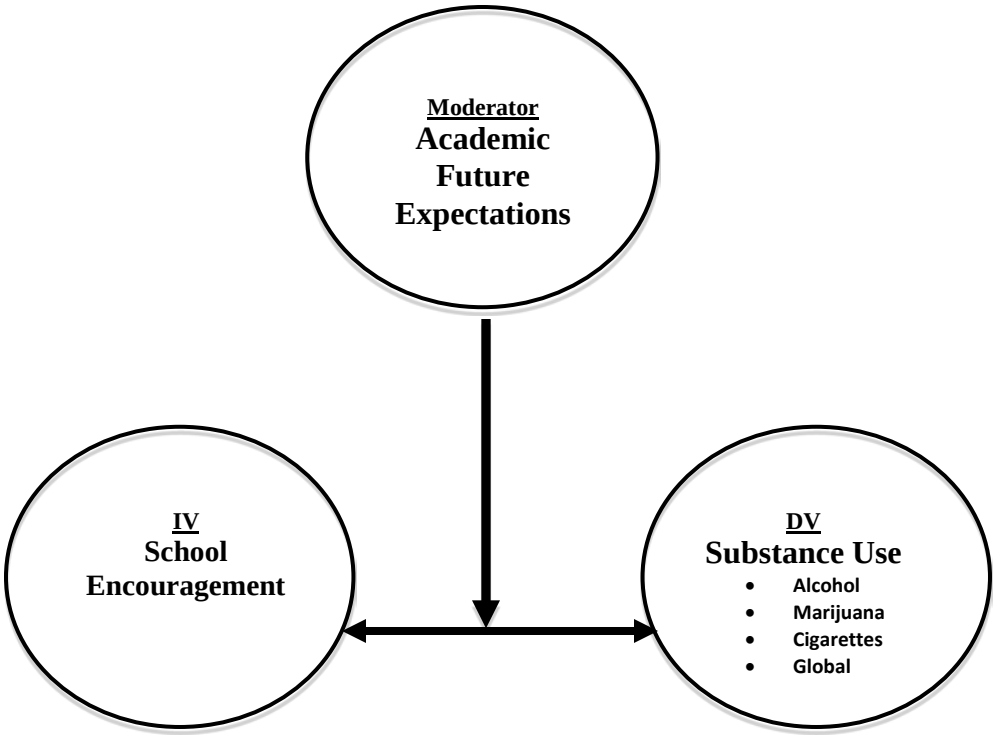
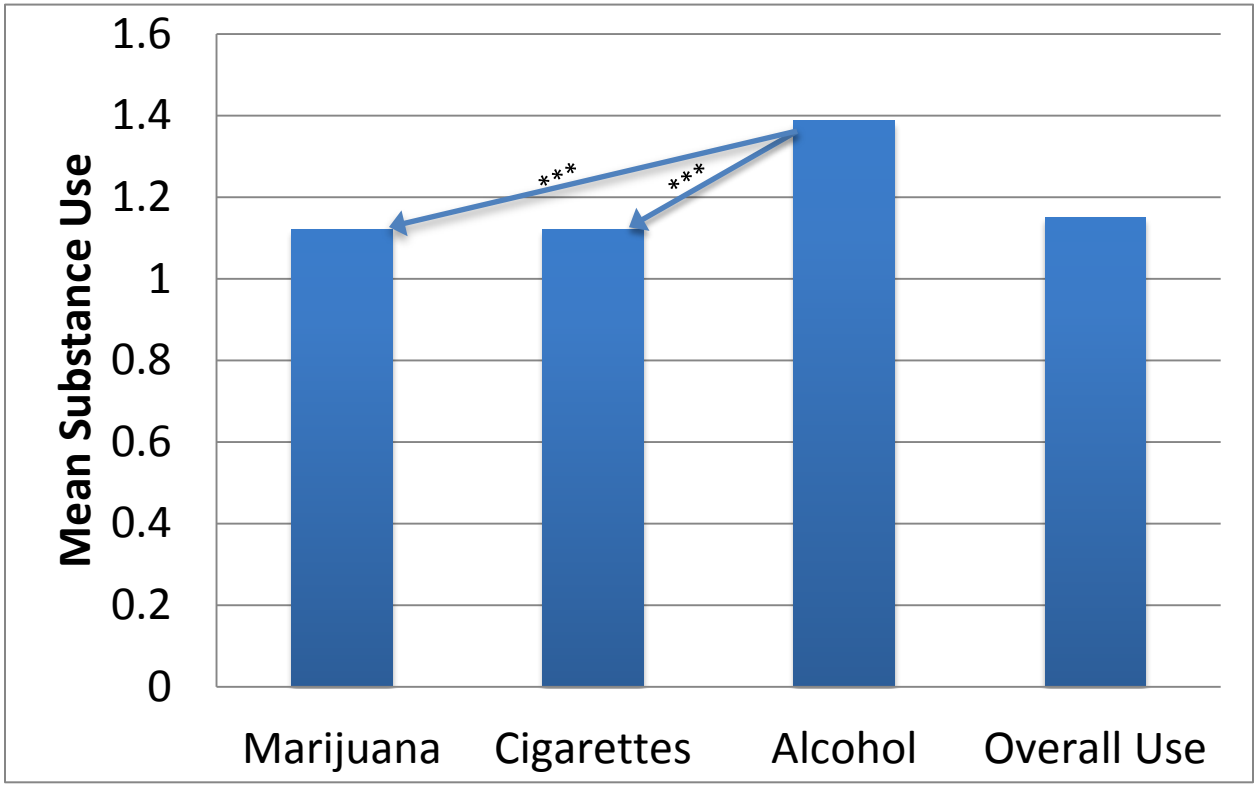


Figure 2.

Past year mean substance use (possible scores ranging from 1 to 3), with alcohol being used significantly more than the other substances.

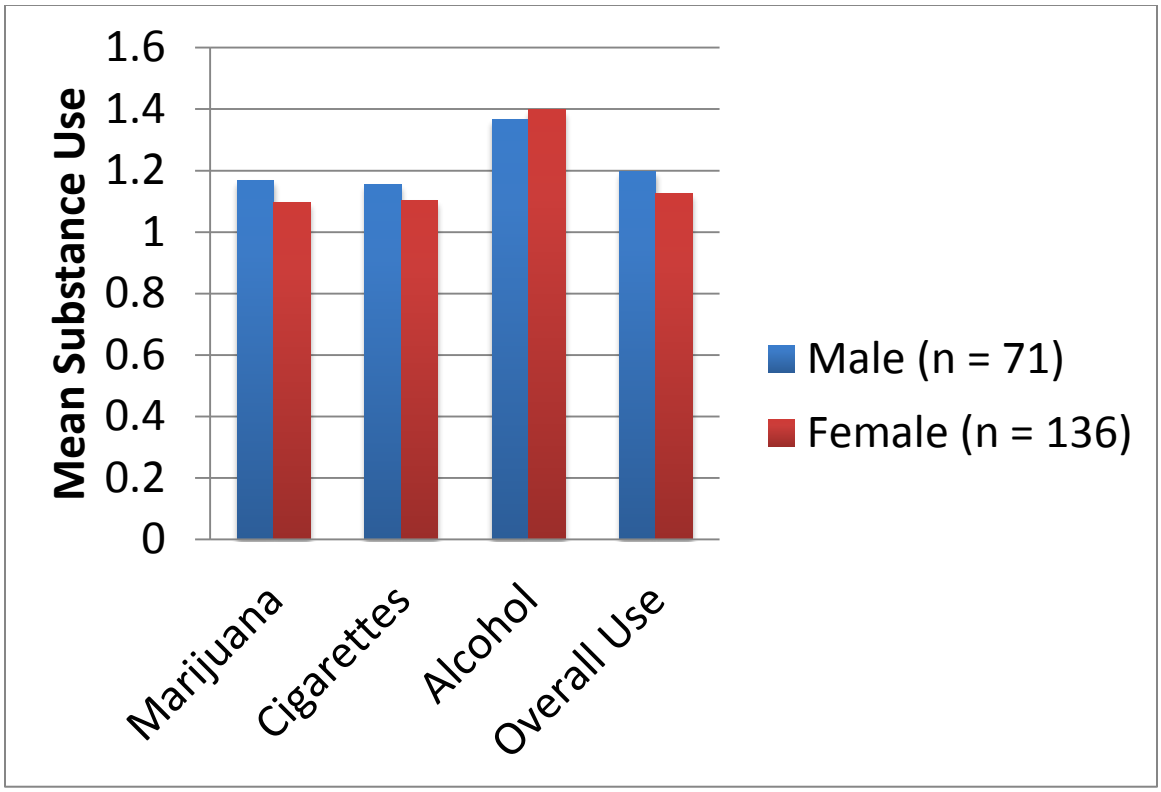


+ = $p < .10$ * = $p < .05$ ** = $p < .01$ *** = $p < .001$

Note. Substance use scale: 1 = infrequent-user (used 0-2 times per year), 2 = occasional user (used 3-5 times per year), 3= moderate user (used 6 or more times per year)

Figure 3.

Past mean substance use by sex (possible scores ranging from 1 to 3).

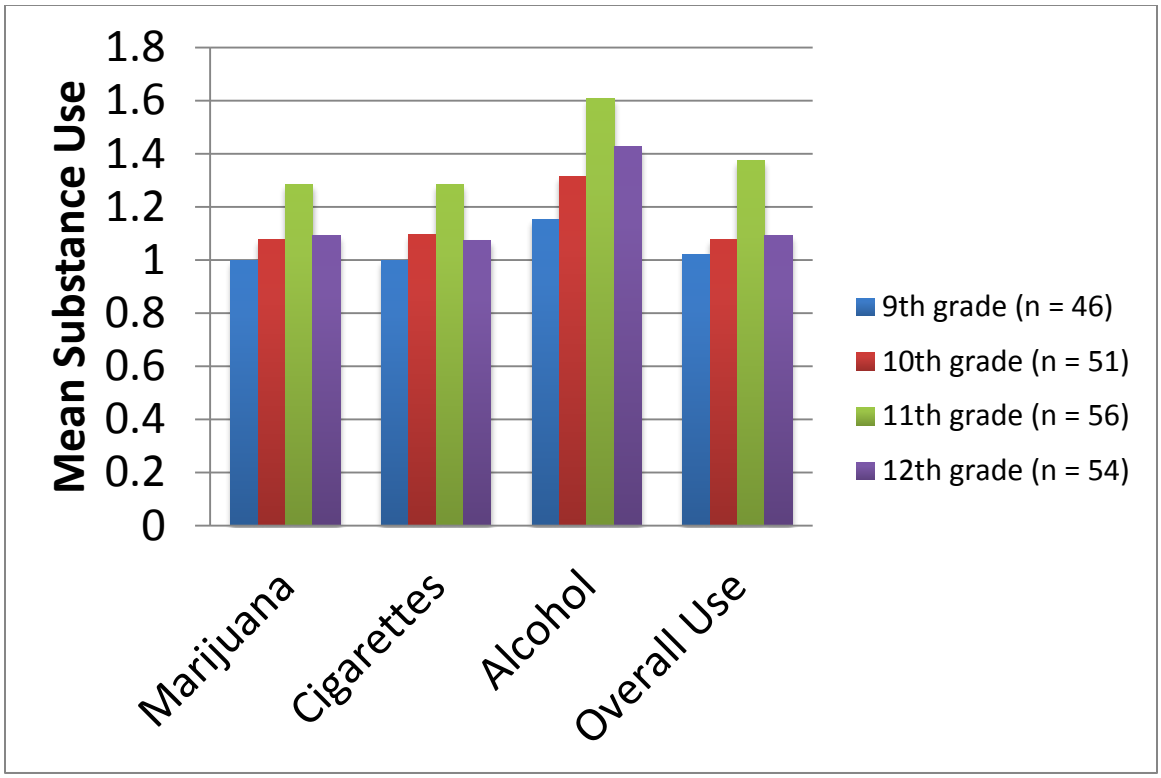


+ = $p < .10$ * = $p < .05$ ** = $p < .01$ *** = $p < .001$

Note. Substance use scale: 1 = infrequent-user (used 0-2 times per year), 2 = occasional user (used 3-5 times per year), 3= moderate user (used 6 or more times per year)

Figure 4.

Past year substance use by grade level (possible score ranging from 1 to 3).



Note. See Table 1 for significance values.
Substance use scale: 1 = infrequent-user (used 0-2 times per year), 2 = occasional user (used 3-5 times per year), 3= moderate user (used 6 or more times per year)

Figure 5.

Moderating effects of academic future expectations (AFE) on school encouragement's relation to the global substance use assessment.

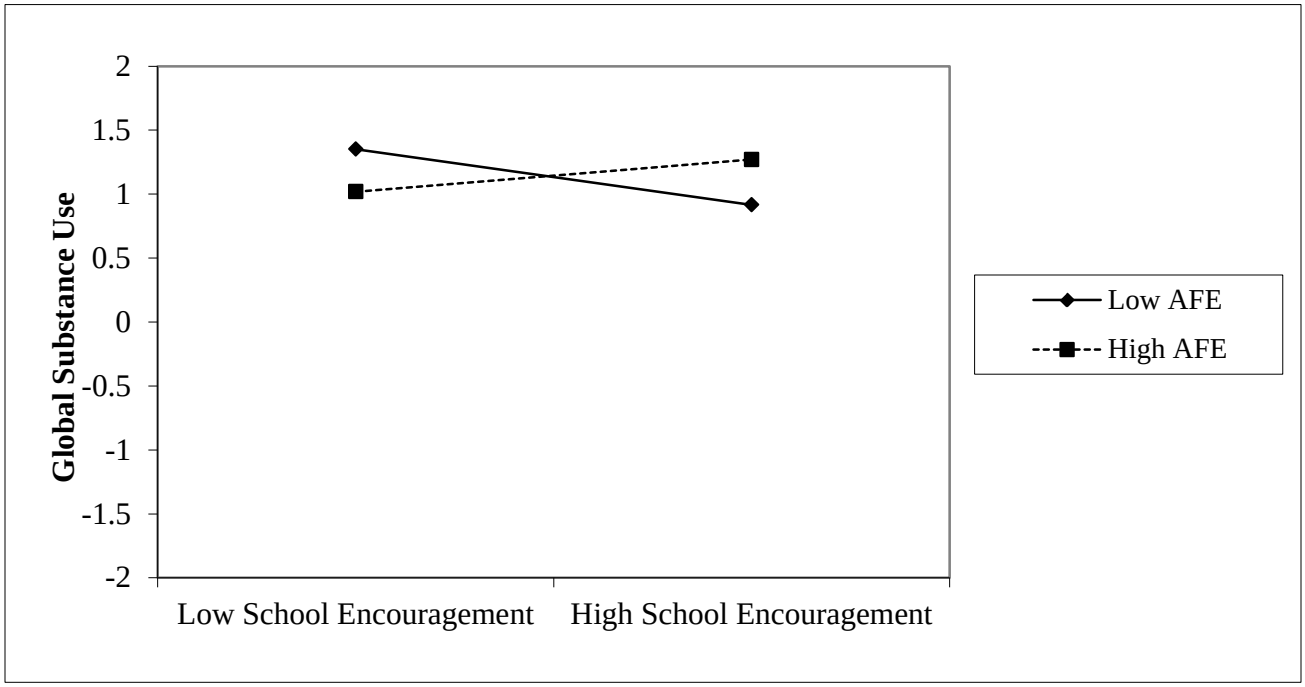


Figure 6.

Moderating effects of academic future expectations (AFE) on school encouragement's relation to marijuana use.

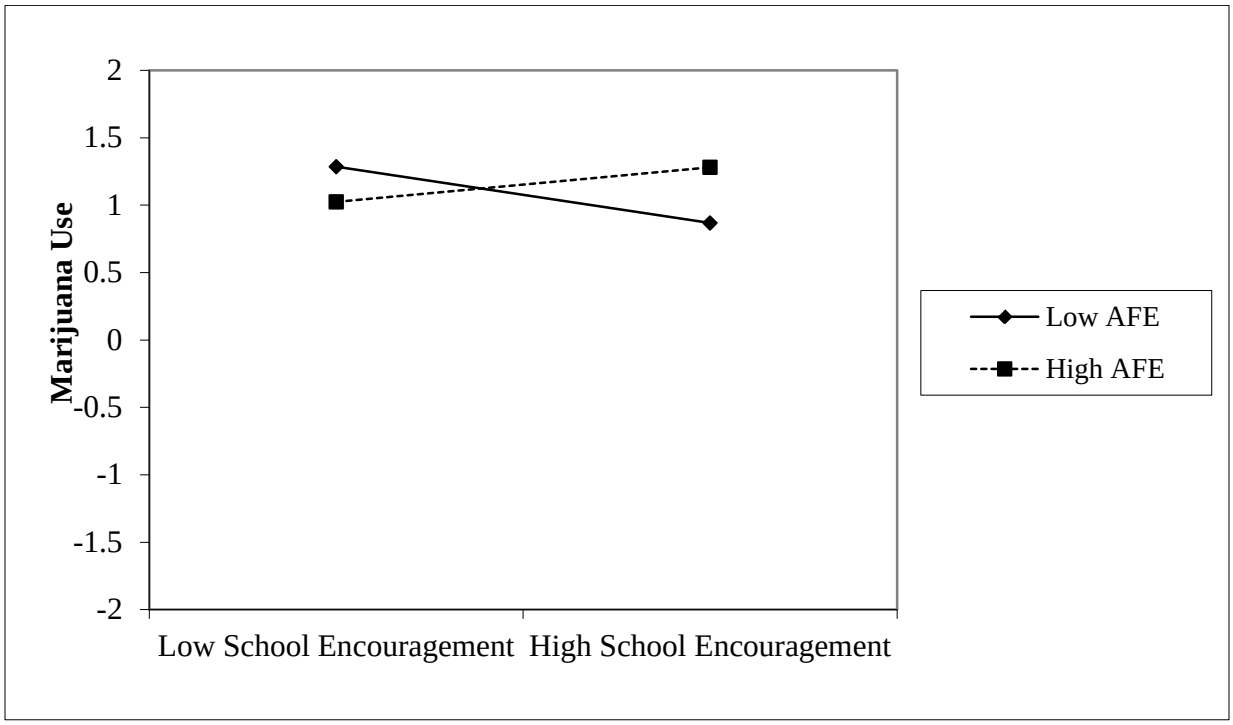


Figure 7.

Moderating effects of academic future expectations (AFE) on school encouragement's relation to cigarette use.