UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

HOW LONG AND HOW STRONG: AN EXAMINATION OF THE IMPACT PEER PRESSURE HAS ON YOUNG ADULTS

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

In partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

HALLIE STEPHENS
Norman, Oklahoma
2005

UMI Number: 3174536

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

HOW LONG AND HOW STRONG: AN EXAMINATION OF THE IMPACT PEER PRESSURE HAS ON YOUNG ADULTS

A Dissertation APPROVED FOR THE
DEPARTMENT OF SOCIOLOGY

BY

_____
DR. SUSAN F. SHARP

_____
DR. CRAIG ST JOHN

_____
DR. MARGARET S. KELLEY

_____
DR. TRINA HOPE

_____
DR. AL G. MATA

ACKNOWLEDGMENTS

I would first like to express my deep gratitude to my committee and their continued support throughout my graduate studies. Dr. St. John is a perfect example of patience in action. I owe almost all my statistical knowledge to this man and his continued efforts to "get it through my thick head". Dr. Hope answered many random questions. Thanks for letting me interrupt your work with a just a knock on your door. Dr. Kelley taught me things by example. It was very helpful being your teaching assistant. Even though I did not have the good fortune to work closely with Dr. Mata the meeting we had opened my eyes to all the possible applications of social research. Last but certainly not least my committee chair Dr. Susan Sharp is, was, and always will be irreplaceable. Words will never be able to fully capture how I feel about this woman and all she has meant to me. I simply would like to acknowledge that God placed her in my life and without her ever present encouragement and guidance I would not have been able to achieve the sometimes overwhelming responsibilities associated with higher academia.

Since my discipline allows me to study society I see all the "good, bad, and ugly" of the human experience. I quite often am left in awe regarding how people without the support of family survive this often cruel world. My family has been there for me all my life and for this I am truly blessed. Over the years I have received everything from money to food to quilts to keep warm but what I treasure the most is the always present encouragement that can always be counted on from any of my family members. My mother is by far the most important person in my life. She is the most remarkable woman I have ever had the pleasure and honor of knowing. Thanks Mom for all the unconditional love.

Even though I am acknowledging my friends separately from my family I consider them to be one and the same in my heart. I am fortunate enough to have the caliber of friendships that equate family. I have so many wonderful memories of the good times I have had with my friends and it is those good times that have carried me through the tough times.

I hope to be allowed to share my education for the rest of my life with my students, colleagues, family, friends, and anyone else who will listen and contribute. Many thanks to everyone who has made this lifelong dream a reality.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

ABSTRACT

It is well documented that peer pressure is a major predictor of adolescent substance abuse (Akers 2000, 1985; Aseltine 1995; Becker 1963; Elliott et al 1985; Warr 2005). The current study seeks to bridge the gap between adolescence and young adulthood and provide a more in-depth account of the role peer pressure plays in development and decision making. By looking at a sample of undergraduate college students I have emphasized the social aspect of young adulthood through college attendance which is experienced by many in this age group while at the same time extending the scope of peer pressure strength. The average college student, often referred to as a "traditional student", is entering into young adulthood and experiencing many shifts in routine and expectations. I argue in this study that peer pressure does not cease to exist after adolescence but rather remains strong and provides a conduit sometimes leading to and/or reinforcing negative behaviors, specifically marijuana use.

The data generally provided support for these hypotheses with the exception of the athletic involvement hypotheses. I argue there was not adequate support for these hypotheses because the data gathered did not differentiate between the different types of athletic involvement opportunities present on a typical college campus.

CHAPTER 1

Introduction

Social scientists generally agree that there is a relationship between a person's behavior and his/her immediate social environment (Akers and Lee 1999; Thornberry, Lizotte, Krohn, Farnsworth, and Jang 1994). Peer groups are an important part of the social environment of adolescents. Deviant peers have long been considered one important factor in determining the causes of delinquent behaviors within adolescent groups (Agnew 1991; Akers 2000; Krohn, Lanza-Kaduce, and Akers 1985; Warr 1993a; Warr 1993b; Warr 2002; Warr and Stafford 1991). However, less has been said about how long this influence lasts or whether it disappears as the individual matures. This leads to a number of questions. After adolescence, does the strength of the influence of peer groups change? Among college students, does the effect of peer influence remain strong? Why is it that some college students are successfully able to maneuver through the social pressures associated with college life, such as drug use, while others succumb to the temptation? These are questions that need to be addressed.

Marijuana use is one type of behavior that merits further investigation. Research based on the National Household Survey on Drug Abuse concluded that an average of 10 million Americans use marijuana each month, almost four percent of the entire population (NIDA 1996). This suggests the need to examine possible causes. One such cause is association with peers who use drugs (Warr 1993a). The need for acceptance by peers may contribute to individuals committing acts that they might otherwise avoid. It is also possible that the desire

for acceptance may be stronger during a transition period of life such as in the transition from childhood into adolescence.

The current study focuses on the role of peer approval, and to a lesser degree parental approval, in marijuana use among college students. College students are a distinct population that have a unique culture. Most traditional college students are still quite young upon entering higher academia and may still fall under the spell that peer pressure casts. Their health behaviors are important because this group is in a transition between adolescence and early adulthood, a time during which unhealthy behaviors developed during adolescence may be malleable or may be consolidated into lifetime patterns (Emmons, Wechsler, Dowdall, and Abraham 1998).

Since the mid -1990's, illicit drug use among adolescents and college students has been on the rise (Mohler-Kuo, Lee, and Wechsler 2003). Using data from 119 U.S. colleges and universities, the researchers found that marijuana use in the past 30 days had increased from 13% to 17% between 1993 and 2001. Furthermore, during the same period marijuana use during the previous year increased from 23% to 30%. Because of the widespread and increasing use of marijuana, many individuals feel compelled to understand the reasons behind the use of illicit drugs. The study of addictions is a growing field and one of unquestionable importance.

There is considerable evidence that delinquency occurs most often within a group context (Elliott, Huizinga, and Ageton 1985; Giordano, Cernkovich, and Pugh 1986; Hirschi 1969). Over several decades, studies have consistently found

that the more delinquent friends a person has, the more likely she or he will engage in delinquent behaviors (Johnson, Marcos, and Bahr 1987; Sutherland and Cressey 1978; Warr 1993a; Warr and Stafford 1991). Because socialization plays an important role in developmental processes, it would stand to reason that the socialization that occurs on college campuses may have an immediate, strong, and sometimes long-lasting impact on students (Warr 1998). Research indicates that there are special historical and cultural contexts of college environments, where tolerance of a variety of lifestyles has contributed to greater experimentation with drugs than is typical in the larger society (Perkins, Meilman, Leichliter, Cashin, and Presley 1999). However, the type of socialization that occurs at college should impact the degree to which the individual engages in behavior such as marijuana use. For example, Warr (1998) suggests that change occurring in young adulthood, such as going to college, often results in the creation of a new peer group. If this group is more conventional than the individual's earlier peer group, he argues that this would lead to less deviant behavior. One cannot assume, however, that all friendship groups developed in college are committed to conventional norms. Therefore, it is important to examine the attitudes and behaviors of the individual's peer group. If the peer group is committed to conventional norms, the socialization of the individual would be to those norms. However, if the new peer group formed in college approves of and engages in marijuana use, it is possible and even likely that the individual may develop attitudes favorable to marijuana use.

Furthermore, research suggests that parental supervision is a key element in reducing association with delinquent peers and thus drug use and delinquency. In a recent study, Warr (2005) examined the relationship between parental supervision and engaging in delinquency with peers. He concluded that there appears to be a strong link between parental supervision and having delinquent friends. For college students, the role of parental supervision is reduced, particularly among those living away from home in dormitories or apartments. Because of this, college students may well engage in more deviance than they did while living at home, especially if they had adequate supervision prior to leaving home for college. This conclusion is supported by the findings of Mohler-Kuo et al. (2003). In their study, they found the least increase in marijuana use between 1993 and 2001 to be among those students who lived at home with their parents. However, perceived parental approval or disapproval of behavior may still play a factor in whether or not the student engages in deviance (Warr 1993b) and should not be ignored.

In the current study, I will examine the relationship between the use of marijuana by college students and peer marijuana use. Prior research suggests that marijuana use is predominantly influenced by the peer group (Giordano et al. 1986; Aseltine 1995; Agnew 1991). This study explores the role of peers' attitudes and behaviors in drug use. I also examine the effect that the strength of peer influence has on attitude. Most research has only examined whether or not peer behavior influences marijuana use either through imitation or through the effect on the subject's own attitude about marijuana use. The current study

should add to our understanding about the mechanisms involved because it incorporates a measure of the strength of peer approval as a factor in the individual's behavior.

Using a Social Learning Theory framework (Akers 1985; Akers 1999), I argue that attitudes favorable to marijuana use are learned primarily through association with deviant peers. Social Learning Theory allows me to examine the role of both imitation and attitudes in subjects' marijuana use. I will examine the extent to which deviant peer associations result in a learned behavior or an imitated behavior. Furthermore, I will also explore the effects of participation in two extracurricular activities (i.e., religious involvement and/or athletic involvement) on the presence or absence of deviant peers. Then, I am extending Social Learning Theory by examining the role of the strength of peer influence.

CHAPTER 2

Marijuana Use Among Young Adults

Marijuana is widely used in the United States today. According to the National Institute on Drug Abuse (NIDA 2004), more than 14 million Americans age 12 or older had used marijuana at least once in the thirty days prior to being surveyed. Furthermore, in 2002, more than half (53.8%) of those of a comparable age to the subjects in the current study (18 to 25) reported ever using marijuana (NIDA 2004), a. slight increase over 2001 Among those who did report using the drug, a substantial number reported regular use. Over three million Americans reported using the drug at least 300 days in the past y ear (NIDA 2004).

It is unrealistic to assume that a behavior such as marijuana use can be explained completely by one factor or variable. Marijuana users, especially young adults, perceive the risks concerning the harmful effects of marijuana use as an unknown variable that does not specifically affect their immediate personal environment (Danseco, Kingery, and Coggeshall 1999). This is a typical "not me" reaction to deviant behaviors. If the behavior being carried out is not seen by the perpetrator as deviant or if he/she believes he/she is "untouchable" in terms of social consequences, then he/she will not believe they can commit a deviant act.

According to Gottfredson and Hirschi (1990), self-destructive or otherwise deviant behaviors tend to occur in a constellation of behaviors. They argue that deviance is general, with offenders likely to engage in a range of deviant behaviors rather than specializing in one, such as marijuana use (Gottfredson and Hirschi 1990; Britt 1994). Research appears to support their contention, with

many studies indicating that individuals engage in a wide range of deviant behaviors (Hirschi 1969; Petersilia 1980; Hindelang, Hirschi and Weis 1981).

Of course, it is debatable whether or not marijuana use is deviant. One way to define deviance, however, is whether or not the behavior is engaged in by the individual despite the potential for negative consequences (Gottfredson and Hirschi 1990). Given the illegality of marijuana use in most jurisdictions, it is reasonable to define the behavior as deviant in terms of its potential for negative legal ramifications. Additionally, there are numerous other potential problems associated with use of the drug.

One potential consequence of marijuana use is the breakdown of interpersonal and institutional relations. The social aspects of becoming associated with a deviant label, such as a marijuana user, can create consequences not often considered, yet harmful none the less. Thomas and Seibold (1995) stated that relational problems can arise between the young adult and friends, partners, family members, and social control agents (such as local police) due to the young adult's actions.

A review of the literature regarding specific personality characteristics of marijuana user led researcher Griffith Edwards and colleagues (1983) to three generalizations:

1. Marijuana users tend to score high on scales of non-conventionality.
2. Marijuana users are open to new experiences, they are more spontaneous in nature and receptive to uncertainty and change; and
3. Marijuana users manifest lower rates of conventional achievement value and achievement satisfaction.

While personality correlates continue to be examined as predisposing factors in substance use, it is often difficult to distinguish the personality attributes from the behaviors they are attempting to explain. The fact that marijuana users score higher on non-conventionality should not come as a surprise considering the use of marijuana is itself an unconventional behavior, regardless of how common the use has become among young adults.

Research also suggests the potential for other consequences of marijuana use. Marijuana has been associated with short-term memory problems as well as learning difficulties (NIDA 2004; Pope and Yurgelun-Todd 1996). Additionally, several medical conditions are related to marijuana use, including increased risk for heart disease (NIDA 2004), respiratory problems (Cohen 1999), and depression (Green and Ritter 2000). One study found that illicit drug use, including marijuana use, was associated with risk taking, neuroticism, having a higher education qualification, and being unemployed (Derzon and Lipsey 1999). Another suggested that drug use negatively affected academic performance (Dozier and Barnes 1997).

Given the relative importance of family and peers, it is plausible that their attitudes and behaviors could affect the development of a variety of deviant behaviors, including marijuana use. Marijuana use does not occur in a vacuum; young adult marijuana use can be viewed as a behavior learned in social contexts (Becker 1963). Furthermore, marijuana use appears to increase as youths age, with only 7.5% of eight-graders reporting monthly marijuana use in 2003 as compared to 21.2% of students in the twelfth grade (NIDA 2004). Comparable

data are not available for college students, but it is possible, given the reduced supervision inherent in college life, that this group would report even higher levels of use.

Apparently, college attendance is, in and of itself, "an important event in the deviant behavior career of most young people" (Cherry 1985: 96). Since most traditional college-age students are categorized in the young adult category it is important to look at this group. MacDonald, Fleming, and Barry (1991) reported that young adults often perceive deviant behaviors such as marijuana use as normative. If the environment in which the deviant behavior, like marijuana use, is taking place does not provide negative sanctions for such activity, then the participant will most likely receive reinforcements that allow him/her to perceive the behavior as normal. Many young adults begin using marijuana recreationally and often continue usage periodically throughout their lifetime (Wadsworth, Moss, Simpson, and Smith 2004).

The academic and community action paradigm for confronting substance use is in the midst of shifting from a focus on risk factors to factors that build resiliency to substance use (Allen, Donohue, Griffin, Ryan, and Turner 2003). Starting at the point of origin for marijuana use and minimizing that influence is definitely a factor that would contribute to building a resiliency to substance use.

It is apparent that marijuana use is not uncommon among youth, and more than half of Americans in the age group of traditional college students report that they have tried it at least once. Although the drug is more commonly used by youth than drugs other than alcohol, its use is not without potential negative

consequences. Given the research suggesting cognitive problems resulting from marijuana use, marijuana use could have long-lasting ramifications for college students. This suggests that the study of factors related to marijuana use among college students is an important issue for research.

CHAPTER 3

Involvement in Extracurricular Activities and Marijuana Use

Some attention has been paid to the role one's activities might have on association with deviant peers. The likelihood that either religious involvement or athletic involvement will affect a person's association with delinquent peers is an interesting research area. From a social control perspective, involvement in conventional activities should reduce the time available for and, thus, the occurrence of deviant behaviors (Hirschi 1969). It should also change the peer group, at least in part. Changes in behavior are often explained by changes in the learning environment (Winfree, Sellers and Clason 1993; Lanza-Kaduce, Akers, Krohn, and Radosevich 1984; Conger 1976). This being the case, a change in learning environment prior to or in absence of drug use may be the result of group membership.

Many studies have focused on the reason why people begin marijuana use, but they have not clearly defined why some users stop or only use occasionally and others increase their use (Johnson 1973; Kandel, Yamaguchi, and Chen 1992; Becker, 1953; 1963). When parents encounter difficulties with their children like delinquent behaviors, they may consider the implementation of an extracurricular activity as a means of distraction or control. Hirschi (1969) argued that

involvement was an important element of the social bond. According to his theory, those who were engaged in socially approved behaviors would have less time to engage in deviance and be more attached to society.

If the activity is accepted by the adolescent and produces pleasurable experiences for him/her that result in conforming behavior, it may be considered a success. Assuming this behavior has been reinforced, it is plausible to make the assumption the activity will be carried over into adulthood, specifically college years. The question then becomes, will the activity continue to help the youth conform or could it ultimately lead to the very negative behaviors it was originally designed to avoid? In this chapter, two different types of activities are considered: religious involvement and athletic involvement.

Overall, the literature on extracurricular activities supports the argument that by increasing participation in a socially sanctioned activity people will decrease participation in unsanctioned activities such as drug use (Hirschi 1969; Hughes and Coakley 1991). However, in some cases the added pressures associated with the activity may contribute to feelings of vulnerability. The youth may feel obligated to participate in group activities, ranging from prayer meetings to after-game parties. The effect of involvement in extracurricular activities on the likelihood of deviance would, therefore, depend in part on the type of activity.

The issue of causality is a critique of social learning theory and its application to marijuana use (Stafford and Ekland-Olson 1982; Akers 1999; Sampson and Laub 1993). The question is, did marijuana use lead to the deviant peer association or did the deviant peer association lead to marijuana use? My

position, using social learning theory as Akers applied it, is that the delinquent peer association contributes to marijuana use, and the delinquent peer association itself was a result of contributing factors. Something in the college student's background has increased the likelihood of association with peers that may be involved with marijuana use. Involvement with that peer group may then result in the learning or imitation of delinquent behavior such as marijuana use. More recently, O'Hare (1997) stated that research may be underestimating the role of collegiate social encounters which act as a catalyst for the undertaking of using marijuana through the process of imitation. In order to explore this issue I examine participation in two very different college activities in an effort to expand our knowledge in this area.

Religious involvement is on one side of the spectrum of possible extracurricular activities. Whereas athletic involvement can place young adults in situations which may condone deviant behaviors, religious involvement, by its very nature, represses that element (Barber, Eccles, and Stone 2001; Eccles and Barber 1999). Although some research has suggested that there is no relationship between religious involvement and deviance (Hirschi and Stark 1969; Cochran and Akers 1989), more recent research has found that religiosity has an inverse effect on deviance. In particular, religious involvement as measured by attendance was found to be inversely associated with a general crime measure that included marijuana use. The authors suggest that this effect may be due at least in part to the social control aspect of religious groups (Evans, Cullen, Dunaway and Burton 1995). The literature also suggests that religious involvement may be

more salient for adults. Among adolescents living at home, church attendance may reflect their parents' attitudes rather than their own (Tittle and Welch 1983). College students, like adults, are more likely than younger students to be attending church as a result of their own convictions, suggesting that attendance may be reflecting their own values.

It is generally accepted that involvement in religious activities encourages conforming behaviors (Evans et al. 1995; MacDonald et al. 1991; Tittle and Welch 1983). Although some might question whether or not marijuana use is deviant, it would not be considered conforming behavior in most cases. Therefore, extracurricular religious involvement, which is often specifically implemented to combat negative attitudes and behaviors, should be associated with a lesser likelihood of engaging in marijuana use or associating with peers who engage in marijuana use.

Athletic involvement is another strong socializing factor. Decreased deviance from involvement in this activity is not as well documented as for religious involvement, and there is some evidence that participation in athletic activities may be linked to an increased likelihood of deviance. One the one hand, there is a belief that even if an athlete does not fully internalize the conventional social expectations he/she will still conform because of fear of reprisals in the form of removal from the team or losing a position (Snyder, 1994). However, whereas religion may condone and expect participants to conform to conventional behaviors and attitudes, athletic involvement may allow for and perhaps encourage deviating from the norm. Participation in an athletic endeavor requires

some degree of competitiveness, which naturally fosters conflict and encourages the rejection of complacency and embracing of power struggles.

Additionally, it has been suggested that student athletes feel "above reproach" because of the status they are given in both public and private arenas (Barber, Eccles, and Stone 2001; Eccles and Barber 1999). It is for this reason that I argue that athletic involvement may increase the likelihood of a person associating with deviant peers.

Do all athletic participants assign the same value to the activity in which they are participating? The answer would be, "No." Whether the activity is a team sport or an individual sport, each person participating in the activity will be there for different reasons (Dubois, 1986; Hastad, Segrave, Pangrazi, and Petersen 1984). It is plausible to assume most participants engage in athletic endeavors for positive reasons, but it would be negligent to ignore the possibility that some have less positive motives. Most research suggests that it is not simply participation in athletics that can predict future deviant behaviors. Instead, a complex construction of other variables must be considered, including the reason for participation (Hastad et al. 1984; Hughes and Coakley 1991; Segrave and Hastad 1984). Unfortunately, it is difficult if not impossible to ascertain the specific reasons involved in each individual's participation.

Among the many issues to consider when discussing the degree to which athletic involvement may or may not increase deviance, it is important to consider the tremendous impact peer influence has on decision-making skills. "Collective commitment to the sport ethic, especially under conditions of extreme stress, may

lead to the creation of special bonds between athletes" (Hughes and Coakley 1991:313). Once those bonds are formed, acceptance of peer behaviors may occur even if the behavior is negative. According to Segrave and Hastad (1984) the pressure to conform may at times be overwhelming for some and result in the need for acceptance outweighing the possibly negative outcome often associated with drug use.

A recent study has found support for the position that athletes demonstrate high levels of delinquency even though there is evidence that they possess positive, socially-sanctioned goals (Kelley 2004). These finding suggest an issue beyond socially recognized positive and negative attitudes. As a society, we may have failed to recognize that while we have encouraged activities such as athletics and implemented them in a positive manner, we have at the same time created a separate and unequal sub-group of individuals. The subgroup of athletic participants is composed in part of individuals that for some reason or another get placed in a category that is often viewed as "special."

When the relationship between athletic involvement and deviance is broken down by gender, we see that, typically, males report higher levels of deviance (Hastad et al. 1984; Dubois 1986). Athletic involvement is certainly not the sole predictor of involvement in a deviant behavior such as drug use, but the literature strongly suggests there is definitely a relationship (Kelley 2004; Hughes and Coakley 1991; Hastad et al. 1984; DuBois 1986; Segrave and Hastad 1984; Snyder 1994; Agnew and Petersen 1989).

CHAPTER 4

Theoretical Explanations of Marijuana Use and Deviance, Part I: Social Control and Strain Theories

Having established the importance of studying marijuana use as a form of deviance, I now turn to a review of four theories often used to explain deviant behavior. The first two, control theory and strain theory, view the deviant peer – deviant behavior association as spurious, while the latter two, differential association theory and social learning theory, view deviant peer association as an integral part of adolescent drug use. In this chapter, I will examine the two theories that minimize the role of deviant peers.

Control Theory

There are a number of theories that seek to explain drug use. For example Hirschi's control theory explains the deviant behavior of drug use in terms of the extent to which the person is bonded to conventional institutions such as family or school (Hirschi 1969). It assumes people are basically self-interested and motivated to seek pleasure. Some types of social restraints are, thus, needed to discourage participation in deviant behaviors. The social bond restrains the individual from engaging in deviance. Most individuals would engage in deviance if they were not restrained by either internal or external controls. Research on control theory suggests that a weak social bond, especially lack of attachment to conventional others, is a primary reason that people engage in deviant behavior or associate with deviant peer groups (Gottfredson and Hirschi 1990; Hirschi 1969; Burkett and Jensen 1975; Conger 1976). Deviant behavior such as marijuana use, according to control

theorists, occurs because social controls (the methods of ensuring conformity) are insufficient.

If lack of social control is the explanation of deviance, one might expect the lack of social control in an individual's life to result in more deviance during the college years, when the individual may be without parental supervision for the first time. The size of the United States' college population, and the students' economic ability to purchase illicit drugs, the absence for the first time of parental controls, and the tendency of college students to try new, previously prohibited behaviors makes the college years a time of greater risk for the development of behaviors such as marijuana use (Gledhill-Hoyt, Lee, Strote, and Wechsler 2000). However, the theory also emphasizes the role of commitment to conventional goals, such as a good career, as a factor in restraint of deviance, which would, in turn, reduce the likelihood of deviance (Hirschi 1969; Sampson and Laub 1993).

In more recent studies, low self-control has become the predominant explanation of deviant behavior among control theorists. This theory suggests that ineffective parenting leads to the inadequate development of self-control. Those who develop appropriate self-control are able to weigh the consequences of deviant behavior against the more immediate gratifications that such behaviors bring (Agnew and Peterson 1989; Burkett and Warren 1987; Cauffman, Steinberg and Piquero 2005; Gottfredson and Hirschi 1990; Junger-Tas 1992; Van Voorhis, Cullen, Mathers, and Garner 1988). However, others fail to develop adequate levels of self-control to restrain them from engaging in deviant behaviors. Among those with low self-control, engaging in deviance is likely when opportunity is present (Gottfredson

and Hirschi 1990). Furthermore, these individuals may engage in a wide range of criminal or analogous acts, including drug use, risky sexual behaviors and so forth.

Self Control Theory suggests that the individual's level of self-control is developed at a very early age, prior to entering school (Gottfredson and Hirschi 1990). Furthermore, the individual's level of self-control remains relatively stable throughout life in comparison to his or her peers. Therefore, this theory offers a different perspective on association with deviant peers. It would suggest that those with higher levels of self-control would be less likely to associate with those with lower levels of self-control because of different attitudes and interests. On the other hand, those with lower levels of self-control would be more likely to seek each other out and associate due to similar approaches to life. Low self-control individuals are more likely to enjoy risk-taking, to act without considering the consequences, to lack concern about long-term benefits to their behaviors, and to enjoy activities that require little skill or planning (Gottfredson and Hirschi 1990). Thus, they would be more likely to associate with each other than with those having higher levels of self-control (Glueck and Glueck 1950; Hirschi 1969; Liska 1969; 1973).

In examining the two previously described theories, it is apparent that both self-control and control theorists imply that the connection between deviant peer associations and drug use is a spurious one, unlike social learning theorists who believe that it is not. I will next examine how this relationship is viewed in General Strain Theory, the most current version of strain theories.

General Strain Theory also attempts to explain drug use and other forms of deviance. It focuses on the relationship of strain to negative affective states such as

anger. The cause of deviance, according to Agnew, is found in problematic relationships with others (Agnew 2001). Deviance, the theory suggests, is an attempt by the individual to reduce the strain (Agnew 1992; Agnew and White 1992). Agnew (1992) describes three different types of strain that may lead to deviance: the failure to achieve positively valued goals, the loss of positively-valued stimuli, and the presence of negatively-valued or noxious stimuli. It is possible for an area in a person's life to be seemingly unrelated and separate from a behavior when, according to strain theory, there is a strong correlation between them. This theory states that the pressure felt from an outside force can cause an overall strain. This leads to a negative affective state, particularly anger, which, in turn, can lead to deviance in an effort to reduce the strain and anger. For instance, a strain theorist might argue that an abused child is more likely to "act out" in a deviant way than a child who has received no abuse. The abuse would create a negative emotion, which, without mediating influence, could cause him/her to engage in deviant behavior. In the case of college students, the strain could come from the academic pressure to perform and/or "fit in" with the new culture. Strain theory would argue that both deviant peer association and drug use are responses to the negative affects of strain. The relationship between the two is thus spurious.

In this chapter, I have briefly described two theories that give minimal importance to the role of deviant peers. In the following chapter, I will describe the two theories that consider the role of deviant peers to be extremely important in the likelihood of an individual engaging in deviance: Differential Association Theory and Social Learning Theory.

CHAPTER 5

Theoretical Explanations of Marijuana Use and Deviance Part II: Differential Association and Social Learning Theories

Differential Association Theory

In this chapter, I focus on the two theories that view association with deviant peers as an important aspect of marijuana use and other forms of deviance. First, I will examine Differential Association Theory.

Sutherland's differential association theory states that deviant behavior is learned through association with others who hold deviant attitudes. Association with deviant peers directly affects the likelihood of engaging in deviant behaviors (Jeffery 1965; Matsueda and Anderson 1998; Sutherland 1947; Sutherland and Cressey 1978; Sutherland, Cressey and Luckenbill 1992). The individual learns attitudes favorable to engaging in deviance from his or her associations. Sutherland felt that the learning process was necessary, and without it there would be no desire to commit a deviant act. According to Sutherland, there is no innate drive in human beings to act deviantly. It is through their close associations that they learn attitudes favorable or unfavorable to behaviors, and some learned behaviors are deviant.

Sutherland set forth nine propositions in his theory:

1. Criminal behavior is learned
2. The fundamental basis of learning criminal behavior is formed in intimate personal groups.
3. Criminal behavior is acquired through interaction with other persons in the process of communication.
4. The learning process includes the techniques of committing the crime and specific rationalizations and attitudes for criminal behavior.

5. General attitudes regarding respect (or lack of respect) for the law are reflected in attitudes toward criminal behavior.
6. A person becomes delinquent or criminal because of an excess of definitions favorable to violation of the law over definitions unfavorable to violations of the law.
7. Differential association may differ in duration, frequency, and intensity.
8. The processes for learning criminal behavior parallel those of any other types of learning.
9. Criminal behavior is an expression of general needs and values (as with non-criminal behavior), but it is not explained by those needs and values. (Sutherland 1947).

Sutherland argued that it is through the learning of these traits that a favorable predisposition to criminal lifestyles is developed. Once the individual has developed a belief system or attitude conducive to deviant behavior, he or she is more likely to engage in it.

Examination of the learning that takes place as a result of a deviant peer association may lead to a better understanding of deviance and provide valuable knowledge to better understand the problem. In differential association theory, the role of peers is instrumental in explaining deviant behaviors. From one's associates, one learns definitions about whether a behavior such as drug use is acceptable. Without such definitions, Sutherland argues that one would not engage in crime or deviance (Sutherland, Cressey and Luckenbill 1992). An excess of definitions favorable to deviance over those unfavorable, mediated by "frequency, duration priority and intensity," (Sutherland, Cressey and Luckenbill 1992: 89) predicts a higher likelihood that the person will engage in deviant behavior.

Social Learning Theory

While differential association focuses on acquisition of the attitudes favorable to deviance, Akers' Social Learning Theory extends this approach. The current study

will therefore test the efficacy of Social Learning Theory to explain marijuana use among college students. The heart of Social Learning Theory is derived from Sutherland's differential association theory. Akers agreed with Sutherland's conclusion about the influence of deviant peers through learned definitions favorable to deviance. However, drawing from Bandura (1986), Akers expanded Sutherland's theory to incorporate the aspect of imitation along with learning (Akers, Krohn, Lanza-Kaduce, and Radosevich 1979; Akers 1985; Akers 2000). Akers asserted that not only could attitudes favorable to a deviant act be learned through deviant peer association, but that the deviance could also be the result of imitation, regardless of whether or not the individual viewed the behavior in a favorable way.

A relatively high proportion of college students begin using drugs before entering college, many even before high school (Prendergast 1994), although, as we have seen above, the likelihood of use increases as students progress through school (NIDA 2004). It is difficult to attribute deviant behavior solely to learned definitions, however, because these young adults are acquiring a vast amount of knowledge about many subjects. Imitation is a not only a convenient answer but also an extremely relevant one. It could occur in situations where the individual seeks acceptance from peers. This could lead to imitative deviant behavior despite a lack of attitudes favorable to the deviant act. In other words, even if the individual does not have attitudes supportive of marijuana use, he or she may use marijuana with friends in order to gain or maintain their acceptance. Greenberg (1985) suggested that the need for peer acceptance is an important aspect of growing up. Popularity and acceptance are extremely important to youth, and their importance begins fading only after the

adolescent leaves school (Giordano, Cernkovich and Pugh 1986; McCall and Simmons 1978). Furthermore, prior research suggests that the intimacy of friendship is linked to the likelihood of friends influencing one's behaviors (Thrasher 1964; Giordano, Cernkovich and Pugh 1986). Following that logic, it would seem that peer acceptance would be important to college students, especially as many of them are having to develop new social networks as a result of leaving home.

Akers adopted from Sutherland his concepts of definitions and differential association, adding imitation and differential reinforcement into his theory (Akers 1985). Definitions refer to how the person perceives what she or he is doing. Akers and other social learning theorists believe that one's own personal definitions about deviance and the perception about what elements must be present to constitute a deviant act are important. "Definitions are learned in conjunction with reinforcement and association with others and become discriminative for behavior by condemning use, justifying it, or by positively endorsing it either generally or in situated circumstances" (Krohn et al. 1984: 362).

The second concept drawn from Sutherland, differential association, is defined as the way an individual is conditioned by others' definitions of right and wrong behaviors. Differential association is sometimes considered the single most important variable in the theory (Akers et al. 1979). It is through the association with those who have attitudes and values favorable to deviance that deviant behaviors are learned and often carried out (Jeffery 1965; Kandel and Adler 1982; Winfree, Sellers, and Clason 1993). Those who have non-criminal attitudes and values cannot provide

the necessary information in order for someone to adopt a deviant attitude. Akers then builds on Sutherland's theory with two additional concepts.

I have discussed the effect that delinquent peers' behaviors and attitudes may have on an individual's likelihood to engage in behavior such as marijuana use. However, the question arises about the impact that parental approval and attachment to parents may have as well. Here, the research is less clear than research concerning the relationship between peers' attitudes and the individual's behavior. As we saw in the previous chapter, control theorists suggest that the degree of attachment to parents is the single most salient predictor of whether or not an individual will engage in deviance (Hirschi 1969). However, other research suggests that it is not attachment to parents that controls the propensity to offend but rather parental monitoring and control of behavior (Warr 1993b). In other words, the importance the youth may place on parental approval will not offset the effect of deviant peers. Parental effect on behavior is primarily limited to the degree to which they are able to monitor and control the behavior of the youth. According to Warr (1993b), how much time the individual spends with parents reduces the likelihood of engaging in acts like marijuana use. However, importance placed on the parental approval does not. Given these two perspectives, it is important to further explore the effect of parental approval on participation in deviance.

Differential Reinforcement

Aker's first new concept is that of differential reinforcement. "Behavior is a function of the frequency, amount, and probability of experienced and perceived contingent rewards and punishments" (Akers 2000:52). Differential reinforcement is

based on the perceived possibilities associated with certain behaviors. Reinforcement can be positive or negative. A reinforcing stimulus can often strengthen the response. It is based on how the individual perceives the reward versus the punishment for committing the offense. That is, if a behavior is praised and encouraged by someone such as a peer, it is possible that behavior will be carried out even if the perpetrator considers it deviant. It is also possible for punishment to be perceived as a positive reinforcement; creating a label where one did not exist may occasionally be seen as an achieved status symbol and considered valuable to the offender. Human beings are social creatures and as such often associate with those who provide reinforcement, especially positive reinforcement (Jeffery 1965; Simons, Wu, Conger, and Lorenz 1994). It is possible that the need for acceptance is a powerful motivator and an impressionable person might succumb even more easily to the temptations often present with deviant peers.

There are also negative types of reinforcement. Fear of apprehension is a strong form of deterrence. An observer may calculate which behaviors will produce certain consequences (Conger 1976; Burkett and Jensen 1975). If a college student is able to weigh out the consequences, as the previous literature suggests, then fear of apprehension is a possibility. However, the student becomes the observer when placed in a situation with deviant peers where marijuana use is taking place. If he/she takes part in the marijuana use, then he/she may try to rationalize his/her behavior and not take into account the apprehension possibility. The belief that one will not get caught is likely to "stand alone" as a deterrent force once a conventional tie, such as family, has been weakened (Burkett and Jensen 1975; Kandel and Adler 1982).

There are other factors that contribute to deviant behaviors, such as imitation and association with deviant peers.

Imitation

Akers also proposed the concept of imitation. He felt that it was also possible for a deviant behavior to occur whether or not the individual had adopted definitions favorable to its commission. While Sutherland's Differential Association Theory suggests that learned attitudes lead to deviance, Akers' theory indicates that not all behaviors are linked to learned attitudes. Instead, some deviance may simply be due to imitation. This imitation is often the result of a deviant association. Modeling behaviors that are observed through deviant peer associations should increase the likelihood of deviant behaviors (Matsueda and Anderson 1998; Johnson 1980; Burkett and Jensen 1975). The greatest effect imitation has is on the initial stages of behavior, while the reinforcement and definitions are more important in the maintenance of the behavior (Akers et al. 1979). To a lesser extent friends can serve as admired models to imitate. One important study (Warr and Stafford 1991) tested both the direct and indirect effects of deviant peer association on deviance. Warr and Stafford found that "although the attitudes of friends are clearly important in determining the deviant behavior of adolescents, the behavior of friends appears to be the dominant factor" (1991:854). They concluded that both attitude and imitation play important roles in deviant behaviors, including marijuana use. They concluded that the group pressure to conform was at least as important as favorable attitudes in predicting deviance. Additionally, evidence exists that the group itself is important in

the commission of deviance, despite the fact that many peer groups are somewhat transitory (Warr 1996).

Association with deviant peers

One weakness of social learning theory is that it starts at the point of association with deviant peers. One question that needs to be addressed is why people become associated with deviant peers. Studies have led many criminologists to reason that the correlation between peer associations and deviant activity is one of the strongest in the field (Reed and Rountree 1997; Burkett and Warren 1987; Warr 1993a; Warr and Stafford 1991; Winfree et al. 1993). "Peer influences are the strongest predictors of marijuana use, especially in terms of modeling effects, and are consistently stronger than parental influences" (Kandel and Adler 1982: 300). However, social learning does not explore precursors to association with deviant peers. Beginning with Akers' social learning theory, we can begin to examine the origins of deviant behavior by exploring potential correlates of deviant peer association. Furthermore, the question arises about whether deviant behaviors and attitudes precede association with deviant peers or whether association with deviant peers precedes deviant behavior. One study suggests that the relationship may be reciprocal. Thornberry et al. (1994) found that while association with delinquent peers increased delinquency, the reverse was also true.

Little research has been done on the precursors of deviant peer associations, but this is an area meriting study. The individual's desire to be accepted by a peer group may be a factor. As previously stated, acceptance is a powerful motivator. This may be a simple word, but it is the answer to a complex question. People of all

ages have the need to be accepted by some group. It represents the feeling of belonging to something bigger than they are (Winfree et al. 1993). Like other people, young adults possess the desire to belong (McCall and Simmons 1978). The need for acceptance by peers may be exacerbated by leaving home and going to college. Beginning a new chapter in one's life is an anxiety-producing event, and the security that comes from "belonging" can not be completely measured using any available tools because it would always be subject to interpretation. When faced with such difficult measures, social scientists often approximate these ideas as closely as possible in order to reflect an accurate interpretation. Those who feel isolated from conventional peers and do not acquire a sense of belonging are more likely to associate with deviant peers. This, in turn, may lead to drug use.

As we saw in the section on self-control, there is evidence that participation in deviant behavior is relatively stable throughout the individual's life. This would suggest that it is unlikely that college students who had been conforming prior to leaving home would suddenly begin engaging in deviant behavior. Therefore, it is important to examine the existing research on the stability of deviance. Moffitt (1993) argues that a small group of individuals participate in deviant behavior at a high rate throughout their lifetimes. This group is defined as "life-course persistent" offenders. However, there is another group whose deviance peaks in late adolescence, then sharply declines. Moffitt refers to this as "adolescent-limited" offending. One argument is that as the individual develops salient bonds to society, those bonds restrain the individual's behavior (Sampson and Laub 1993).

College students are in a transitional period. Although they have more autonomy than younger students, they may also experience more stress. First, they are frequently in a new environment where they must develop new friendships and new patterns of behavior. Second, the expectations of their classes may be higher than what they had previously experienced. General strain theory would suggest that the increased level of strain could lead to higher levels of deviant behavior, at least for a short period of time (Agnew 1997).

Both selection and socialization influences play important roles in the formation of peer groups that engage in drug use (Aseltine 1995; Johnson et al. 1987; Winfree et al. 1993). Individuals may be drawn to those with similar attitudes and behaviors, self-selecting into marijuana-using peer groups. Furthermore, once associated with a deviant group the person may not see what she or he is doing as wrong. Among youth, subcultures exist that define behaviors such as drug use as fun (Bordua 1961; Matza 1964; Hagan1991). There is also a form of rationalization that may accompany the learning aspect. Each person may evaluate the events that may possibly transpire and believe that the reason she or he committed the deviant act is because there is no other way (Sykes and Matza 1957; Simons et al. 1994; Burkett and Jensen 1975).

Demographics and Deviant Behaviors

Many studies concentrate on general variables such as sex, race, social class, and age. Studies on deviant behavior have also produced numerous findings in respect to the differences between males and females (Haynie, Giordano, Manning and Longmore 2005; Liu and Kaplan 1999; Mears, Ploeger, and Warr 1998; Simons,

Miller, and Aigner 1980). Males commit more offenses on average than females every year (Liu and Kaplan 1999). This has prompted researchers to ask whether theories of crime apply equally to both genders. Social Learning Theory focuses on the person's association with deviant peers, regardless of sex. Because of their association with deviant peers, males have reported experiencing more negative contacts with authority figures, in general (Liu and Kaplan 1999; Simons et al. 1980). Research suggests that this may, in turn, lead to the association with deviant peers for a "sympathetic ear" (Mears et al. 1998).

It has also been suggested that the socialization of males and females is different. The way females are often socialized suggests that there are more limitations placed on them because of the moral evaluations attached to their behaviors (Gilligan 1982; LaGrange and Silverman 1999; Simons et al. 1980; Liu and Kaplan 1999). Gilligan (1982) argued that moral development in females is guided by the need to care for others. Even though there are differences in exposure to delinquent peers by males and females, exposure to delinquent peers may have a stronger effect for males than for females. Mears et al. (1998) state that males are more likely to be strongly affected by deviant peer influences than are females. On the other hand, recent research suggests (McCarthy, Felmlee and Hagan 2004) that because of the constraints under which girls are socialized, they are more likely to reproduce social control in their own friendships. Furthermore, females are more likely to select friends who do not have attitudes supportive of deviance (McCarthy, Hagan and Woodward 1999). However, the explanations of the gender differences are still rather limited, meriting further investigation.

Race also appears to be an important correlate of crime. When studies look for correlation between race and deviant involvement, they must control for a geographical variable first. Typically, race is the main focus of data collection conducted mostly in urban areas with concentrations of minorities, possibly altering the data beyond what is actually present in reality. In particular, race appears to be linked to marijuana use. At least one study indicates that marijuana use is highest among black males (Bachman, Wallace, Kurth, Johnston and O'Malley 1991). Other research indicates that regular (at least once in the prior month) marijuana use by black college students has increased from five percent in 1993 to ten percent in 2001 (Mohler-Kuo, Lee and Wechsler (2003).

The relationship between social class and deviance is less clear. The research findings are mixed. For example, regardless of how Johnson (1980) measured his variables he could find no correlation between social class and deviant involvement. This finding has been supported by recent research as well (Dunaway, Cullen, Burton and Evans 2000).

Approximate age of onset of deviant behaviors is an important variable to examine when considering deviant peer associations and their influence on marijuana use. First, it is clear that deviance peaks somewhere in the late teens and then declines (Hirschi and Gottfredson 1994). It has been postulated that the younger the adolescent is at the onset of deviant behavior, the more likely the behavior will continue throughout adolescence and into adulthood. The adolescent may be more likely to view the deviant act itself as "right" whether it is legal or not. There is a

gradual increase in adolescent marijuana use between ages eleven and eighteen (McGee 1992; Dembo, Schmeidler, and Koval 1976).

There is a transition stage during adolescence when the adolescent begins to have greater peer involvement and less family involvement (Simons et al. 1994; McGee 1992). Upon entering college the young adult then has little or no family involvement. With the increased use of marijuana among those under 25, a situation has developed wherein marijuana use has become commonplace even though it is illegal (Dembo et al. 1976). Adolescents and young adults often have a feeling of being "untouchable" and it is apparent that the implementation of stricter drug laws has not decreased the use of marijuana (NIDA 2004).

Criticism of Social Learning Theory

There are two major criticisms of Social Learning Theory. As discussed above, the question of causality is one criticism of social learning theory. However, Akers (1999) argues that Social Learning Theory acknowledges the reciprocal relationship between association with deviant peers and engaging in deviant behavior. "Social Learning admits that birds of a feather do flock together, but it also admits that if the birds are humans, they also will influence one another's behavior, in both conforming and deviant directions" (Akers 1991:210).

The theory also has been criticized because some tests have operationalized differential reinforcement in a tautological way. However, this problem may be rectified by separating measures of reinforcement from measures of deviant behavior (Burgess and Akers 1966). Perhaps the greatest difficulty with Social Learning Theory is in locating a dataset that will allow full testing of the theory. Ideally, the

data would need to be longitudinal, allowing the researcher to examine attitudes and behaviors at more than one point in time. Furthermore, the data should include measures of all aspects of the theory, including association with peers, peers' attitudes toward deviance, the subjects' attitude toward deviance, peers' deviance, the subjects' deviance, and a measure of differential reinforcement. The data used in the current study do contain most of the necessary measures. However, the data are cross-sectional, so causality can only be inferred based on prior research.

This study examines the links between peers' attitudes toward marijuana use, peers' marijuana use, parental attitudes towards marijuana use, subjects' attitudes towards marijuana use, and subjects' marijuana use. I control for demographic variables, athletic involvement, church involvement, and strength of peer influence. The latter variable is a unique addition to the literature on social learning theory. It allows us to explore whether the subject's marijuana use is more strongly affected by peers' attitudes and behaviors when the subject places greater importance on the opinions of the group. In the following chapter I describe the hypotheses to be tested in the current study. Then, in Chapter 6, I describe the methods used.

CHAPTER 6

Hypotheses

This study tests the ability of Social Learning Theory to explain marijuana use in a sample of college students. The theoretical model is provided in Figure 1. The following hypotheses will be tested.

- Hypothesis 1: Controlling for age, sex, race and socioeconomic status, subjects' attitudes towards marijuana use will be positively related to peers' attitudes. The more peer attitudes are perceived as favorable towards marijuana use, the more subjects' attitudes will be favorable toward marijuana use.
- Hypothesis 2: Controlling for age, sex, race and socioeconomic status, subjects' attitudes towards marijuana use will be positively related to peer's marijuana use. The more marijuana use by peers that subjects report, the more subjects' attitudes will be favorable toward marijuana use.
- Hypothesis 3: Controlling for age, sex, race and socioeconomic status, subjects' attitudes towards marijuana use will be positively related to parents' attitudes. The more parents' attitudes are perceived as favorable towards marijuana use, the more subjects' attitudes will be favorable toward marijuana use.
- Hypothesis 4: Religious involvement will have a negative relationship with subject's attitude about marijuana use. The more hours per week the subject reports engaging in religious activities, the less likely the subject will report

an attitude favorable to marijuana use. This relationship will remain when controlling for peer approval, peer marijuana use, and parental approval.

- Hypothesis 5: Athletic involvement will have a positive relationship with subject's attitude toward marijuana use. The more hours per week the subject reports engaging in athletic activities, the more likely that the subject will report an attitude favorable to marijuana use. This relationship will remain when controlling for peer approval, peer marijuana use, and parental approval.
- Hypothesis 6: Controlling for age, sex, race and socioeconomic status subjects' marijuana use will be positively related to possessing attitudes favorable towards marijuana use. The more favorable the subject's attitude is toward marijuana use, the more marijuana use will be reported by the subjects.
- Hypothesis 7: Religious involvement will have a negative relationship with marijuana use. The more hours per week the subject reports engaging in religious activities, the less likely that the subject will report marijuana use. This relationship will remain when controlling for peer approval, peer marijuana use, and parental approval.
- Hypothesis 8: Athletic involvement will have a positive relationship with marijuana use. The more hours per week the subject reports engaging in athletic activities, the more likely that the subject will report peer marijuana use. This relationship will remain when controlling for peer approval, peer marijuana use, and parental approval.
- .Hypothesis 9: There is a direct relationship between peer marijuana use and subject's marijuana use that is not mediated by subject's attitude (imitation).

Peer marijuana use will be positively and significantly related to subject's marijuana use when controlling for subject's attitude toward marijuana use. This relationship will remain when controlling for peer approval, peer marijuana use, and parental approval.

- Hypothesis 10: The strength of peer influence will have an effect on marijuana use through interaction with peer behaviors. The greater the strength of peer influence, the more peer marijuana use will be positively associated with subjects' marijuana use.
- Hypothesis 11: The strength of peer influence will have an effect on marijuana use through interaction with peer attitudes. The greater the strength of peer influence, the more positive peer attitudes toward marijuana use will be positively associated with subjects' marijuana use.

FIGURE 1 ABOUT HERE

CHAPTER 7

Methods

Sample

The data for this study were drawn from a non-random convenience sample of adult undergraduate students (18 and older) enrolled in introductory sociology courses at the University of Oklahoma. The data were gathered in the first and second weeks of April, 2003. In the sample, most of the respondents were classified as either freshmen or sophomores. Three surveys did not contain information about the sex of the subject and were discarded, leaving 214 males and 288 females (N=502). The data were part of a larger study that also included identical data collected in Japan (Sharp, Grasmick and Kobayishi 2003). However, the analyses in this study are limited to the U.S. sample.

The anonymous questionnaires were given to students enrolled in introductory sociology courses. The introductory sociology courses met a general education requirement for the university and were thus composed of students from all majors. This provided a sample of students from many different academic backgrounds and disciplines. The diversity of the sample allowed for the generalization to students at the university as a whole, not just social science students. Students were instructed that participation was voluntary. The instructors from the classes were not present in order to protect the confidentiality of the students. The self-report survey instrument required approximately 30-45 minutes to complete. Participation in the study was voluntary, and both the anonymity of the respondent and the confidentiality of his/her responses were guaranteed. Thus, there was no way to link any specific participant

with her/his answers. Participants were provided with information concerning the nature of the study, their rights regarding participation, and contact information should they have any questions or concerns. In the following paragraphs, I describe how I have operationalized my central, independent, and dependent variables.

Measurement

Control Variables

The following demographic and control variables were included in the analyses: age, gender, socioeconomic status (SES), race, religious involvement and athletic involvement. The coding and distribution of these variables is described below.

The following is a description of the sample of college students surveyed in April 2003. The results are reported in Table 1. Sex (MALE) was a dichotomous variable coded 1 for males and 0 for females. The respondent was asked to indicate the appropriate sex. The sample contains 42.6% (n=214) males and 57.4% (n=288) females. Age (AGE) was determined by asking the respondent to state his/her age (in years) on their last birthday. The age of respondents varied from age eighteen to age thirty-four and was distributed as follows: 16.9% (n=85) age eighteen, 39.4% (n=198) age nineteen, 24.7% (n=124) age twenty, 10.4% (n=52) age twenty-one, 4.4% (n=22) age twenty-two, 2.2% (n=11) age twenty-three, 1.4% (n=7) age twenty-four, 0.2% (n=1) age twenty-five, 0.4% (n=2) age twenty-six, 0.4% (n=2) age twenty-nine, and 0.2% (n=1) age thirty-four.

TABLE 1 ABOUT HERE

Race was constructed as a dummy variable (WHITE) with the categories coded white (1) and non-white (0). The distribution was 73.5% (n=369) white and 26.5% (n=133) non-white.[1]

Socioeconomic status (SES) was measured by asking the subjects to select the category which represented their family's annual income. There were seven response categories: (1) less than $15,000 (7.4%, n=37); (2) $15,000-$29,999 (5.6%, n=28); (3) $30,000-$44,999 (10.2%, n=51); (4) $45,000-$59,999 (9.8%, n=49); (5) $60,000-$74,999 (29.3%, n=147); (6) $75,000-$99,999 (13.6%, n=68); and (7) $100,000 or more (24.9%, n=125). The mean score for this variable was 4.9.

Religious involvement (RELIGION) was a continuous variable. Subjects were asked to indicate first whether or not they participated in a number of activities, including church. They were then asked to indicate how many hours they participated in the activity during a typical week. Slightly less than half (45.4%. n=228) indicated they did not participate in church and were coded 0, with the remainder reporting one or more hours per week of participation. The reported hours of participation in a typical week ranged from 0 to 20, with a mean score of 2.1 hours.

Finally, athletic involvement (ATHLETIC) was measured using the same question as religious involvement. More than half (56.0%. n=281) indicated they did not participate in athletics, with the remainder reporting one or more hours per week of participation. The reported hours of participation in a typical week ranged from 0 to 50, with a mean score of 4.0 hours.

[1] I elected to use the two categories white and nonwhite because the number of subjects in the nonwhite categories were too small for meaningful comparison.

TABLE 2 ABOUT HERE

Independent Variables

For the purpose of this study I created three independent variables: peer behavior, peer approval, and parent approval. Peer behavior (PEERBEH) was determined by asking the respondent: "In your opinion, how many of your close friends engaged in the following behaviors in the past year?" The behaviors described included marijuana use, the subject of this dissertation. Response categories included: "none of them" (0); "less than half of them" (1); "more than half of them" (2); and "almost all of them"(3). The mean score for this variable was 1.1.

Peer approval (PEERAPP) was measured by asking the subject to respond to the following question. "Thinking of your close friends, how do you think they would react if they found out that you: use marijuana?"[2] The response categories were: "strongly disapprove" (1); "disapprove" (2); "would not care/not their concern" (2.5); "approve" (3); and "strongly approve" (4). This variable was recoded to put the "would not care/no their concern" category into a middle category. The peer approval variable had a mean score of 1.9.

Parent approval (PRNTAPP) was measured by asking the respondent: "Thinking of your parents, how do you think they would react if they found out that you: use marijuana?"[3] The response categories were: "strongly disapprove" (1); "disapprove" (2); "would not care/not their concern" (2.5); "approve" (3); and

[2] Marijuana use was one of a series of behaviors about which the subjects were asked. For the purposes of this research, it is the only behavior considered.
[3] Marijuana use was one of a series of behaviors about which the subjects were asked. For the purposes of this research, it is the only behavior considered.

"strongly approve" (4). This variable was also recoded to put the "would not care/no their concern" category into a middle category. The mean score for this variable was 1.2.

Mediating Variables

Two mediating variables, strength of peer influence (PEERINFL) and attitude towards marijuana use (ATTDMJ), were used in the analyses. This study contains a unique measure: strength of peer influence. Strength of peer influence was measured by asking the respondent: "The purpose of the questions in this section is to find out how you generally think about yourself and your relationship with members of groups to which you belong. Please indicate the degree to which you agree with the following statements, with 1 indicating the strongest level of disagreement and 4 indicating the strongest level of agreement." There were twenty-nine items to which the subject could respond. I conducted a factor analysis with varimax rotation on these items. Seven items loaded together on one factor that appeared to measure strength of peer influence. These items were:

- I consult with others before making important decisions (factor loading=.575).
- I will sacrifice my self-interest for the benefit of my group (factor loading=.600).
- I stick with my group even through difficulties (factor loading=.637).
- I respect decisions made by my group (factor loading=.702).
- I will stay in a group if it needs me, even when I am not happy with the group (factor loading=.671).
- I remain in groups of which I am a member if they need me, even though I am dissatisfied with them (factor loading=.563).

- It is important to consult close friends and get their ideas before making a decision (factor loading=.654).

I then computed the variable PEERINFL by adding together the scores on the seven items. Cronbach's alpha for this scale was .775. Scores on this variable ranged from 7 to 28, with a mean score of 21.9.

Attitude (ATTD) was a direct measure of the subject's attitude regarding marijuana use. The respondent was asked, "If you knew someone your age was engaged in the following behaviors, how would you react?"[4] The response categories for this variable were: "strongly disapprove" (1); "disapprove" (2); "would not care/not their concern" (2.5); "approve" (3); and "strongly approve" (4). This variable was also recoded to put the "would not care/not their concern" category into the middle. The mean score for the variable was 1.9.

Dependent Variable

The dependent variable in this study was marijuana use. It was measured by the subjects' responses to the following statement: "Please indicate how often you have engaged in the following behaviors in the past year."[5] Response categories were: "never" (0); "rarely" (1); "sometimes" (2); "often" (3); and "almost always" (4). The marijuana use variable had a mean score of 0.6.

Bivariate Correlations:

This section describes the significant bivariate correlations between variables. The results are reported in Table 3. There were significant correlations between race

[4] Marijuana use was one of a series of behaviors about which the subjects were asked. For the purposes of this research, it is the only behavior considered.
[5] Marijuana use was one of a series of behaviors about which the subjects were asked. For the purposes of this research, it is the only behavior considered.

(white) and one other variable. Race was positively correlated with SES (Parental Income) (r=.321, p≤.01), indicating that whites reported a higher level of SES.

TABLE 3 ABOUT HERE

Age was significantly correlated with five other variables. Age was positively correlated with sex (male) (r=.104, p≤.01). This indicates that the males in the sample were significantly older than the females. The correlation between age and SES was negative (r=-.142, p≤.01), indicating that older subjects reported lower parental income. Athletic involvement was also negatively correlated with age (r=-.153, p≤.01). Older subjects reported less time involved with athletic activities. Age and parental approval of marijuana use were positively correlated (r=.135, p≤.01). While this would suggest that parents approve of marijuana use by older subjects, there is a more likely explanation. It is quite possible that older subjects are more likely to see their parents as not caring one way or the other. Finally, age and marijuana use were positively correlated (r=.127, p≤.01), with older subjects more likely to report higher levels of marijuana use.

Sex was correlated with four additional variables. Sex and friends marijuana use were positively correlated (r=.166, p≤.01), with males reporting more friends who used marijuana. Sex and attitude about marijuana use was positively correlated (r=.186, p≤.01), indicating that males were more likely to report approval of marijuana use than women. Sex and peer approval were positively correlated (r=.190, p≤.01), indicating that males were more likely than females to report their

friends would approve (or not care) if they knew they used marijuana. Finally, sex was positively correlated with marijuana use (r=.174, p≤.01). In this sample, males were more likely to report higher levels of marijuana use than women.

Parental income (SES) was significantly correlated with only one additional variable, religious involvement (r=p.093, p≤.05). Those who reported higher parental income also reported lower church attendance.

Religious/church involvement was significantly related to five variables. Religious involvement and friends who use marijuana were negatively correlated (r=-.244, p≤.01), indicating that as religious involvement increased the number of friends who used marijuana decreased. Religious involvement was negatively correlated with attitude about marijuana use (r=-.321, p≤.01) indicating that increased church attendance was negatively related to approval of marijuana use. Religious involvement and parental approval were also negatively correlated (r=-.140, p≤.01), suggesting that higher religious involvement was associated with lower parental approval of marijuana use. Religious involvement and peer approval were also negatively correlated (r=-.301, p≤.01), indicating that lower levels of religious involvement were associated with peer approval of marijuana use. Finally, religious involvement was negatively correlated with marijuana use (r=-.245, p≤.01). The more hours subject reported being involved in church activities, the less likely they were to report marijuana use.

Friends' marijuana use was significantly related to five other variables. Not surprisingly, it was positively correlated with the subject's attitude about marijuana use (r=.514, p≤.01). Those who had more friends who used marijuana tended to

report higher levels of approval of marijuana use. Friend's marijuana use was negatively correlated with the strength of peer influence (r=-.139, p≤.01). Interestingly, this would suggest that those who reported friends who used marijuana were less likely to report being influence by their friends. Friend's marijuana use was also positively associated with parental approval (r=.178, p≤.01). This could suggest that those who believed their parents would either approve or not care if they smoked marijuana were more likely to have friends who used marijuana. Not surprisingly, both peer approval of marijuana use (r=.617, p≤.01) and the subject's own reported marijuana use (r=.599) were positively correlated with friends who used marijuana.

The subject's own attitude about marijuana use was significantly related to four other variables. Again, I found an interesting relationship with the strength of peer influence. Subject's approval of marijuana use was negatively correlated with strength of peer influence (r=-.116, p≤.01). The more friends the subject reported used marijuana, the less likely the subject was to report that friends' opinions had a strong impact on him or her. The subject's attitude about marijuana use was positively correlated with parental approval (r=.311, p≤.01), indicating that subjects whose parents reported approval were more likely to approve of marijuana use themselves. Attitudes toward marijuana use were positively correlated with peer approval of marijuana use (r=.608, p≤.01), as Social Learning Theory would suggest. Finally, it is not surprising that an attitude approving of marijuana a use was significantly correlated with reported marijuana use (.543, p≤.01).

Two other variables were significantly related to strength of peer influence. Peer influence was negatively correlated with parental approval of marijuana use (r=-

.092, p≤.05). Those who reported higher levels of peer influence were more likely to report parental disapproval of marijuana use. Peer influence was also negatively correlated with peer approval of marijuana use (r=-.135, p≤.01). Those who reported higher levels of peer influence were more likely to report peer disapproval of marijuana use. It would seem, from this, that strong peer influence is more important among those whose friends do not approve of marijuana use.

Two variables were positively associated with parental approval of marijuana use. Peer approval of marijuana use was positively correlated with parental approval (r=.295, p≤.01). Those who reported lower levels of parental disapproval were also more likely to report higher levels of marijuana use (r=.273, p≤.01).

Finally, subject's marijuana use was positively correlated with peer approval of marijuana use (r-.547, p≤.01). This is in line with Social Learning Theory's contention that peers' attitudes impact subjects' propensity to engage in deviance. It is also supportive of the "birds of a feather flock together" position. In the next chapter, I will present my analyses. I will use a series of OLS regression analyses to test the eleven hypotheses presented in chapter 6.

CHAPTER 8

Findings

In this chapter, I report the results of my analyses testing the hypotheses. The findings are described below and reported in Tables 4 through 14.

Hypothesis 1 stated that subject's approval of marijuana use would be positively related to peer approval of marijuana use, controlling for age, sex, race and socioeconomic status. To test this hypothesis, I regressed subject's approval of marijuana use on peer approval and the demographic variables. The results are reported in Table 4. As predicted by Hypothesis 1, peer approval of marijuana use was positively related to subject's approval of marijuana use ($b=.511$, $p \leq .001$). There were no other significant relationships in this regression analysis, which accounted for 37% of the variance in subjects' approval of marijuana use.

TABLE 4 ABOUT HERE

In Hypothesis 2, I proposed that subject's approval of marijuana use would be positively related to peer marijuana use. To test this hypothesis, I regressed subject's approval of marijuana use on peer marijuana use, controlling for the demographic variables. The analysis supported Hypothesis 2, with peer marijuana use positively associated with subject's approval of marijuana use ($b=.397$, $p \leq .001$). In other words, those subjects reporting more peers using marijuana also reported higher levels of approval of marijuana use. The only other significant relationship was sex ($b=.146$,

p≤.05), suggesting approval of marijuana use was higher among males than females. The analysis accounted for 27% of the variance in peer marijuana use. The results are reported in Table 5.

TABLE 5 ABOUT HERE

Hypothesis 3 stated that subject's approval of marijuana use would be positively related to parental approval of marijuana use, controlling for age, sex, race and socioeconomic status. The more parents' attitudes are perceived as favorable towards marijuana use, the more subjects' attitudes should be favorable toward marijuana use. To test this hypothesis, I regressed subject's approval of marijuana use on parental approval of marijuana use. The hypothesis was supported, with parental approval positively associated with subject's approval of marijuana use (b=.446, p≤.001). Additionally, sex (male = 1) was positively associated with subject's approval of marijuana use (b=.236, p≤.001), indicating that approval of marijuana use was higher for males than females. This analysis accounted for less of the total variance than the first two regression analyses (R^2=.118). The results are reported in Table 6.

TABLE 6 ABOUT HERE

Hypotheses 4 stated that religious involvement would be negatively related to subject's approval of marijuana use. To test this hypothesis, I first regressed subject's

approval of marijuana use on religious involvement and the demographic variables. As predicted by Hypothesis 4, religious involvement was negatively related to subject's approval of marijuana use (b= -.078, ($p \leq .001$), providing support for Hypothesis 4. The more hours per week the subject reported engaging in religious activities, the less likely that the subject was to report an attitude favorable to marijuana use. Sex was also significant (b= .248, $p \leq .001$), indicating that males were more likely to approve of marijuana use than females. The R^2 for this equation was .121. The findings are reported in Model 1 of Table 7.

TABLE 7 ABOUT HERE

Because the literature suggests that the relationship of involvement in extracurricular activities is affected by the attitudes and behaviors of those with whom the individual associates, I next regressed subject's approval of marijuana use on religious involvement, the demographic variables, and peer approval, peer marijuana use and parental approval of marijuana use. The latter three variables were first entered separately and then all three were entered in one regression equation in Models 2 through 5 of Table 7.

In Model 2 of Table 7, I regressed subject's approval of marijuana use on religious involvement, controlling for demographic variables and peer approval of marijuana use. Religious involvement remained significant (b= -.037, $p \leq .001$), as did sex (b=.106, $p \leq .05$). Peer approval of marijuana use was positively associated with subject approval of marijuana use (b=.474, $p \leq .001$). These findings suggest that

the relationship between religious involvement and marijuana use is independent of peer approval of marijuana use. R^2 for this equation was .388.

In Model 3 of Table 7, I regressed subject's approval of marijuana use on religious involvement, controlling for demographic variables and peer marijuana use. Again, the relationship between religious involvement and subject's approval of marijuana use remained negative and significant (b= -.051, $p \leq .001$). Sex remained positively associated with subject's approval of marijuana use (b=.145, $p \leq .01$). Peer marijuana use was strongly and positively associated with subject's approval of marijuana use (b=.359, $p \leq .001$). The R^2 for this equation was .306.

In Model 4, I regressed subject's approval of marijuana use on religious involvement and the demographic variables, adding parental approval of marijuana use to the equation. Again, the results remain as predicted by Hypothesis 4, with religious involvement negatively related to subject's approval of marijuana use (b=-.069, $p \leq .001$). Sex remained significant (b=.223, $p \leq .001$), and parental approval was positively related to subject's approval of marijuana use (b=.391, $p \leq .001$), suggesting those who perceived higher levels of parental approval for marijuana use reported higher levels of approval themselves. Only a small portion of the variance was accounted for in this regression analysis (R^2=.187).

Finally, in Model 5, I regressed subject's approval of marijuana use on religious involvement, the demographic variables, peer approval of marijuana use, peer marijuana use and parental approval of marijuana use. Again, religious involvement remain negatively associated with subject's approval of marijuana use (b=-.032, $p \leq .001$). Peer approval of marijuana was positively related to subject's

approval (b=.337, p≤.001), as was peer marijuana use (b=.167, p≤.001), and parental approval of marijuana use (b=.200, p≤.001). The relationship between sex and subject's approval of marijuana use disappeared in this equation. The findings suggest that the relationship between religious involvement and subject's approval of marijuana use exists independently from influence by peers or parents. Furthermore, inclusion of peer approval, peer marijuana use and parental approval appears to account for the sex differences in approval, as sex was no longer significant in this model. The R^2 for this equation was relatively large (.429).

To test Hypothesis 5 that athletic involvement would have a positive relationship with subjects' attitude toward marijuana use, I first regressed subject's approval of marijuana use on athletic involvement and the demographic variables in Model 1. Athletic involvement was not significantly associated with subject's approval of marijuana use. Sex was a significant (b=.265, p≤.001) suggesting approval of marijuana use is greater for males than females. Very little of the variance was accounted for by this model (R^2=.033). The results for all five models are reported below in Table 8.

TABLE 8 ABOUT HERE

In Model 2, I regressed subject's approval of marijuana use on athletic involvement while controlling for demographic variables and peer approval of marijuana use. Athletic involvement was again not significant. Peer approval of marijuana use was positive and significantly related to subject's approval of

marijuana use (b=.510, p≤.001), indicating that subject's approval of marijuana use was strongly related to peer approval. This model accounted for 37% of the variance.

In Model 3, I added the peer marijuana use variable to regression of subject's approval of marijuana use on athletic involvement and the demographic variables. Again, athletic involvement was not significant. Sex was positively related to subject's approval of marijuana use (b=.146, p≤.01). Peer marijuana use was also positively related to subject's approval of marijuana use (b=.396, p≤.001). Less of the variance was accounted for by this model than by Model 2 (R^2=.269).

In Model 4, I regressed subject's approval of marijuana use on athletic involvement while controlling for demographic variables and parental approval of marijuana use in Model 4. Athletic involvement remained nonsignificant. Sex was significant (b=.233, p≤.001) suggesting that males were more likely to report approval of marijuana use. Parental approval was also significant (b=.450, p≤.001) indicating that parental approval of marijuana use was strongly related to subject's approval of marijuana use when controlling for athletic involvement and the demographic variables. However, only a small portion of the variance was accounted for by this model (R^2=.121).

Finally, I regressed subjects' attitudes toward marijuana use on athletic involvement while controlling for demographic variables, peer approval of marijuana use, peer marijuana use variable, and parental approval of marijuana use (Model 5). Again, athletic involvement was not significantly related. Peer approval of marijuana use (b=.361, p≤.001), peer marijuana use (b=.173, p≤.001), and parental approval of

marijuana use (b=.214, p≤.001) were all significantly and positively related to subject's approval of marijuana use. This model accounted for 41% of the variance.

There was no support for Hypothesis 5. Athletic involvement, as measured in this study, had no relationship to subject's approval of marijuana use. I will return to a discussion of this in the following chapter.

Hypothesis 6 proposed that subject's marijuana use would be positively related to subject's approval of marijuana use, controlling for age, sex, race, and socioeconomic status. First, I regressed subject's marijuana use on subject's approval of marijuana use while controlling for the demographic variables (Model 1). As predicted by Hypothesis 6, subject's approval of marijuana use was significant and positive (b=.762, p≤.001). Age was significant and positive (b=.057, p≤.05) suggesting that as age increased, so did subjects' marijuana use. In this equation, race also was significant (b=.190, p≤.05), indicating that white subjects were more likely to report higher levels of marijuana use than non-whites. The R^2 for this equation was moderate (.309).

TABLE 9 ABOUT HERE

In Model 2, I added the three independent variables: peer approval of marijuana use, peer marijuana use, and parental approval of marijuana use. I regressed subject's marijuana use on subject's approval of marijuana use while controlling for the demographic variables, peer approval, peer marijuana use, and parental approval. As predicted by Hypothesis 6, subject's approval of marijuana remained positive and significant (b=.332, p≤.001). Age was positively and

significantly related to subject's marijuana use (b=.056, p≤.05) suggesting that as age increased, so did marijuana use. Peer approval (b=.185, p≤.01), peer marijuana (b=.428, p≤.001), and parental approval (b=.181, p≤.05) were all positively related to marijuana use. In this model, a relatively large amount of the variance was explained (R^2=.460).

Hypothesis 7 predicted that religious involvement would have a negative relationship with subject's marijuana use. The more hours per week the subject reported engaging in religious activities, the less likely that the subject would report marijuana use. To test this hypothesis, I first regressed subject's marijuana use on religious involvement while controlling for the demographic variables and subject's approval of marijuana use. Hypothesis 7 was supported. Religious involvement was significantly and negatively associated with subject's marijuana use, although the relationship was not strong (b=-.033, p≤.05). Age was positively related to subject's marijuana use (b=.058, p≤.05), suggesting that as age increased, so did marijuana use. Race was positively related to subject's marijuana use (b=.193, p≤.05) suggesting that whites were more likely to report higher levels of marijuana use. Subject's approval of marijuana use had a strong and positive relationship to marijuana use (b=.722, p≤.001), indicating that subject's approval of marijuana use was strongly related to subject's marijuana use. In this model, 31% of the variance was explained. The results are reported in Model 1 of Table 10.

TABLE 10 ABOUT HERE

I then regressed subjects' marijuana use on religious involvement while controlling for demographic variables, subjects' approval of marijuana use, and the three independent variables (peer approval, peer marijuana use, and parental approval). The results are reported in Model 2 of Table 10. In Model 2, religious involvement was no longer significant. Thus, once the independent variables were added to the analysis, Hypothesis 7 was not supported. This suggests that the effects of religious involvement on marijuana use is in part due to other factors such as peer or parental approval and peer marijuana use. Age remained significant (b=.056, $p \leq .05$), as did race (b=.168, $p \leq .05$). Subject's approval of marijuana use was also significant (b=.322, $p \leq .001$) suggesting that as subject's approval of marijuana use increased, so did the probability of the subject reporting marijuana use.) Peer approval was also significant (b=.179, $p \leq .01$) suggesting that the higher peer approval of marijuana use, the higher the likelihood of subject reporting marijuana use. Finally, peer marijuana use was significantly related to subject's marijuana use (b=.426, $p \leq .001$), indicating that the more peers the subject reported that used marijuana, the more likely the subject was to report marijuana use. Perceived parental approval of marijuana use was also significant (b=.179, $p \leq .05$), suggesting that parental approval of marijuana use was related to increased likelihood of subject reporting marijuana use In this model, a relatively large amount of the variance was explained (R^2=.460).

Hypothesis 8 predicted that athletic involvement would have a positive relationship with subject's marijuana use. The more hours per week the subject reported engaging in athletic activities, the more likely the subject would be to report

marijuana use. To test this hypothesis, I regressed subjects' marijuana use on athletic involvement while controlling for the demographic variables and the subject's approval of marijuana use (Model 1). The results are reported below in Table 11, Model 1. Hypothesis 8 was not supported by this model. Athletic involvement was not significant. Age was positively related to subject's marijuana use (b=.056, $p \leq .05$), as was race (b=.190, $p \leq .05$). Subject's approval of marijuana use was positive and significant (b=.763, $p \leq .001$). In Model 1, 30.6% of the variance was explained.

TABLE 11 ABOUT HERE

I then added peer approval of marijuana use, peer marijuana use, and parental approval of marijuana use to the regression equation (Model 2). Again, Hypothesis 8 was not supported. Athletic involvement was not significant, indicating that participation in athletic activities was not related to marijuana use. Age was positive and significant (b=.054, $p \leq .05$). Subject's approval of marijuana use was positive and significant (b=.333, $p \leq .001$). Peer approval of marijuana use was also significant (b=.184, $p \leq .05$), suggesting that as peer approval of marijuana use increased so did reported marijuana use of subjects. Peer marijuana use was also positive and significant (b=.429, $p \leq .001$), suggesting that as reported peer marijuana use increased, so did reported marijuana use by subjects. Finally, parental approval was significant (b=.179, $p \leq .05$) suggesting that as perceived parental approval of marijuana use increased so did reported marijuana use. The R^2 for Model 2 was .460.

In accordance with Social Learning Theory (Akers 1985), Hypothesis 9 predicted there would be a direct relationship between peer marijuana use and subject's marijuana use that was not mediated by subject's approval of marijuana use. In Akers' theory, he refers to this direct effect as imitation. To test this hypothesis, I first regressed subject's marijuana use on peer marijuana use while controlling for the demographic variables and subject's approval of marijuana use (Model 1, Table 12). Hypothesis 9 was supported. Peer marijuana use was significantly related to subject's marijuana use ($b=.501$, $p\leq.001$), indicating that there was a direct effect of peer marijuana use on subject's marijuana use. Age was significant ($b=.062$, $p\leq.01$), suggesting that as age increased so did subject's marijuana use. Subject's approval of marijuana use was also significant ($b=.450$, $p\leq.001$) indicating that the higher the subject's approval of marijuana use was, the more likely he or she was to report using marijuana. A fairly large amount of the variance was explained by this model ($R^2=.443$).

TABLE 12 ABOUT HERE

In Hypothesis 10, I proposed that subject's marijuana use would be positively related to peer marijuana use, mediated through strength of peer influence. To test this hypothesis, I first regressed subject's marijuana use on strength of peer influence, controlling for demographic variables, peer marijuana use, and independent variables. Strength of peer influence ($b=.010$) showed no association with subject's marijuana use. There were two variables with significant relationships, age ($b=.070$, $p\leq.01$) and

peer marijuana use (b=.685, p≤.001), suggesting as age increases and the number of peers using marijuana increases subject's marijuana use also increases. The variance accounted for with this model was 37% (R^2=.373). The results are reported in Table 13.[6]

TABLE 13 ABOUT HERE

In Model 2 of Table 13, I regressed subject's marijuana use on strength of peer influence, the demographic variables, peer marijuana use, independent variables, and the interaction variable. In this model the relationship between subject's marijuana use and strength of peer influence remained non-significant, failing to support Hypothesis 10 The inclusion of the interaction variable did not significantly affect the outcome of the effect of strength of peer influence on subject's marijuana use. The variables age (b=.070, p≤.01) and peer marijuana use (b=1.01, p≤.001) held their significance in this model. The variance accounted for with this model (37%) was the same as model 1 (R^2=.374).

In Hypothesis 11, I proposed that subject's marijuana use would be positively related to peer's approval of marijuana use, mediated through strength of peer influence. To test this hypothesis, I first regressed subject's marijuana use on strength of peer influence, controlling for demographic variables, and peer approval

[6] In order to further test Hypothesis 10, I created an interaction variable. This interaction variable was constructed using the variables peer marijuana use and strength of peer approval. The data for these two variables were combined together to form the variable interaction.

of marijuana use. Strength of peer influence (b=.044) showed no association with subject's marijuana use. There were two variables with significant relationships, age (b=.066, p≤.01) and peer approval of marijuana use (b=.668, p≤.001), suggesting as age increases and the number of peers using marijuana increases subject's marijuana use also increases. The variance accounted for with this model was 31% (R^2=.312). The results are reported in Table 14.[7]

TABLE 14 ABOUT HERE

In Model 2 of Table 14, I regressed subject's marijuana use on strength of peer influence, controlling for demographic variables, peer marijuana use, independent variables, and the interaction variable. In this model the relationship between subject's marijuana use and strength of peer influence remained non-significant. The inclusion of the interaction variable did not significantly affect the outcome of the effect of strength of peer influence on subject's marijuana use failing to support Hypothesis 10. The variables age (b=.065, p≤.01) and peer marijuana use (b=1.084, p≤.001) held their significance in this model. The variance accounted for with this model (31%) was the same as model 1 (R^2=.312).

[7] In order to further test Hypothesis 11, I created an interaction variable. This interaction variable was constructed using the variables peer marijuana use and strength of peer approval. The data for these two variables were combined together to form the variable interaction.

CHAPTER 9
Discussion and Conclusions

The theoretical implications are interesting although in some respects disappointing. First, my study adds to the growing body of research that indicates deviant peer associations do have both a direct and indirect effect on deviant attitudes and behaviors such as approval of marijuana use and actual marijuana use. The findings suggest that a person's approval of using marijuana is related to having peers who use marijuana, and the analyses suggest that approval of marijuana use is also related to peer approval of marijuana use. This provides support for the differential association aspect of Social Learning Theory: attitudes and behavior towards deviance are shared with deviant friends (Sutherland. 1947; Sutherland and Cressey 1978; Sutherland, Cressey and Luckenbill 1992). Because the data are cross-sectional, causality cannot be determined, of course. Still, the findings clearly indicate that birds of a feather do indeed flock together and that they share some of the same attitudes. Furthermore, the results provide additional support to Akers' contention that some deviance is a result of imitation, occurring regardless of whether the individual has attitudes that support deviance. Individuals may also simply imitate their peers' deviant behaviors (Akers 1985; 1999; 2000). This is not a surprising finding considering social learning theory's main focus is the impact peers play in influencing behavior, both directly and indirectly through the effect on attitudes.

Throughout the years several social science researchers have uncovered patterns of deviance in relation to peer associations and substance abuse (Akers 1979; Akers 1991; Akers 2000; Warr 1998; Elliott et al 1985; Giordano et al 1986). The

findings of this study continue the position that deviant peer associations increase the likelihood of illicit substance abuse.

The influence contributed by parents on a persons' approval of marijuana use was an interesting finding considering the age of the respondents. Since family is a primary socializing agent, it is not surprising to find a connection but this variable was tested using a population (college students) that typically has less contact with family than would a younger population. Thus, it is arguably a relationship that needs further study. Warr (2005) examined the role parental supervision played in marijuana use and found a strong link between high levels of supervision and low levels of deviant friends. Therefore, it is not surprising that my study came to the conclusion that perceived parental disapproval decreased the likelihood of marijuana use. When the respondent indicated their parents had more favorable attitudes toward marijuana use, there was an increase in their reported marijuana use. It may simply be that supervision is not a concern because there are no negative messages being given concerning the use of marijuana. The relationship between age and parental approval of marijuana use suggests that older subjects in this study believed that their parents were less likely to disapprove of marijuana use. As the individual ages, it may simply be that parents become less concerned with their behavior, perhaps because they begin seeing their offspring as adults, capable of making their own choices.

The relationship between extracurricular activities and marijuana use was also examined in this study with mixed findings. First, religious involvement showed a negative relationship with marijuana use as predicted. As stated earlier, there is a

considerable body of literature regarding the relationship religious involvement has with deviant behaviors such as drug use. The majority of the literature supports the conclusion that a social sanctioned activity such as religious involvement will ultimately lead to a decrease in deviant behaviors such as drug use (Barber et al 2001; Eccles and Barber 1999; Evans et al 1995; MacDonald et al 1991; Tittle and Welch 1983). However, my findings suggest the relationship is independent of peer approval and parental approval of marijuana use, suggesting that it is not the actual opinions of peers or parents that reduces the likelihood of marijuana use but instead something about the context of religion. Furthermore, it may be that involvement in religious activities is linked to more conventional belief systems regarding marijuana use, which would be support for control theory rather than learning theory (Hirschi 1969). Considering that religion itself is assumed to encourage positive socially sanctioned behaviors, the findings are not abnormal. I suggest further study in the type of behaviors that are learned as a direct result of religious involvement. Upon gaining a better understanding of exactly how religious involvement impacts actions, there should be an increase in the concrete interpretation of effects. It could also be informative to use longitudinal data to explore whether those who had higher levels of religious activity while still living at home with parents continued to have lower levels of deviant behavior even if their religious involvement decreased upon leaving home. In other words, is the effect of religious involvement equally strong among those who attend religious activities due to parental pressure as among those who attend voluntarily?

The second extracurricular activity examined in this study was athletic involvement. The data collected did not support my argument that marijuana use would increase as athletic involvement increased. I argued, and a growing body of literature supports this argument (Kelley 2004; Segrave and Hastad 1984), that involvement in athletics may introduce an element of social superiority which in turn may lead to deviant behaviors such as drug use. One possibility is that fear of reprisals (loss of scholarship, playing time, etc.) as indicated by Snyder (1994) may decrease drug use. I would argue this is a hazy area concerning definition. Just because the athlete defers from drug use due to reprisals does not necessarily indicate they have a negative attitude concerning the drug use but rather they have a positive attitude regarding their team or sport. Another possibility is that my measure of athletic involvement does not distinguish between extramural involvement and athletic involvement for recreation. The subjects were simply asked how much time per week they spent engaged in athletic activities. This could include walking, running, working out or intramural sports, none of which would have the element of social superiority suggested by the literature (Kelly 2004; Segrave and Hastad 1984). Even though my position was not supported by the measures incorporated in this study I stand behind my argument and suggest the implementation of a follow-up study to re-test this relationship at a later date.

This study supported the idea of imitation. O'Hare (1997) suggests that imitation is an underestimated variable when considering marijuana use among the college population. The marijuana use reported by the respondents did not always follow a linear pathway from peer influence to respondents' approval or disapproval

of the behavior, suggesting the user did not have to possess a concrete definition of marijuana use as either negative or positive. The findings suggest there is a direct relationship between peer marijuana use and respondent marijuana use and that no supportive attitude was required for this behavior to take place. The research literature argues this is a time period in a persons' life that there is an increase in social encounters which by nature increases the odds of "stumbling across" a deviant subculture such as marijuana users.

Disappointingly, my measure of the strength of peer influence had no effect in the multivariate analysis. However, the bivariate analysis indicated that there was actually a negative relationship between peer influence and peer approval of marijuana use. This is an interesting finding that should be pursued in future research. It suggests that peers have less influence when they have attitudes supportive of deviance and more influence when they have attitudes opposed to deviance.

One policy implication that this study suggests is the greater need for prosocial types of activities. If religious involvement was given more attention and implemented at a higher rate it could possibly discourage other deviant behaviors, not just marijuana use. The only negative aspect of this suggestion is the variation between religions. Since there is not a measure indicating which religion would have stronger effects, it is impossible to say what the actual outcome would be. Lack of standardization is indicative of the very nature of religion.

Another policy implication for future research, I would argue, is the importance of examining the impact athletic involvement has on deviant behaviors.

There are several studies, as suggested earlier, that show support for the idea that as athletic involvement increases, deviance also increases. However, there are just as many competing studies that disagree with that statement, and this study did not provide support for it. I do not think there is an absolute measure that would ultimately lend more support for one position over the other but considering the growth of this field of research I think it certainly warrants further study. Possibly by examining specific types of athletic involvement we can develop a greater understanding of the definitions athletes themselves place on the importance of involvement, actual participation, recognition, and similar variables.

In conclusion, this study continues to build support for the general idea that socialization (learning attitudes and norms) as well as socializing (with whom one associates) both impact behavior, more specifically the that role peers play. Since peer relations quite often are beyond the control of conforming ideologies. even though they can contribute to the development of appropriate social behavior such as abstaining from drug use, they can also create havoc.

It is not my intention to suggest that the findings of this study generalize to the population as a whole. The sample was taken from a distinct population (college students) and as such the findings can only address them. However, I do feel it is imperative to remind the reader that while college students are a distinct population, there are many groups within this population. Thus, while the results are not generalizable, they do suggest patterns.

References

Agnew, Robert. 1991. "The Interactive Effects of Peer Variables on Delinquency." *Criminology* 29:47-69.

_____. 1997. "Stability and Change in Crime Over the Life Course: A Strain Theory Explanation." Pp. 101-132 in T. P. Thornberry (ed.), *Criminological Theory, Volume 7: Developmental Theories of Crime and Delinquency*. New Brunswick: Transaction.

_____. 2001. "Building on the Foundation of General Strain Theory: Specifying the Types of Strain Most Likely to Lead to Crime and Delinquency." *Journal of Research in Crime and Delinquency* 38:319-361.

Agnew, Robert and Helen Raskin White. 1992. "An Empirical Test of General Strain Theory." *Criminology* 30:475-499.

Agnew, Robert and David Peterson. 1989. "Leisure and Delinquency." *Social Problems* 36:332-348.

Akers, Ronald L. 2000. *Criminological Theories: Introduction, Evaluation, and Application (Third Edition).* Los Angeles: Roxbury.

_____. 1999. "A Social Learning Theory of Crime." Pp. 92-102 in F. T. Cullen and R. Agnew (eds.) Criminological Theory: Past to Present. Los Angeles, CA: Roxbury.

_____. 1991. "Self-control as a general theory of crime. *Journal of Quantitative Criminology* 7(2):201-211.

_____. 1985. *Deviant Behavior: A Social Learning Approach.* Belmont, CA: Wadsworth.

Akers, Ronald L. and Gang Lee. 1999. "Age, Social Learning, and Social Bonding in Adolescent Substance Use." *Deviant Behavior: An Interdisciplinary Journal* 19:1-25.

Akers, Ronald L., Marvin D. Krohn, Lonn Lanza-Kaduce, and Marcia Radosevich. 1979. "Social Learning and Deviant Behavior: A Specific Test of a General Theory." *American Sociological Review* 44:636-655.

Allen, Mark, William A. Donohue, Amy Griffin, Dan Ryan, and Monique M. Mitchell Turner. 2003. "Comparing the Influence of Parents and Peers on the Choice to Use Drugs." *Criminal Justice & Behavior* 30: 163-186.

Aseltine Jr., Robert H. 1995. "A Reconsideration of Parental and Peer Influences on Adolescent Deviance." *Journal of Health & Social Behavior* 36:103-121.

Bachman, J. G., J. M. Wallace, Jr., C. L. Kurth, L.D. Johnston, and P. M. O'Malley. 1991. "Drug Use Among Black, White, Hispanic, Native American, and Asian American High School Seniors (1976-1989): Prevalence, Trends, and Correlates." *Monitoring the Future, Occasional Paper 30*. Ann Arbor, MI: Institute for Social Research.

Bandura, Albert. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Barber, Bonnie L., Jacquelynne S. Eccles, and Margaret R. Stone. 2001. "Whatever Happened to the Jock, the Brain, and the Princess? Young Adult Pathways Linked to Adolescent Activity Involvement and Social Identity." *Journal of Adolescent Research* 16:429-455.

Becker, Howard S. 1963. *Outsiders: Studies in the Sociology of Deviance*. New York, NY: The Free Press.

_____. 1953. "Becoming a Marijuana User." *American Journal of Sociology* 59: 235-242.

Bordua, David. 1961. "Delinquent Subcultures: Sociological Interpretations of Gang Delinquency." *Annals of the American Academy of Political and Social Science* 338:119-136.

Britt, Chester. 1994. "Versatility." Pp. 173-192 in T. Hirschi and M. Gottfredson (eds.), *The Generality of Deviance*. New Brunswick, NJ: Transaction.

Burgess, Robert L. and Ronald L. Akers. 1966. "A Differential Association-Reinforcement Theory of Criminal Behavior." *Social Problems* 14:128-147.

Burkett, Steven R. and Eric L. Jensen. 1975. "Conventional Ties, Peer Influence, and the Fear of Apprehension: A Study of Adolescent Marijuana Use." *The Sociological Quarterly* 16:522-533.

Burkett, Steven R. and Bruce O. Warren. 1987. "Religiosity, Peer Associations, and Adolescent Marijuana Use: A Panel Study of Underlying Causal Structures." *Criminology* 25:109-131.

Cauffman, Elizabeth, Laurence Steinberg and Alex Piquero. 2005. "Psychological, Neuropsychological and Physiological Correlates of Serious Antisocial Behavior in Adolescence: The Role of Self-Control." *Criminology* 43(1):133-175.

Cherry, A.L. 1985. "A social bond: An application of control theory in the study of alcohol use among college seniors." *Journal of Studies on Alcohol* 44:92-100.

Cochran, John K. and Ronald L. Akers. 1989. "Beyond Hellfire: An Exploration of the Variable Effect of Religiosity on Adolescent Marijuana and Alcohol Use. Journal of Research in Crime & Delinquency 26(3):198-225.

Cohen, Sheldon (1999). "Social Status and Susceptibility to Respiratory Infections." *Annals of the New York Academy of Sciences* 896:246-253.

Conger, Rand D. 1976. "Social Control and Social Learning Models of Delinquent Behavior." *Criminology* 14:17-40.

Danseco, Evangeline R., Paul M. Kingery, and Mark B. Coggeshall. 1999. "Perceived Risk of Harm from Marijuana Use among Youth in the USA." *School Psychology International* 20:39-56.

Dembo, Richard, James Schmeidler, and Mary Koval. 1976. "Demographic, Value, and Behavior Correlates of Marijuana Use among Middle-Class Youths." *Journal of Health & Social Behavior* 17:176-186.

Derzon, James H. and Mark W. Lipsey. 1999. "What Good Predictors of Marijuana Use Are Good For." *School of Psychology International* 20: 69-85.

Dozier, Arthur Lee and Michael James Barnes. 1997. "Ethnicity, Drug User Status and Academic Performance" *Adolescence* 32, Issue 128.

Dubois, Paul E. 1986. "The Effects of Participation in Sport on the Value Orientations of Young Athlete." *Sociology of Sport Journal* 3: 29-42.

Dunaway, R. Gregory, Francis T. Cullen, Velmer S. Burton, Jr. and T. David Evans. 2000. "The Myth of Social Class and Crime Revisited: An Examination of Class and Adult Criminality." *Criminology* 38:589-632

Eccles, Jacquelynne and Bonnie L. Barber. 1999. "Student Council, Volunteering, Basketball, or Marching Band: What Kinds of Extracurricular Involvement Matters?" *Journal of Adolescent Research* 14: 10-43.

Edwards, Griffith, A.E. Arif, and Jerome Jaffe. 1983. *Drug use & misuse: cultural perspectives*. New York, NY: St. Martin's Press.

Elliott, Delbert S., David Huizinga, and Suzanne S. Ageton. 1985. *Explaining Delinquency and Drug Use.* Beverly Hills, CA: Sage.

Emmons, Karen M., Henry Wechsler, George Dowdall, and Melissa Abraham. 1998. "Predictors of Smoking Among US College Students." *American Journal of Public Health* 88: 104-107.

Evans, T. David, Francis T. Cullen, R. Gregory Dunaway and Velmer S. Burton, Jr. 1995. "Religion and Crime Reexamined: The Impact of Religion, Secular Controls, and Social Ecology on Adult Criminality." *Criminology* 33:195-224.

Gilligan, Carol. 1982. *In a Difference Voice: Psychological Theory and Women's Development.* Cambridge, MA: Harvard University Press.

Giordano, Peggy C., Stephen A. Cernkovich, and M.D. Pugh. 1986. "Friendships and Delinquency." *American Journal of Sociology* 91:1170-1202.

Gledhill-Hoyt, Jeana, Hang Lee, Jared Strote, and Henry Wechsler. 2000. "Increased Use of Marijuana and Other Illicit Drugs at US Colleges in the 1990s: Results of Three National Surveys." *Addiction* 95: 1655-1667.

Glueck, Sheldon and Eleanor Glueck. 1950. *Unraveling Juvenile Delinquency*. New York: Commonwealth Fund.

Gottfredson, Michael and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford: Stanford University Press.

Green, Brian E. and Christian Ritter. 2000. "Marijuana Use and Depression." *Journal of Health and Social Behavior* 41(1):40-49, 2000.

Greenberg, David S. 1985. "Age, Crime and Social Explanation." *The American Journal of Sociology* 91(1), 1 - 21.

Hagan, John. 1991. "Destiny and Drift: Subcultural Preferences, Status Attainments, and the Risks and Rewards of Youth." *American Sociological Review* 56:567-582.

Hastad, Douglas N., Jeffrey O. Segrave, Robert Pangrazi, and Gene Petersen. 1984. "Youth Sport Participation and Deviant Behavior." *Sociology of Sport Journal* 1:366-373.

Haynie, Dana L., Peggy C. Giordano, Wendy D. Manning and Monica A. Longmore. 2005. "Adolescent Romantic Relationships and Delinquency Involvement." *Criminology* 43(1): 177-210.

Hindelang, Michael J., Travis Hirschi and Joseph Weis. 1981. *Measuring Delinquency*. Beverly Hills: Sage.

Hirschi, Travis. 1969. *Causes of Delinquency*. Berkeley, CA: University of California Press.

Hirschi Travis and Michael R. Gottfredson. 1994. "The Generality of Deviance". Pp. 1-21 in T. Hirschi and M. Gottfredson (eds.), *The Generality of Deviance*. New Brunswick, NJ: Transaction.

Hughes, Robert and Jay Coakley. 1991. "Positive Deviance Among Athletes: The Implications of Overconformity to the Sport Ethic." *Sociology of Sport Journal* 8:307-325.

Jeffery, C.R. 1965. "Criminal Behavior and Learning Theory." *The Journal of Criminal Law, Criminology & Police Science* 56:294-300.

Johnson, Bruce D. 1973. *Marihuana Users and Drug Subcultures*. New York: Wiley- Interscience.

Johnson, Richard E. 1980. "Social Class and Delinquent Behavior." *Criminology* 18:86-93.

Johnson, Richard E., Anastasios C. Marcos, and Stephen J. Bahr. 1987. "The Role of Peers in the Complex Etiology of Adolescent Drug Use." *Criminology* 25:323-339.

Junger-Tas, Josine. 1992. "An Empirical Test of Social Control Theory." *Journal of Quantitative Criminology* 8: 18-29.

Kandel, Denise B. and Israel Adler. 1982. "Socialization into Marijuana Use Among French Adolescents: A Cross-Cultural Comparison with the United States." *Journal of Health and Social Behavior* 23:295-309.

Kandel, Denise B., Kazuo Yamaguchi, and Kevin Chen. 1992. "Stages of Progression in Drug Involvement from Adolescence to Adulthood: Further Evidence for the Gateway Theory." *Journal of Studies on Alcohol* 53: 447-457.

Kelley, Margaret S. 2004. "Athletes Behaving Badly: Examining Participation in School Sports." Invited Lecture. December 1, 2004. Brown University. Center for Alcohol and Addiction Studies.

Krohn, Marvin D., Lonn Lanza-Kaduce, and Ronald L. Akers. 1985. "Community Context and Theories of Deviant Behavior: An Examination of Social Learning and Social Bonding Theories." *The Sociological Quarterly* 25:353-371.

LaGrange, Teresa C. and Robert A. Silverman. 1999. "Low Self-Control and Opportunity: Testing the General Theory of Crime as an Explanation for Gender Differences in Delinquency." *Criminology* 37:41-72.

Lanza-Kaduce, Lonn, Ronald L. Akers, Marvin D. Krohn, and Marcia Radosevich. 1984. "Cessation of Alcohol and Drug Use Among Adolescents: A Social Learning Model." *Deviant Behavior* 5:79-96.

Liska, Allen E. 1969. "Interpreting the Causal Structure of Differential Association Theory." *Social Problems* 16:485-492.

_____. 1973. "Causal Structures Underlying the Relationship Between Delinquent Involvement and Delinquent Peers." *Sociology and Social Research* 58:23-36.

Liu, Xiaoru and Howard B. Kaplan. 1999. "Explaining the Gender Difference in Adolescent Delinquent Behavior: A Longitudinal Test of Mediating Mechanisms." *Criminology* 37:195-214.

MacDonald, R., M.F. Fleming, and K.L. Barry. 1991. "Risk factors associated with alcohol abuse in college students." *American Journal of Drug and Alcohol Abuse* 17:439-449.

Matsueda, Ross L. and Kathleen Anderson. 1998. "The Dynamics of Delinquent Peers and Delinquent Behavior." *Criminology* 36:269-308.

Matza, David. 1964. *Delinquency and Drift*. New York: Wiley.

McCall, George and J. L. Simmons. 1978. *Identities and Interactions*: New York: Free Press.

McCarthy, Bill, Diane Felmlee, and John Hagan. 2004. "Girlfriends Are Better: Gender, Friends and Crime Among School and Street Youth." *Criminology* 42(4):805-835.

McCarthy, Bill, John Hagan, and Todd S. Woodward. 1999. "In the Company of Women: Structure and Agency in a Revised Power-Control Theory of Gender and Delinquency." *Criminology* 37:761-788.

McGee, Zina T. 1992. "Social Class Differences in Parental and Peer Influence on Adolescent Drug Use." *Deviant Behavior: An Interdisciplinary Journal* 13:349-372.

Mears, Daniel P., Matthew Ploeger, and Mark Warr. 1998. "Explaining the Gender Gap in Delinquency: Peer Influence and Moral Evaluations of Behavior." *Journal of Research in Crime & Delinquency* 35:251-266.

Moffitt, Terri E. 1993. "Adolescence-Limited and Life-Course Persistent Antisocial Behavior: A Developmental Taxonomy." *Psychological Review* 100:674-701.

Mohler-Kuo, Meichun, Jae Eun Lee, and Henry Wechsler. 2003. "Trends in Marijuana and Other Illicit Drug Use Among College Students: Results From 4 Harvard School of Public Health College Alcohol Study Surveys: 1993-2001." *Journal of American College Health 52*: 17-23.

National Institute on Drug Abuse (NIDA). 2004. "NIDA InfoFacts: Marijuana." Washington, DC: National Institute on Drug Abuse. Retrieved March 27, 2005 from http://www.drugabuse.gov/PDF/InfoFacts/Marijuana04.pdf.

_____. 1996. "Facts about Marijuana and Marijuana Abuse." *NIDA Notes* 11(2):1-2.

O'Hare, T.M. 1990. "Measuring Excessive Alcohol Use in College Drinking Contexts: The Drinking Context Scale." *Addictive Behaviors* 22:469-477.

Perkins, Wesley H., Philip W. Meilman, Jami S. Leichliter, Jeffrey R. Cashin, and Cheryl Presley. 1999. "Misperceptions of the Norms for the Frequency of Alcohol and Other Drug Use on College Campuses." *Journal of American College Health* 47:253-258.

Petersilia, Joan. 1980. "Criminal Career Research: A Review of Recent Evidence." Pp. 321-79 in N. Morris and M. Tonry (eds.), *Crime and Justice: An Annual Review of Research, Volume 2*. Chicago: University of Chicago Press

Pope, Harrison G. and Deborah Yurgelun-Todd. 1996. "The Residual Cognitive Effects of Heavy Marijuana Use on College Students." *Journal of the American Medical Association* 272(7):521-527

Prendergast, Michael L. 1994. "Substance use and abuse among college students: A review of recent literature." *Journal of American College Health* 43:99-114.

Reed, Mark D., and Pamela Wilcox Rountree. 1997. "Peer Pressure and Adolescent Substance Use." *Journal of Quantitative Criminology* 13:143-180.

Sampson, Robert J. and John Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life*. Cambridge, MA: Harvard University Press.

Segrave, Jeffrey O. and Douglas N. Hastad. 1984. "Interscholastic Athletic Participation and Delinquent Behavior: An Empirical Assessment of Relevant Variables." *Sociology of Sport Journal* 1:117-137.

Sharp, Susan F., Harold G. Grasmick and Emiko Kobayishi. 2003. Investigation of the Role of Individuality versus Group Orientation in Behaviors Among a Sample of College Students.

Simons, Ronald L., Martin G. Miller, and Stephen M. Aigner. 1980. "Contemporary Theories of Deviance and Female Delinquency: An Empirical Test." *Journal of Research in Crime & Delinquency* 17:42-53.

Simons, Ronald L., Chyi-In Wu, Rand D. Conger, and Frederick O. Lorenz. 1994. "Two Routes to Delinquency: Differences Between Early and Late Starters in the Impact of Parenting And Deviant Peers." *Criminology* 32:247-273.

Snyder, Eldon E. 1994. "Interpretations and Explanations of Deviance Among College Athletes: A Case Study." *Sociology of Sport Journal* 11:231-248.

Stafford, Mark C. and Sheldon Ekland-Olson. 1982. "On Social Learning and Deviant Behavior: A Reappraisal of the Findings." *American Sociological Review* 47:167-169.

Sutherland, Edwin H. 1947. *Principles of Criminology*, 4th ed.. Philadelphia, PA: Lippincott.

Sutherland, Edwin H. and Donald R. Cressey. 1978. *Criminology, 10th Edition.* Philadelphia: Lippincott.

Sutherland, Edwin H., Donald R. Cressey and David F. Luckenbill. 1992. *Principles of Criminology*, 11th Ed. Dixon Hills, NY: General Hall.

Sykes, Graham and David Matza. 1957. "Techniques of Neutralization: A Theory of Delinquency." *American Sociological Review* 22:664-670.

Thomas, R.W., and D.R. Seibold. 1995. "College students' decisions to intervene in alcohol-related situations." *Journal of Studies on Alcohol*." 56:580-588.

Thornberry, Terence P., Alan J. Lizotte, Marvin D. Krohn, Margaret Farnsworth and Sun Joon Jang. 1994. "Delinquent Peers, Beliefs and Delinquent Behavior: A Longitudinal Test of Interactional Theory." *Criminology* 32(1):47-83.

Thrasher, Frederick M. 1964. *The Gang*. :Chicago: University of Chicago Press.

Tittle, Charles R. and Michael R. Welch. 1983. "Religiosity and Deviance: Toward a Contingency Theory of Constraining Effects." *Social Forces* 61:653-682.

Van Voorhis, Patricia, Francis Cullen, Richard Mathers and Connie Chenoweth Garner. 1988. "The Impact of Family Structure and Quality on Delinquency: A Comparative Assessment of Structural and Functional Factors." *Criminology* 26: 235-261.

Wadsworth, Emma J., Susanna C. Moss, Sharon A. Simpson, and Andrew P. Smith. 2004. "Factors Associated with Recreational Drug Use." *Journal of Psychopharmacology* 18: 238-248.

Warr, Mark. 2005. "Making Delinquent Friends: Adult Supervision and Children's Affiliations." *Criminology* 43(1):77-105.

_____. 2002. *Companions in Crime: The Social Aspects of Criminal Conduct.* New York: Cambridge University Press.

_____. 1998. "Life-Course Transitions and Desistance from Crime." Criminology 36(2):183-215

_____. 1996. "Organization and Instigation in Delinquent Groups." *Criminology* 34:11-38.

_____. 1993a. "Age, Peers, and Delinquency." *Criminology* 31:17-40.

_____. 1993b. "Parents, Peers, and Delinquency." *Social Forces* 72:247-264.

Warr, Mark and Mark Stafford. 1991. "The Influence Of Delinquent Peers: What They Think Or What They Do?" C*riminology* 29:851-865.

Winfree Jr., Thomas L., Christine S. Sellers, and Dennis L. Clason. 1993. "Social Learning and Adolescent Deviance Abstention: Toward Understanding the Reasons for Initiating, Quitting, and Avoiding Drugs." *Journal of Quantitative Criminology* 9:101-125.

FIGURE 1

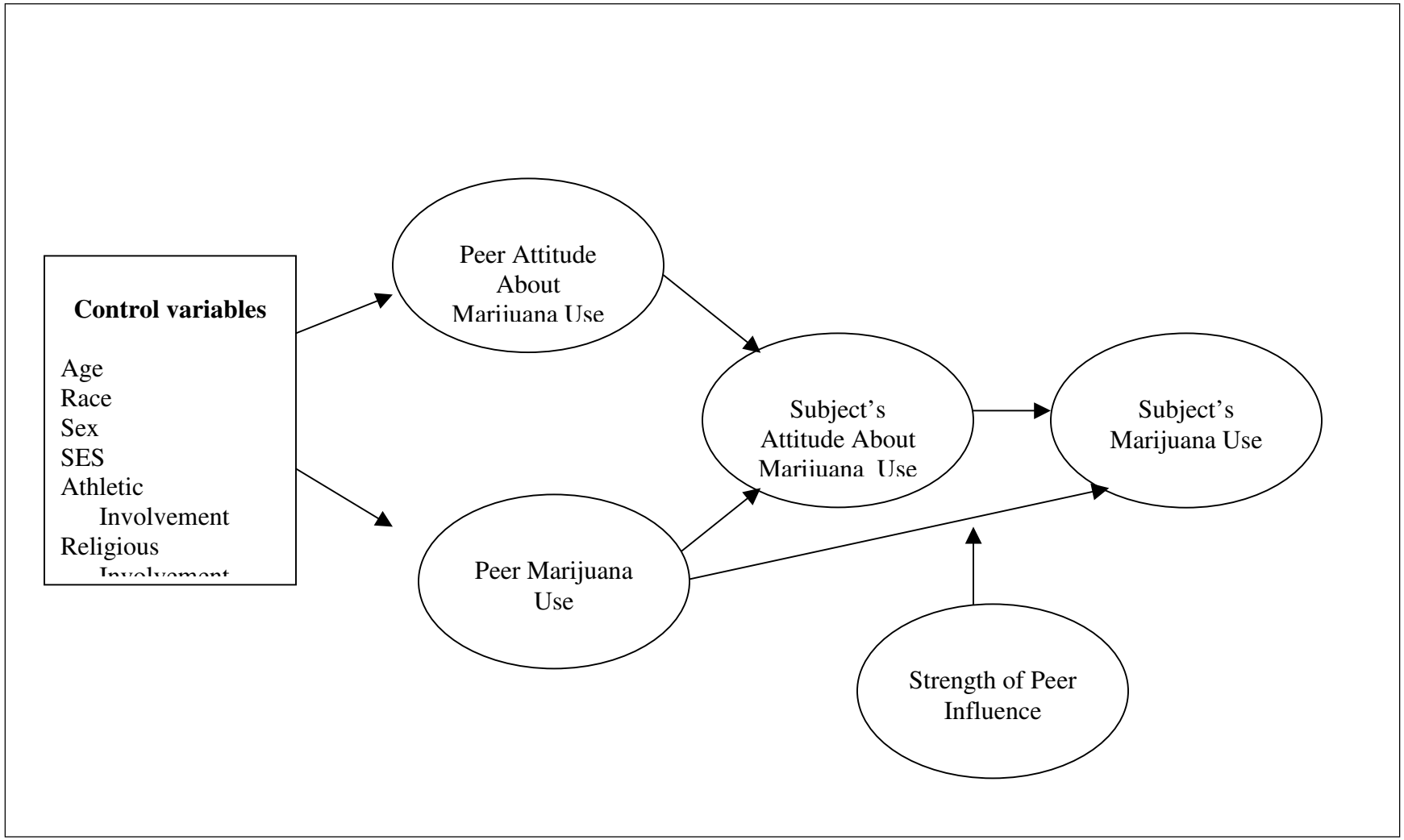
Control variables
Age
Race
Sex
SES
Athletic
Involvement
Religious
Involvement
Peer Attitude
About
Marijuana Use
Peer Marijuana
Use
Subject's
Attitude About
Marijuana Use
Subject's
Marijuana Use
Strength of Peer
Influence

Table 1. Distribution of Demographic Variables*

Age	
18	85 (16.9%)
19	198 (39.4%)
20	124 (24.7%)
21	52 (10.4%)
22	22 (4.4%)
23	11 (2.2%)
24	7 (1.4%)
25	1 (0.2)%
26	2 (0.4%)
29	2 (0.4%)
34	1 (0.2%
Sex	
Male	214 (42.6%)
Female	288 (57.4%)
Race	
White	369 (73.5%)
Non-white	133 (26.5%)
Athletic Involvement > 0	281 (56.0%)
Religious Involvement > 0	228 (45.4%)

*Percentages may add up to more than 100% due to rounding error.

Table 2. SES as Measured by Reported Parental Income*

SES	
less than $15,000	37 (7.4%)
$15,000-$29,999	28 (5.6%)
$30,000-44,999	51 (10.2%)
$45,000-$59,999	49 (9.8%)
$60,000-$74,999	147 (29.3%)
$75,000-$99,999	68 (13.6%)
$100,000 or more	125 (24.9%)

*Percentages may add up to more than 100% due to rounding error.

Table 3. Bivariate Correlations

		1	2	3	4	5	6	7	8	9	10	11	12
White	1	1.0 (N=502)											
Age	2	-.069 (N=502)	1.0 (N=502										
Sex	3	.015 (n=502)	.104* (N=502)	1.0 (N=502)									
Parental Income	4	.321** (n=502)	-.142** (N=502)	-.002 (N=502	1.0 (N=502)								
Religious Involvement	5	-.022 (N=495)	.012 (N=495)	-.047 (n=495)	-.093* (N=495)	1.0 (N=495)							
Athletic Involvement	6	.015 (N=495)	-.163** (N=495)	.007 (N=495)	.060 (N=495)	.078 (N=495)	1.0 (N=495)						
Friends' mj use	7	.059 (N=502)	.018 (n=502)	.166** (N=502	.041 (N=502)	-.244** (.495)	.074 (N=495)	1.0 (N=502)					
Attitude about mj use	8	.032 (N=502)	.063 (N=502	.186** (N=502)	.068 (N=502)	-.321** (N=495)	.049 (N=495)	.514** (N=502)	1.0 (N=502				
Peer influence	9	-.011 (N=502)	.055 (N=502	-.015 (N=502)	.068 (N=502)	.054 (N=495)	.013 (N=495)	-.139** (N=502)	-.116** (N=502)	1.0 (N=502)			
Parental approval of mj use	10	-.082 (N=502)	.135** (N=502)	.082 (N=502)	-.026 (N=502)	-.140** (N=495)	-.064 (N=495)	.178** (N=502)	.311** (N=502)	-.092* (N=502)	1.0 (N=502)		
Peer approval of mj use	11	.044 (N=502)	.035 (N=502)	.190** (N=502)	.044 (N=502)	-.301** (N=495)	.019 (N=495)	.617** (N=502)	.608** (N=502)	-.135** (N=502)	.295** (N=502)	1.0 (N=502)	
Marijuana use	12	.075 (N=502)	.127** (N=502)	.174** (N=502)	-.015 (N=502	-.245** (N=495)	.006 (N=495)	.599** (N=502)	.543** (N=502)	-.052 (N=502)	.273** (N=502)	.547** (N=502)	1.0 (N=502)

*p≤.05, **p≤.01

Table 4. OLS Regression of subject's approval of marijuana use on peers' approval of marijuana use, controlling for demographic variables (standardized coefficients in parentheses)

	b
Age	.017 (.038)
Male	.103 (.070)
White	.003 (.001)
SES/Parental Income	.008 (.020)
Peer Approval of Marijuana Use	.511*** (.593)
Constant	.466
R^2	.370

*p≤.05, **p≤.01, ***p≤.001

Table 5. OLS Regression of subject's approval of marijuana use on peers' marijuana use, controlling for demographic variables (standardized coefficients in parentheses)

	b
Age	.022 (.047)
Male	.146* (.099)
White	-.008 (-.005)
SES/Parental Income	.012 (.029)
Peer Marijuana Use	.397*** (.496)
Constant	.911
$\mathbf{R^2}$	.270

*p≤.05, **p≤.01, ***p≤.001

Table 6. OLS Regression of subject's approval of marijuana use on parental approval of marijuana use, controlling for demographic variables (standardized coefficients in parentheses)

	b
Age	.006 (.014)
Male	.236*** (.159)
White	.073 (.044)
SES/Parental Income	.015 (.037)
Parental Approval of Marijuana Use	.446*** (.301)
Constant	.987
R^2	.118

*p≤.05, **p≤.01, ***p≤.001

Table 7. OLS Regression of subject's approval of marijuana use on religious involvement, controlling for demographic variables on independent variables (standardized coefficients in parentheses)

	Model 1	Model 2	Model 3	Model 4	Model 5
Age	.024	.018	.022	.009	.011
	(.053)	(.039)	(.049)	(.020)	(.025)
Male	.248***	.106*	.145**	.223***	.086
	(.167)	(.071)	(.098)	(.150)	(.058)
White	.037	.007	-.001	.072	.016
	(.022)	(.004)	(-.001)	(.043)	(.009)
SES/Parental	.006	.003	.005	.005	.003
Income	(.014)	(.008)	(.012)	(.013)	(.008)
Religious	-.078***	-.037***	-.051***	-.069***	-.032***
Involvement	(-.303)	(-.145)	(-.199)	(-.268)	(-.124)
Peer Approval		.474***			.337***
		(.550)			(.390)
Peer Marijuana			.359***		.167***
Use			(.448)		(.208)
Parental Approval				.391***	.200***
				(.264)	(.135)
Constant	1.40	.619	1.08	1.20	.589
$\mathbf{R^2}$	.121	.388	.306	.187	.429

*p≤.05, **p≤.01, ***p≤.001

Table 8. OLS Regression of subject's approval of marijuana use on athletic involvement, controlling for demographic variables and independent variables (standardized coefficients in parentheses)

	Model 1	Model 2	Model 3	Model 4	Model 5
Age	.028	.020	.023	.011	.013
	(.060)	(.045)	(.051)	(.025)	(.028)
Male	.265***	.102	.146**	.233***	.082
	(.179)	(.068)	(.098)	(.157)	(.055)
White	.033	.003	-.008	.074	.013
	(.020)	(.002)	(-.005)	(.044)	(.008)
SES/Parental	.016	.008	.012	.014	.007
Income	(.040)	(.019)	(.028)	(.034)	(.017)
Athletic	.006	.005	.002	.007	.004
Involvement	(.057)	(.044)	(.020)	(.069)	(.038)
Peer Approval		.510***			.361***
		(.592)			(.419)
Peer Marijuana			.396***		.173***
Use			(.494)		(.216)
Parental Approval				.450***	.214***
				(.304)	(.144)
Constant	1.1	.390	.876	.864	.390
$\mathbf{R^2}$	.033	.371	.269	.121	.416

*p≤.05, **p≤.01, ***p≤.001

Table 9. OLS Regression of subject's marijuana use on subject's approval of marijuana use, controlling for demographic variables (standardized coefficients in parentheses)

	Model 1	Model 2
Age	.057*	.056*
	(.085)	(.084)
Male	.143	.055
	(.066)	(.026)
White	.190*	.166
	(.079)	(.069
SES/Parental Income	-.029	-.032
	(-.050)	(-.054)
Subject's Approval	.762***	.332***
	(.525)	(.228)
Peer Approval		.185**
		(.148)
Peer Marijuana Use		.428***
		(.368)
Parental Approval		.181*
		(.084)
Constant	-1.98	-2.12
$\mathbf{R^2}$	.307	.460

*p≤.05, **p≤.01, ***p≤.001

Table 10. OLS Regression of subject's marijuana use on religious involvement, controlling for demographic variables, subject's approval of marijuana use, and independent variables (standardized coefficients in parentheses)

	Model 1	Model 2
Age	.058*	.056*
	(.087)	(.084)
Male	.145	.057
	(.067)	(.027)
White	.193*	.168*
	(.080)	(.069)
SES/Parental Income	-.034	-.034
	(-.057)	(-.057)
Religious Involvement	-.033*	-.013
	(-.088)	(-.034)
Subject's Approval	.722***	.322***
	(.498)	(.222)
Peer Approval		.179**
		(.143)
Peer Marijuana Use		.426***
		(.366)
Parental Approval		.179*
		(-.083)
Constant	-1.85	-2.07
R^2	.313	.460

*p≤.05, **p≤.01, ***p≤.001

Table 11. OLS Regression of subject's marijuana use on athletic involvement, controlling for demographic variables and independent variables (standardized coefficients in parentheses)

	Model 1	Model 2
Age	.056*	.054*
	(.084)	(.081)
Male	.143	.056
	(.066)	(.026)
White	.190*	.166
	(079)	(.069)
SES/Parental Income	-.029	-.032
	(-.049)	(-.054)
Athletic Involvement	-.001	-.002
	(-.006)	(-.016)
Subject's Approval	.763***	.333***
	(.526)	(.229)
Peer Approval		.184*
		(.147)
Peer Marijuana Use		.429***
		(.369)
Parental Approval		.179*
		(.083)
Constant	-1.96	-2.08
R^2	.306	.460

*p≤.05, **p≤.01, ***p≤.001

Table 12. OLS Regression of subject's marijuana use on peer marijuana use, controlling for demographic variables, subject's approval of marijuana use, peer approval of marijuana use, parental approval of marijuana use, religious involvement and athletic involvement (standardized coefficients in parentheses)

	Model 1
Age	.062**
	(.093)
Male	.073
	(.034)
White	.149
	(.062)
SES/Parental Income	-.031
	(-.052)
Peer Marijuana Use	.501***
	(.431)
Subject's Approval	.450***
	(.310)
Peers' Approval	
Parental Approval	
Constant	-1.969
R^2	.443

*p≤.05, **p≤.01, ***p≤.001

Table 13. OLS Regression of subject's marijuana use on strength of peer influence, controlling for demographic variables, peer marijuana use, and independent variables (standard coefficients in parentheses)

	Model 1	Model 2
Age	.070**	.070**
	(.105)	(.105)
Male	.139	.143
	(.065)	(.066)
White	.148	.145
	(.061)	(.060)
SES/Parental Income	-.027	-.026
	(-.046)	(-.044)
Peer Marijuana Use	.685***	1.013***
	(.588)	(.871)
Strength of Peer Influence	.010	.029
	(.029)	(.085)
Interaction		-.015
		(-.283)
Constant	-1.747	-2.170
$\mathbf{R^2}$	.373	.374

*p≤.05, **p≤.01, ***p≤.001

Table 14. OLS Regression of subject's marijuana use on strength of peer influence, controlling for demographic variables, peer attitude toward marijuana use, and independent variables (standard coefficients in parentheses)

	Model 1	Model 2
Age	.066**	.065**
	(.098)	(.098)
Male	.133	.133
	(.062)	(.062)
White	.177	.178
	(.073)	(.074)
SES/Parental Income	-.029	-.029
	(-.049)	(-.048)
Peer Attitude toward Marijuana Use	.668***	1.084***
	(.533)	(.866)
Strength of Peer Influence	.007	.044
	(.020)	(.130)
Interaction		-.019
		(-.338)
Constant	-2.152	-2.969
$\mathbf{R^2}$	.312	.312

*p≤.05, **p≤.01, ***p≤.001