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ABSTRACT

CHARLES E. HOGAN

Knowledge and Opinions of Marijuana: A Farewell to Harms, or a Learned Path through the Gateway?

(Thesis Directed By: DR. JOSHUA JHINKLE)

The Shackleford Marijuana Perception Survey is a series survey conducted on criminal justice students at Georgia State University. The current survey design is targeted towards determining perceptions of marijuana related issues at GSU related to the theoretical concepts of Social Learning Theory and the Gateway process of substance use escalation. The current findings will include the responses of 163 students in three criminal justice related classes. The major focus of the analysis will be the comparison of the results of the "marijuana knowledge test" section to the likert scale opinion section and the overall positive or negative opinion score for each respondent. It is the goal of this research is to measure and eventually tack changes in the opinions of students taking criminal justice themed classes at GSU as they pertain to marijuana and related issues. This research is called for by the increasing interest by State Legislations, and recently the federal government, in the reform of marijuana laws and policing practices. Understanding this, and other, samples' level of knowledge and their relative opinions about this topic is needed in order to help formulate effective and efficient policy reform.

INDEX WORDS: marijuana, social learning, gateway drugs

KNOWLEDGE AND OPINIONS OF MARIJUANA: A FAREWELL TO HARMS, OR A LEARNED PATH THROUGH THE GATEWAY?

By

CHARLES E. HOGAN

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A Thesis Submitted to the Graduate Faculty

of Georgia State University in Partial Fulfillment

of the

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MASTER OF SCIENCE

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2011

KNOWLEDGE AND OPINIONS OF MARIJUANA: A FAREWELL TO HARMS, OR A LEARNED PATH THROUGH THE GATEWAY?

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DEDICATION

I would first like to thank the entire Georgia State University's Criminal Justice program for admitting me into this Master of Science in criminal justice program as I feel I have found a second home here at GSU. I want to thank my entire family for their support and encouragement throughout my entire academic progression. Finally I would like to dedicate this thesis to all the authors that I have read and learned from, in the humble hopes that others might read this thesis and learn from it.

ACKNOWLEDGMENTS

Thanks are due to all involved in the construction of this thesis. Specifically, I would like to thank Dr. Josh Hinkle whom I have worked with throughout my entire master's work. Dr. Hinkle spent countless hours reviewing and offering suggestions for improvements. The final sprint to the defense of this thesis was hard won, but well worth the effort. I would also like to offer my appreciation for the efforts of Dr. Brian Payne and Dr. Sue Collins; both of whom I have been studying under since my work as a GSU undergraduate. Dr. Collins, you have always been a driving force that kept my work progressing. Dr. Payne, your guidance in all matters academic has been invaluable and I am truly indebted to all three of you. Finally I would like to thank the professors and instructors that allowed me to conduct my research in their classrooms. Thanks are owed to Dr. Grogan of the Psychology department, Ms. Tatum Asante, Ms. Sadie Mummert and Ms. Christina McGlocklin-Policastro. Without access to subjects, surveys are silent.

AUTHOR'S STATEMENT

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Chapter I
Introduction

Since 1996 thirty percent of the States in America have passed legislation to permit the use, sale and production of marijuana as a means of medical treatment.[1] The recent acceptance of marijuana as a popular medical treatment is only the latest in a social and political debate that has been going on since the early 1900s. At the turn of the twentieth century there was very little regulation or control over substances like cocaine, opium derivatives and marijuana. Cocaine and opium were common ingredients in many pseudo-medical tonics and bargain basement remedies. Marijuana use was on the fringes of society and not something that was of much concern for most Americans. The Harrison Narcotic Act of 1914 put opium products, and other substances deemed narcotic, under the regulation of the federal government. This was the first time that possession, distribution or ingestion of a narcotic substance could bring federal legal reprisal.

The Harrison Act was based upon a public consensus that opium addiction was eroding the moral fiber of the country (Belenko, 2000). Narcotic substances like heroin and smoked opium were the focus of this new controlled substance enforcement. This formal federal stance against recreational and/or abusive use of narcotic substances, in turn, changed and influenced the views of a great many people about drug use. This legislative act paved the way for an evolution in how Americans view substances deemed dangerous by their government. This new American way of thinking about the country's drug policy increased support for the Temperance Movement of the early 1900s. If opium parlors could be closed down and cocaine removed from open availability, could bars and alcohol be next? The answer, of course, was yes and the prohibition of alcohol would again change the popular perception of the American War on Drugs. This change was felt in 1937 when marijuana was effectively outlawed by the Marijuana

[1]The states that have passed this legislation are Alaska, Arizona, California, Colorado, Hawaii, Maine, Michigan, Montana, Nevada, New Jersey, New Mexico, Oregon, Rhode Island, Vermont, and Washington.

Tax Act. This act did not criminalize behaviors associated with the use and distribution of the substance. Instead, this first governmental regulation required those that distributed the substance medically to buy a tax stamp.

Two practices surrounding this legislation lead to the societal conflict over the substance that continues to this day. First, a very small number of these marijuana tax stamps were distributed by the Treasury Department. This structurally limited the amount of legal marijuana that could be distributed. Second, a propaganda campaign was begun to sway public perception from being neutral to being adamantly against marijuana. The key to this propaganda campaign was the documentary *Reefer Madness* (1936), which portrayed a drastically inaccurate picture of what marijuana users experience during use of the substance. Smoking marijuana went from a phrase that many people in America had never heard, to a moral and societal issue that replaced alcohol as the new evil after the lifting of prohibition. What is clear from this brief discussion, which will be expanded upon in the following chapter, is that public opinion about drug use can influence the enactment of drug laws that, in turn, affect how individuals view the acceptability of drug use.

The current study will examine to what degree knowledge of marijuana related issues impacts popular opinions of marijuana use. As noted above, and reviewed in detail in Chapter 2, popular perception is an important part of any societal issue of this scale. State governments in America today disagree about marijuana laws to the extent that traveling from one state to another can result in an individual going from being in complete compliance with the law to potentially committing of a felony offense simply by crossing state lines. While it seems clear that there is some relationship between a substance's legal status and how society views the acceptability of using that substance, there has been relatively little empirical research examining

how individuals' knowledge of current drug laws influences their opinions on drug use, or vice versa. The current study aims to shed light on this issue. The main questions to be addressed by this study are three-fold. First, where do these perceptions about marijuana use and subsequent regulations come from? Are they based on facts or on fear, information or misinformation? Lastly, what is the relationship between knowledge of practical and legal issues related to marijuana and people's opinions on the use of the substance?

Also included in this study will be an analysis of the current body of academic literature on marijuana's place in criminology. Specifically, two different theoretical approaches related to public opinions of marijuana use will be discussed. First, Social Learning Theory will be discussed as it relates to the onset and continued use of marijuana. Secondly, the gateway theory of substance use will be discussed, and later analyses will examine respondents' opinions on whether they view marijuana as a "gateway" substance that leads to more serious drug use.

The current study uses data from a survey of 163 college students, which assessed their knowledge and opinions about contemporary issues and laws concerning marijuana possession and use in America, and gauged their opinions on the acceptability of marijuana use and the theoretical issues outlined above. Opinions on the role of social learning in marijuana use and opinions on marijuana use as a "gateway" drug also will be discussed.

In summary, marijuana use is a topic of great significance to scholars and policymakers in America. It has received varying levels of support and criticism over the last 100 years. This study seeks to supplement the existing body of research by comparing how knowledge of practical and legal issues related to marijuana affects opinions on the acceptability of marijuana use for individuals in a college sample, as well as examining the related issues outlined above.

The current study thus will provide a snapshot of where this college sample's views on these issues currently lie.

The structure of this thesis is as follows. A review of the current literature on public opinions of marijuana use is provided in Chapter 2. This is followed by a discussion of the methods of data collection in Chapter 3. In Chapter 4 the collected data will be displayed. Lastly, Chapters 5 and 6, respectively, will present the results and conclusions formulated from the analyses of the collected survey data.

Chapter II
Literature Review

Scholarly research in criminology about the use and the public opinions of marijuana use goes back to the 1950s, the point at which enforcement of marijuana-related behaviors started to escalate to the current level. A vast amount of information was gathered during the 1960s and 1970s with the advent of the Drug Enforcement Agency and the passage of the Controlled Substance Act of 1970. Public perceptions of marijuana use have ebbed and flowed throughout the last sixty years to reflect governmental policy and practice. While marijuana itself has undergone a dramatic evolution in strength and availability, the majority of youth opinions about the substance typically fall in line with governmental direction (Monitoring the Future, 2010).

In addition to the changing public perceptions about marijuana use, the criminological perceptive of the role of marijuana as a form of deviance also has changed (Room, Fischer, Hall, Leton, & Reuter, 2010). First, marijuana use was viewed as just another form of deviance. Then it became viewed as a gateway to the use of hard drugs; a stepping stone to other more serious forms of deviance. Marijuana has a unique place in criminology and public policy research. Specifically this thesis will examine: first, the relationship between knowledge of current marijuana laws and people's opinions of the acceptability of marijuana use; second, views on the role of social learning/peer influence in onset of marijuana use; third, views on whether marijuana is a gateway substance that leads to more serious drug use. The review of literature below will serve to outline the academic and professional standpoints behind these ideas, which then will be compared to opinions in the sample in Chapter 5.

A Legal and Public Perspective History of Marijuana in America 1776-2010

1776-1914 – The Beginning

For most of American history marijuana had no legal status. One of its plant relatives, hemp, was grown by farmers as a cash crop comparable to cotton in its versatility (Hopkins, 1951). The use of marijuana as a psychoactive substance had a somewhat more limited role in the early part of American history. During the first century plus of the country's existence alcohol use and production, as well as opiate abuse, were more common societal concerns.

1914-1937 – The First Laws

This time in America saw the end of a World War, the fall of the Russian Empire, the collapse of the world economy and the prohibition of recreational alcohol in America for thirteen years. For that brief time in American history alcohol had the same status as a criminal substance that marijuana bears today. The Temperance Movement's effectual ban on alcohol shows how policy can be made through battles of public opinion and relations. After the repeal of the eighteenth amendment by the twenty-first amendment other substances like marijuana became a target for reform and reformers. Hemp was seeing expanded uses during this time — as paper, cloth, cording, and waste products that could be burned for fuel. This versatility threatened to encroach upon established institutions of timber and cotton (Hopkins, 1951). The similarities in appearance of cannabis sativa, ingestible marijuana's scientific name, and hemp make both of these plants subject to similar negative criticism. To enact legal and societal change, the public views on marijuana use and related activities needed to be shifted from neutral to negative.

Marijuana use became popular in jazz clubs of this time, which were associated with an unruly, radical scene. The increasing immigrant populations from Mexico and other Latin American countries using the substance also raised marijuana's public visibility. These ties to

African American and Hispanic/Latino cultures made the propaganda of *Reefer Madness* and the new regulations of the Marijuana Tax Act more popularly palatable to the majority of White America (Northern California Medical Marijuana Resource, 2011).

1937-1970 – A Time of Change

During this period, society began to shift its views on marijuana, viewing marijuana as a powerful substance that needed to be controlled by the government. Some states took it upon themselves to enact more locally-targeted laws based on increasing public support for prohibiting marijuana use. Now possession of a single gram of marijuana could result in a lengthy prison sentence (Narcotics Act of 1956). Most Americans went along with the escalating marijuana enforcement because they were not affected by it. Marijuana use was, for the first time, a criminal act. Every criminal arrested bolstered support for continued, increasing enforcement of marijuana use and related activities.

Despite public concerns about marijuana, towards the end of the 1960s research on marijuana use indicated that users were not susceptible to sliding down a steep slope towards addiction. A study by Goode (1969) found that "[m]ost individuals do not 'progress' to using marijuana often. The infrequent use of marijuana does not inevitably 'lead to' its frequent use. Most users either discontinue use altogether, or continue to use infrequently" (p. 62). The study found that marijuana users were likely to use other illicit substances (49% of marijuana users had tried LSD at least once), but marijuana use was not labeled, yet, as a causal step to heroin addiction (13% of those that had tried marijuana had tried heroin at least once, but most of these individuals tried heroin less than ten times (Goode, 1969)).The perception of marijuana as a causal factor in escalating substance use did not come into the popular vernacular until the government declared an official "War on Drugs" in 1970 (Belenko, 2000).

1970-1980 – War is Declared

In the wake of a dramatic increase in the number of individuals being prosecuted for marijuana-related offenses there was a public call to align the punishment with the crime (National Institute on Drug Abuse, 1974). Governmental reports, which often aligned with public perception, called for lowering the formal sanctions or outright removal of prohibitive legislation of marijuana use and related activities (National Institute on Drug Abuse, 1974). Contrary to these reports President Nixon signed into law the Controlled Substance Act of 1970. This Act criminalized marijuana at the federal level and laid the groundwork for the formation of the Drug Enforcement Agency (DEA).

With the country captivated by a televised armed conflict in Vietnam studies like that of Clarke and Levine (1971) that described marijuana users as " distinguishable primarily in their greater concern with issues that immediately affect their personal lifestyles" (Clarke & Levine, 1971p. 130) showed a unique view of the typical marijuana user. The authors linked their research to the then current body of knowledge about marijuana use by stating, "[t]his finding is consistent with indications of their greater estrangement from family, church and school" (Clarke & Levine, 1971 p. 130).

The final solidification of marijuana's status as an illegal substance served to hyperpolarize public perception about marijuana. On the one hand, users portrayed the substance as benign and simply a means of recreational relaxation. On the other hand, the federal government labeled marijuana as a dangerous substance with no medical application and highly addictive properties (DEA.gov, 2010). This debate was held in the court of public opinion and remains unresolved.

Research has looked at the popular perceptions of marijuana use and effects of use by comparing users of the substance to non-users. Two such studies conducted by Traub (1977) and Dawley, Baxter, Winstead and Gay (1979) both found that users knew more about the effects of using marijuana and that users had a more favorable opinion about the substance. Specifically, Traub (1977) surveyed users and non-users of marijuana about a variety of subjects concerning marijuana use. The biggest disparity between the groups in the sample was in terms of their knowledge of the effects of using marijuana. The non-users thought that marijuana use caused hallucination, uncontrollable laughter, acute idiocy and loss of balance control (Traub, 1977). Users reported the effects of marijuana use as mind opening, hunger causing and producing an increase in pleasure derived from sexual activity. This sexual aspect was the focus of the study by Dawley et al. (1979), and found similar results. The wide berth between perception of users and non-users contributed to the dispute over the enforcement strategies enacted during this time period. From the late sixties to the early eighties the public out-cry went from protecting the children from punishment to punishing to protect the children.

1980-1992 – War is Fought

Throughout the 1980s Ronald Regan fought the final political battles of the Cold War. He brought down the Berlin wall and stopped the domino fall of communism (Kengor, 2006). During this same time a jokulhaups of crack cocaine cascaded over America's major cities. While her husband was fighting the good political fight, Nancy Regan took the reins commanding the war on drugs. She chose to wage this war on the field of public opinion; her mantra for this war was "just say no." The public perception of marijuana became that of a gateway substance, and effective marketing sustained the relationship. One study that examined changes in perceptions about marijuana during this time was conducted by of Bachman, Johnston

and O'Malley (1988). They looked at a national survey of high school students and found that the overall perception of marijuana use became more negative during the sample period of 1978-1986 (Bachman, Johnston & O'Malley, 1988). Similar conclusions can be found in the results of the Monitoring the Future Surveys conducted during this time period (Monitoring the Future, 2010). Bachman et al. determined that the drop in marijuana use by this population during the sample period would not have occurred if the general public's perception of marijuana had not shifted to be more negative (Bachman, Johnston & O'Malley, 1988). Marijuana in the 1980s was becoming viewed as a harmful gateway substance that was apparently falling out of popularity with the youth of America (Monitoring the Future, 2010).

The perception of marijuana use as a causal explanation for other drug use made the institution of mandatory minimum sentences for marijuana-related crime around environments such as schools and recreational centers publicly justifiable. Marijuana was shown, and thus viewed, in advertising and health textbooks across the country in the same pictures as cocaine and heroin. In the face of this prohibition-like campaign against drug use, the most influential individual factor in opinion formation was personal experience. Past studies found that users had the most informed opinion about the substance. These studies also displayed the ignorance to the effects by non-users (Traub, 1977; Dawley, et al., 1979). A similar study of physicians' attitudes about the implementation of medical marijuana by Linn, Yager and Leake (1989) found opinions about marijuana to be mainly based in personal experience. Their study found that those with increased personal or secondary experience with the substance had a more positive view of marijuana's medical usage and recreational legalization.

1992-1996-2008 – War is Lost?

The 1990s saw the popularity of cocaine crest and fall out of the limelight of American popular culture. The federal government's perspective on all substances remained steadfast. Drug Abuse Resistance and Education (DARE) programs were in thousands of elementary school classes across the country. People that had been raised in school to just say no were becoming contributing members of adult society. Their views about marijuana were growing and evolving with time and age. A 1998 study by Farnworth, Longmire and West based on a survey of college students found an overall less punitive opinion about the war on drugs in America. Even with this result the sample was very much in the middle showing a change from the negative mentality of the 1980s, but not as much approval for substance use as was seen in the 1970s (Monitoring the Future, 2010).

Another study from 1998 by Jenkins and Zunguze of middle and high school aged youths showed that the most widespread acceptance of substance use behavior was that displayed towards peers. The respondents showed similar individual use patterns compared to past studies, but the level of approval of peer behaviors was unusually high. Another study by Kilmer, Walker, Lee, Palmer, Mallet, Fabiano and Larimer (2006) found that of their sample of 5,990 college students, 67.4% abstained from marijuana use, but 98% thought that every student uses marijuana at least once a year. These two studies show that perceptions of marijuana can become more generally positive while personal use will not necessarily rise based on the acceptance of other's usage.

States, local governments and individuals are ever changing their perceptions about marijuana to conform to new information and evolving opinions based on this information. While some states have changed laws based on changing perceptions, not all have and the federal

government has been resistant to any scaling back of drug laws. In California, views of marijuana use, specifically medical use, became apparent with the passage of Proposition (Prop) 215 in 1996. This legislation, which passed by a popular vote, allows for the growth, distribution and usage of marijuana as medicine under state regulations. The passage by popular vote is representative of a change in the public perception of marijuana use in California. This is in conflict with current federal laws that prohibit all marijuana related activities. Still, since the passage of Prop 215 in 1996 fourteen other states have passed similar legislation (NORML.org, 2011). For the entire administrations of Presidents Clinton and Bush(43) the stance of the Justice Department was to enforce federal laws related to marijuana, disregarding applicable local or state laws. Research and recent state legislation have shown that perceptions of marijuana use from the passage of Prop 215 to the present have become more accepting of personal choice and medical need (Monitoring the Future, 2010; NORML.org, 2011).

The Monitoring the Future Survey is a yearly survey conducted by the University of Michigan on school-age children. Their yearly measure of high-school seniors' marijuana use has displayed some telling information about the impact of governmental policy on public perceptions and individual choices. The measure for "marijuana use in the last twelve months" peaked during the late 1970s, and then began a free fall until the early 1990s (Monitoring the Future, 2010). The decline in use during this period was about a fifty percent reduction (Monitoring the Future, 2010). During this same time, the perceived risk associated with regular marijuana use went from below forty percent perception of risk in the late 1970s, to eighty percent perceived risk rate in the early 1990s (Monitoring the Future, 2010). Both of these rates have since averaged out between the extremes of the late 1970s and the early 1990s (Monitoring the Future, 2010). It is also important to note that the reported availability of marijuana during

this time of great metamorphosis in opinion remained both stable and high. Over eighty percent of the respondents from 1974-2010 have labeled marijuana "fairly or very easy" to obtain (Monitoring the Future, 2010). With the recent change in official Justice Department policy and the explosion of marijuana markets in Colorado and California, what the popular opinions will change into over the next few years is open for debate.

2008-Present – Change

For most of the last fifty years marijuana use has been seen as something on the extremes of American society. Gradually since the peak enforcement strategies of the 1980s the perception of marijuana use has begun to swing back to a more neutral or even positive stance. Every week on Showtime's *Weeds* America tunes in to see a widowed soccer mom deal marijuana to support her family (Lions Gate Television, 2005). This is just one example of how marijuana is becoming more visible in mainstream American culture. The popular opinions about medical marijuana use also seem to reflect this change in perception. Consistent with this, President Obama has officially changed the Justice Department's stance on the enforcement of medical marijuana related to applicable state law: "The guidelines, as set forth in a memorandum from Deputy Attorney General David W. Ogden, makes clear that the focus of federal resources should not be on individuals whose actions are in compliance with existing state laws" (DEA, 2010 p. 3).

The preceding review shows that popular opinion about marijuana use and governmental legal treatment of marijuana in the United States have ebbed and flowed both toward and away from one another over the last sixty years. With the federal government's stance finally changing during the current presidential administration, this topic will be at the forefront of discussions about legal legitimacy, civil rights, and resource allocation in the years to come.

Marijuana and Theoretical Implications

The next section discusses marijuana use using two theoretical frameworks: Social Learning Theory and Gateway Theory of substance use escalation. Marijuana has multiple roles in criminology, two of which will be discussed in this study. The first theoretical context to scope marijuana use in is that of Social Learning Theory. More specifically, this theory has more to do with individual instigation of marijuana use as opposed to the regular behavior of smoking marijuana. Social Learning Theory is based on the idea that the vast majority of human behavior is learned, either through observation or participation in said behavior (Akers & Burgess, 1966). This theory will be addressed in the current study by assessing whether the sample believes marijuana use to be "picked up by youths from older peers", and whether they feel marijuana use among the youth would rise in an environment of legalization?

The second theory to be reviewed is that of the Gateway Theory of substance use escalation. Marijuana is commonly referred to as a gateway substance. Meaning that the use of marijuana is causally linked to the use of other hard drugs (Welte & Barnes, 1985). While studies have shown that most users of hard drugs have tried marijuana, and many users report trying marijuana before other hard drugs, the link of causality is lacking and flawed (Morral, McCaffery& Paddock, 2002). A firm grasp of where we have come is needed to better predict where this topic is going and where it ought to go. The current study will assess whether college students believe marijuana to be a gateway substance leading to harder and harder drug use.

Social Learning of Marijuana Use

Since the development of Social Learning Theory, defined in terms of criminality by Akers and Burgess (1966), a question has been raised regarding all criminal behavior: why and how are these behaviors passed from those who are knowledgeable to those willing and ready to

learn? The theory lays out the processes by which social influences on an individual can either hamper or bolster criminal involvement. The theory is based on the assumption that the vast majority of human behavior is learned through observation or participation in said behavior (Akers & Burgess, 1966). While critics have pointed out that individuals will have differential receptors for social influence in terms of source and thresholds, it remains that peer, familial and institutional pressures are present in most peoples' lives at some point. The influence on a given individual can vary among the sources, but it stands to reason that one source of pressure will be the most influential and thus impactful in directing behavior. Positive pressures could include a church or school environment. Negative pressures could include the illicit markets and communities frequented by criminals. Familial influence can be defined as either positive or negative based on the specific patterns of behavior displayed and received. None of the sources of pressure are deterministic but the presence or absence of influences can in some cases be predictive of behaviors. Why are some behaviors, even criminal behaviors and especially marijuana use, are found throughout all walks of life? The following analysis of perceptions of marijuana addressed within the framework of Social Learning Theory is in an attempt to explain a complex aspect of the instigation of marijuana use.

Some interesting questions about approval of marijuana use address: do individuals have a more positive view of their friends' marijuana use than they have of the general public? Does a person's status as a peer influencer lend credence to that peer's choice to use marijuana in the eyes of a research subject? Millions of Americans smoke marijuana for the first time each year. All social classes, races and intelligence levels report use of marijuana with a stable frequency. After being an illegal act for the last sixty plus years, why has this behavior continued to be socially learned and passed down?

A 1985 study by Goe, Napier and Bachtel found that the two strongest predictors of marijuana use among their sample of Georgia high-school students were (1) identification with a drug using group and (2) the availability of marijuana. This study examined the effect of facilitating and constraining factors in predicting if an individual was a user, experimenter or non-user. They found that users had the highest facilitative score and the lowest constrictor score (Goe, Napier & Bachtel, 1985). The opposite was true for non-users, and experimenters' scores were in between both groups in all the presented variables (Goe, Napier & Bachtel, 1985). The interesting part of these findings is that the facilitating factors were in a vast disparity from user to non-user. While the constraining factors did follow the pattern of low to high from users to non-users, the difference is not nearly as dramatic as the facilitators. The authors concluded that the effect of the facilitators is really the only influential determinate of the extent of an individual's use (Goe, Napier & Bachtel, 1985). The two major facilitators were access to marijuana and identification of association with substance using groups. This seems to be reasonable because the groups that self-identify with substance using behaviors will be the ones more motivated to obtain the substances, in this case marijuana. This study displays how little impact constraining factors have compared to facilitating factors in predicting initiation of marijuana use. Being illegal is a constraining factor for marijuana use.

To further address the proliferation of marijuana use, a 1988 study by Johnson looked at the differential conditions that lead to the continuation of alcohol and marijuana use throughout the teenage years in a social learning context. The author found that the use of both substances was positively impacted by the social learning model, but that alcohol use was a more pronounced way to fit in, while marijuana was used more for the substance's physical effects (Johnson, 1988). The author also found that would-be negative consequences of use of these

two substances were often seen as ineffective or actually perceived as positive (Johnson, 1988). Erratic or violent behavior, blackouts and hangovers could be seen as badges of honor for those using alcohol. Parental or legal reprisal was also found to pale in comparison to the immediate gratification effects of using these substances (Johnson, 1988). Based on the findings of Johnson's study, punishment alone of these behaviors can be predicted as ineffective in stemming the learning of the use of these substances as punishment is a constraining factor. The reasoning behind much of the reported marijuana use in this study, to get high, seems to point to this behavior being one that will continue to be taught and learned due to a positive peer perception of this behavior.

In a 1999 study Akers and Lee tested the relationship between the age curve of social learning and the age curve of marijuana use among an adolescent sample, grades 7-12 (Akers & Lee, 1999). They built on earlier work by Akers that established the age curve associated with Social Learning Theory and its escalating influences throughout adolescents and into early adulthood (Akers& Burgess, 1966). The 1999 study found a strong relationship between the processes of social learning and the use of marijuana (Akers & Lee, 1999). The authors concluded that longitudinal research is what is most needed to properly address the exact nature of the relationship between social learning and marijuana use (Akers & Lee, 1999). It seems that based on the necessity of learning how to smoke substances and learning how to acquire marijuana that social learning theory has effective ability to explain many aspects of marijuana use instigation and proliferation.

Another study that looked specifically at the gender differences between males and females substance use among an incarcerated juvenile population found more support for the fundamental mechanisms of Social Learning Theory (Neff & Waite, 2007). The authors found

similar influence of peers on formation of substance use behaviors for marijuana and alcohol, but found that, with other harder substance use, females reported an "earlier age of onset and greater current use" (Neff & Waite, 2007 p. 106). Overall this study supports the social learning processes associated with the formation of substance use behaviors. Studies like that of Akers and Lee (1999) identified the strong relationship between association with deviant peers and the formation of substance use behaviors.

Based on the findings of Neff and Waite (2007), further research needs to address the apparent increased effect of these processes on female youths and young adults. Many things can send a dysfunctional youth into a life on or around the streets. The appreciation of this fact can serve to tailor an effective harm reduction model of drug enforcement. The illegality of marijuana makes it a perfect training level for the formation of these substance use behaviors. Removing this link between alcohol and cigarettes to the harder drugs through marijuana would make it harder to inoculate newcomers into the use of illicit substances.

The influence of traditional values on the passage of sets of behaviors is a fundamental part of social learning theory. One study that addressed this element was conducted by Bahr and Hoffmann (2008). Their sample was made up of almost 5,000 Utah adolescents and 13,500 respondents from the Add Health sample. The findings of the study were that both the national and the regional groups showed a negative relationship between religiosity and substance use. This relationship held constant when controlling for other traditional influences, attachment to parents and school. The only factor found to have a similar universal positive effect on substance use rates was the association with substance using peers (Bahr & Hoffmann, 2008). The youth that gravitated towards the religious behaviors that condemn and deter the use of substances socially learn to refrain from those behaviors. Those that associate with peers that offer

acceptance and education of substance using behaviors will be much more likely to incorporate those behaviors into their own behavioral patterns (Bahr & Hoffmann, 2008). For some, the influence of religion can be a preventative factor, but as with the explanations of the sources and their differential influence, absolutes cannot be derived as to the perceptions of separate individuals to the same factors.

In sum, the foundation of social learning theory is that the vast majority of human behavior is learned from witnessing or participation in a particular behavior (Akers & Burgess, 1966). As it relates to behaviors defined as criminal, association with groups and persons that do not prescribe to traditional societal norms creates more opportunity for continuation of illicit patterns of behaviors. Related to the current topic, two of the strongest predictors of onset of marijuana use during the teenage years are access to marijuana and self-identification as association with a substance using group or clique (Goe, Napier & Bachtel, 1985). Reducing youth access to marijuana would be a byproduct of decreasing the enforcement of adult use of the substance by specifically addressing whom it is acceptable to use marijuana and for whom it is not.

The second predictor, identification as a substance using group member, would see its mystique and luster diminished if marijuana was changed from an across the board illicit substance to one that is simply illegal for individuals under a certain age to possess or use. Youth use marijuana (Monitoring the Future, 2010). Youth teach other youth to use marijuana. By grouping marijuana with alcohol and cigarettes the social learning curve is altered in a way that creates a larger gap between marijuana and what substances would be left labeled as illicit: MDMA, cocaine, opiates and methamphetamines. By adjusting marijuana's position in the

substance use learning continuum, marijuana's place as a gateway substance also requires reexamination.

As noted above, the current study will explore current perceptions of college students on the role of social learning in marijuana use. Specifically it will assess whether the sampled students believe youth learn marijuana use from older peers and whether they believe youth's marijuana use would increase if the drug was legalized.

Gateway Myth?

The gateway effect of substance use is the belief that the use of one substance creates a direct increase in the likelihood of an individual using other substances. For example, first a person tries cigarettes. Then the individual incorporates alcohol use into his behaviors. As the individual becomes more tolerant to the effects of alcohol, marijuana is used. The psychoactive aspects of marijuana create a want in the individual to get higher on "hard drugs" like MDMA, cocaine, opiates or crystal methamphetamines. The theory identifies cigarettes, alcohol and marijuana as the primary gateway drugs that lead to the usage of other substances (Welte & Barnes, 1985; Morral, McCaffrey, & Paddock, 2002). This is predicated on the use of cigarettes and alcohol being the first substances used during the formative years of middle and high school. The step from these two substances to marijuana is a distinct one because an individual teen sees tobacco and alcohol sold legally inside every corner store, and then sees marijuana sold illicitly behind many of these same stores. Marijuana being the softest of the illegal substances in America makes it a natural culprit for the gateway label. The assimilation of alcohol use into patterns of behavior is an ancient one, and the popularity of cigarette smoking over the last 100 years has made it a staple, for better or worse, in teenage development. The illegality of marijuana promotes the gateway effect of the substance by allowing for individuals to edge their

toes into the water of illegal substances. As it relates to the current study, the survey will attempt to discern if the sample views marijuana or alcohol as the most prolific gatekeeper.

The behavioral patterns of substance use are learned. Individuals learn to drink alcohol in escalating strengths, beer to wine to spirits. Smoking a substance, however, is a transferable behavior that can be applied to a variety of different substances (Tullis, DuPont, Frost-Pineda, & Gold, 2003). Tullis et al. laid out the process of humans overcoming the natural reaction to cough at the intake of smoke, and discussed how, once developed, the skill set can be applied to most other illicitly smoked substances. They suggested that if cigarettes are used first then that behavior can lead to marijuana use, as is the case with most middle and high school age persons that use these substances. They also detailed how once individuals are in college and removed from the intense public school anti-smoking campaigns, marijuana use and learning to smoke can lead an individual to use tobacco (Tullis et al., 2007). In the 2007 Tullis et al. study, marijuana is identified as a possible gateway substance. The concession about whatever is first smoked being the real gateway process shows that the gateway applications of marijuana are limited to the process of learning to smoke and the initiated into using illegal substances (Tullis et al., 2007).

Another study, *Reassessing the Marijuana Gateway Effect,* by Morral, McCaffrey and Paddock (2002) investigates the idea that any substance use will lead to other substance use because the drive to use one substance is the same as the drive to use another. These researchers found limited support for their model; however, the most interesting part of the study lies with their notion of a marijuana gateway counter effect. The use of marijuana does bring some persons into the realm of harder drugs, but the use of marijuana can drive others away from drugs (Morral, McCaffrey, & Paddock, 2002). Some will like or appreciate the sensation of substance use but some will be turned off by the experience. This study also noted that “the

observed correlations in the use of marijuana and hard drugs may be entirely due to individuals' propensity to use drugs and their opportunity to use them" (Morral, McCaffery, & Paddock, 2002 p. 1500). This means that preventing an individual from using substances throughout grade school might be ineffective because once the opportunity arises for interested individuals they will be just as likely to use substances as before the prevention efforts (West & O'Neal, 2004). Under the model by Morral, McCaffery, and Paddock marijuana can be a gateway drug but so could any substance that the susceptible individual tries first.

A decade before the aforementioned study, Yu and Willford (1992) conducted a study to display the effect of early onset of another substance, alcohol, on the subsequent use of other drugs. Yu and Willford found that alcohol use led to an increase in the likelihood of cigarette or marijuana use. When combined, cigarette use and alcohol use were found to drastically increase marijuana use (Yu & Willford, 1992). These findings were strenthed later by the findings of the study by Morral, McCaffrey, and Paddock (2002), in that substance use begets substance use because the drive to use substances is universal across substances. In contrast to what Morral found, Yu and Willford found the synergy effect of substance use is most prolific when visited upon individuals aged 13 to 16. Based on this they found strong support for early intervention against substance use. Unfortunately, most early intervention programs currently in place in America have a fleeting effect beginning at the end of the formal efforts (West & O'Neal, 2004).

Closer to the instigation of the Gateway Theory, a 1985 study Welte and Barnes found that the most prolific gateway drug was alcohol. The study sample consisted of 27,000 seventh and eighth graders in New York State. The researchers went as far to say that "students do not use illicit drugs unless they also use alcohol" (Welte & Barnes, 1985 p. 487). They also found that cigarettes are a common link between alcohol use and marijuana use, and this again laid

foundation for the study by Morral, McCaffrey, and Paddock (2002) which identified the process of smoking any substance as a predecessor to smoking other substances. The study also found that for whites only prescription pill usage was a common step between marijuana use and other hard drug usage (Welte & Barnes, 1985). Minority respondents indicated a more direct jump from marijuana to hard drugs (Welte & Barnes, 1985). This displays the toe in the water mentality being more prevalent with whites needing the added step of pill usage to fully delve into hard drug use (Welte & Barnes, 1985). The differential support for varying paths through the gateway might lend credence to the notion that the use of one substance, whatever that might be, will lead to the use of other substances because the will to use different substances is rooted in the same personal traits.

More recent studies have shown a more clouded view of the gateway process. Tarter, Vanyukov, Kirisci, Reynolds, and Clark (2006) found that reporting stage one licit drug use, alcohol and tobacco, gave the researchers the same ability to predict future illicit drug use based on risk factors in a gateway sequence as those that reported illicit drug use first in a reverse gateway sequence. The major holding in this study was that all substance use, licit and illicit, was opportunistic (Tarter et. al., 2006). If the individual was exposed to marijuana and other substances before alcohol and tobacco, then that is what they tried first. This again lends support for Morral's findings that substance use is universally motivated regardless of the type of substance. This study and others like it show that prevention of substance use should not be aimed at targeting a specific substance, but instead at the behavior of using substances whatever that behavior might entail.

It is consistent throughout the research that "hard drug" users are likely to have used marijuana at some point prior to initiation of hard drug use (Welte & Barnes, 1985; Morral,

McCaffrey, & Paddock, 2002). The leap to causality is lacking when trying to establish the relationship between teen marijuana use and young adult hard drug use. A study based on the National Study of Adolescent Health found a significant relationship between teenage marijuana use and young adult hard drug use, but the authors go on to say that "the association of marijuana use with later use of illicit drugs by itself does not address the issue of causality" (Lessem, Hopfer, Haberstick, Timberlake, Ehringer, Smolen, & Hewitt, 2006 p. 504). The authors cite Morral et al. (2002) and their notion of a "common model" for attraction to all drug use, and further display the legitimacy of Morral et al.'s findings by showing that "…most subjects who used illicit drugs in early adulthood had used marijuana early, however most early marijuana users did not go on to use illicit drugs. The illicit drug users may have a greater liability towards the use of any drug" (Lessem et al., 2006 p. 504). Morral et al.'s common model of substance use can be applied to the very core of the gateway theory through an understanding of how humans escalate any criminal behavior. Emboldened by his use of marijuana, the average sub-urban white male tries prescription pain pills (Welte & Barnes, 1985), which are controlled through prescription, as opposed to cigarettes and tobacco which are controlled through age requirements. After breaking age requirements, legal requirements and federal control of prescription drugs nothing about deterrence theory or respect of the legitimacy of the law will stop this subject from trying cocaine, heroin or crystal methamphetamines if he has the opportunity and is willing.

The effect of these substances, both licit and illicit, has nothing to do with the order in which they are experienced through differential initiation. The only characteristic that is uniform in escalation is the legal status of the substances, moving from the most legally accepted to the least. Specifically, the legal status of marijuana combined with the relatively subdued effects of

use of this substance (compared to hard drugs like cocaine and heroin) make marijuana structurally and functionally a gateway substance. In an opinion piece from 1997 Peele and Brodsky lay out the frame for an evolved American Drug Policy:

> A drug policy based on the mechanistic 'gateway' model is a policy badly in need of reconsideration. It should be replaced by one grounded in a real understanding of why people use and abuse drugs. After decades of continuous effort, we still face substantial drug use among young people, including periodic rises like that noted in the Michigan survey. Obviously, the ultimate solution for youthful drug abuse and much else ailing America is to strengthen personal values and family lives and to allow more people to buy into the American dream. But, while we struggle to achieve this elusive goal, we can try to do the following:
>
> -Acknowledge the difference between exposure to drugs and drug abuse, and especially between controlled and destructive drinking.
>
> -With young people most at risk for becoming involved with drugs, warnings to avoid any use of drugs, alcohol, and cigarettes have thus far been futile. It is more useful to require (and help) them to take responsibility for their actions, to escape destructive situations, and to contribute to society.
>
> No drug makes people use it or other drugs. The causes of drug abuse are life conditions that motivate people to act destructively towards themselves and others. Liberals identify these as social and economic circumstances involving a loss of opportunity and hope. Conservatives identify them as a breakdown of moral standards and public order. Either of these explanations has a lot more going for it than Demon Rum. p. 424

The current social hierarchy of substances that are used recreationally in America paves a smooth path for the evolution of an individual's perception supporting the escalation of substance use. If a youth has a negative perception of cocaine or heroin he still might be apt to try smoking cigarettes or drinking alcohol. The initiation into one form of substance use can alter the perception of the individual towards other substances. Since the drive to use substances is universal, a more favorable perception of one substance could lead to transference of perceptions of these substances as well as substances using skills. Is there a gateway? Yes. Does it come from the substances effects? No, it comes from the legal structure and social perception developed throughout the entire twentieth century, and the lateral transfer of learned analogous

substance use behaviors. This study will examine to what degree this sample perceives marijuana and alcohol as gateway substances by determining to what degree the respondents feel that marijuana or alcohol use leads to harder drug use.

Conclusions

The public perception of marijuana use in America has changed back and forth over the course of the evolution of the substance's legal status during the past sixty plus years. Governmental stances have shifted the views of the people in both a positive and negative direction over this course. The theoretical framing of marijuana use has also evolved with the advent and specifications added to the body of criminological knowledge. Social Learning Theory helped to understand some of the directives behind the passage of marijuana related behaviors from one group or generation to the next. Finally, the formation of the gateway mantle for marijuana has been somewhat rejected under the current understanding of the process, but the research done under this model has contributed to the construction of a Universal Draw Model for substance use initiation. This notion holds that a willing user of one substance will be likely to try any substance offered and/or available to him or her (Morral, McCaffery& Paddock, 2002). A better theoretical understanding of issues related to marijuana can be impactful in contributing to a better educated general public and policy making bodies. Perceptions based on experience and knowledge are essential when dealing with a matter that has such wide-reaching social and political implications.

The current study aims to shed light on these issues using data collected from a college sample. First, the study will assess the relationship between knowledge of current marijuana laws and respondents' opinions on the acceptability of marijuana use. Second, it will assess respondents' opinions of the role of social learning theory in the onset of marijuana use. Third, it

will assess the sample's opinions of marijuana as a gateway substance leading to harder drug use. The following chapter will outline the data collection and statistical methodology.

Chapter III
The Current Study and Methodology

Purpose for Study

The major goal of this research is to gauge and eventually track changes in perceptions and knowledge of practical and legal issues related to marijuana among samples of college students at Georgia State University. While a variation in academic backgrounds could be beneficial to future waves of data collection, the inclusion of only criminal justice themed classes in the current wave ensures that the sample will have some experience with issues related to the legal status and criminological implications of marijuana use. The purpose of obtaining these opinions is to advance the body of academic knowledge on this topic. This study seeks to measure where public perceptions of marijuana are right now, and through continued collection of data, predict where they are going in the future.

This is the second wave of data collection for this series of surveys. The current survey instrument contains multiple sections. The first section is a marijuana knowledge test. This is used to measure the respondents' personal knowledge about legal and practical elements of marijuana use. The second section of the instrument is designed to discern the opinions of the respondent on legal, practical and ethical issues related to marijuana use. Based on the "score" of the test and the rating of the opinion questions, this research seeks to identify how knowledge of this subject is related to a positive or negative view of marijuana related issues. The third section deals with the respondents' experience with marijuana in their daily academic and personal lives. The final section provides a demographic overview of the respondents.

This survey has multiple targeted items to address a variety of hypothetical questions concerning the sample's perception of marijuana and related issues. The hypotheses examined in the current study are:

H1: The respondents that display a higher degree of knowledge about marijuana laws and practical issues related to the drug will report a more positive view of use of the substance in the attitudinal section.
H2: Marijuana use will be seen as a learned behavior by the sample.
H3: Marijuana is not seen as a gateway drug by the sample.
H4: Alcohol is seen as a gateway drug, more so than marijuana, by the sample.

The main hypothesis, H1, puts forth the notion that the more knowledgeable an individual is about marijuana, the more favorable his opinion will be about the substance. Again, the primary goal of this research is to measure perceptions of marijuana-related issues among a college sample in this time of much public policy change related to marijuana, and to compare the perceptions with a firm test of the respondents' knowledge of this topic. H2 deals with marijuana use being seen as a learned behavior as suggested by Social Learning Theory. H3 and H4 have to do with the sample's perception of marijuana or alcohol as a gateway substance. Because first time alcohol use typically precedes first time marijuana use, if the sample sees alcohol as a more prolific gateway to harder substance use the concepts of a Universal Draw based on availability is strengthened (Morral, McCaffery, & Paddock, 2002). Additionally, a direct comparison of alcohol to marijuana could be telling in how the sample views the two substances. To supplement the conclusions derived from the aforementioned hypothesizes being tested, demographic variables will be included in the analytical models to better understand the relationships between the variables presented in Chapter 5 of this thesis.

Methods

This is the second wave of data collection in this series. This wave of data collection was conducted in four classrooms at Georgia State University from February until March of 2011. The first class surveyed was a developmental psychology class. The final three classes surveyed were criminal justice themed: one family and violence course and two courses addressing social science views on the American crime problem. A final sample of 163 respondents was eventually collected. The data from the survey instruments was inputted and analyzed using the statistical program SPSS 18. A full version of the survey can be found in appendix 1 at the end of this paper.

The Survey Instrument

The Shackleford Marijuana Perception Survey is an independent construction for this study directed at soliciting honest and valuable opinions of contemporary legal and practical issues related to marijuana use in America. As noted previously, the survey instrument consists of four major sections. The first is a marijuana knowledge test. The purpose of this is to measure the respondents factual knowledge of legal and practical issues related to marijuana. These first ten items, six multiple choice and four true or false questions, produce a formal display of an individual's knowledge about marijuana on a scale of 0-10.

The next section is made up of fourteen likert scale opinion questions where the respondents are asked whether they (1) strongly disagree, (2) disagree, (3) agree or (4) strongly disagree with a series of statements about marijuana use and related issues. In an effort to tease out the current opinion of marijuana use by the sample, opinionated likert scale questions included in the survey have been deemed to either represent a positive (+1) or negative (-1) opinion of marijuana based on agreement or disagreement with the survey item. For the likert

scale items dealing with alcohol, a negative view of alcohol is interpreted as a positive opinion about marijuana because past research has shown marijuana and alcohol to be substitutes for one another based on availability of the substances (Chaloupka & Laixuthai, 1997). In this study the respondents showed a preference to marijuana over alcohol when marijuana is available and not overpriced (Chaloupka & Laixuthai, 1997). It is this preference that calls for a negative view of alcohol to be coded as a positive view of marijuana in this analysis. The overall score will be reported in a separate variable in the analysis that is measured on a scale ranging from -14 being the most negative view and 14 being the most positive view of marijuana. It is hypothesized that this sample of college students will, overall, have a more positive than negative perception of marijuana. The use of criminal justice themed classes for execution of the survey could act as a confounder if criminal justice students can be assumed to have a more punitive standpoint on criminal behavior than that of the general college population (Mackey & Courtright, 2010). These two scores, the knowledge and the opinion, will be compared later in the results section of this report to determine how increased levels of knowledge about legal and practical elements of marijuana use contribute to a positive or negative view of use of the substance.

The third section of the survey deals with issues addressing involvement of marijuana users in the respondents' daily educational and social life. Many of the items in this section are new to the 2011 version of the survey. Being that the sample is exclusively a college attending population two items were included to measure opinions about working with marijuana users on class assignments: "Would working on a school assignment with a marijuana user bother you?" and "Do you think that being in a school group project with a marijuana user would negatively affect your grade? These two items are especially important when surveying classes with a criminal justice theme because marijuana use is illegal. Students' approval of its use resonates

with issues related to the legitimacy of laws in general. Due to the extremely high correlation between these two survey items, they were combined into one variable (by summing them together) for the later multivariate linear regressions. The final two questions in this section are more aimed at addressing the role of marijuana in a respondent's social life: "Would you date someone that used marijuana?" and "Do you have friends that use marijuana?" Operating under the assumption that criminal justice majors have at least some interest in entering the professional world of criminal justice, the degree to which they allow marijuana use and users to be a part of their personal lives is a major concern of this study.

The last section of the survey is a demographic assessment of the individual respondents. The demographic inquiries include age, class year, academic major, sex, racial identity and political affiliation. The demographics of age, sex and racial identity are compared to the overall Georgia State population in Table 1 of the next chapter. The last item on the survey allows for the respondent to include "any additional comments that you might have about marijuana, other drugs or any other related topic in America today." The inclusion of this qualitative device is to allow the respondents to share any thoughts, comments or concerns about this topic or the survey process because it is through feedback of this kind that improvements and revisions can be put to use to create a more accurate and reliable instrument.

Statistical Methodology

Chapter 5 will expand on the descriptive analysis above by performing multivariate analyses addressing the hypotheses outlined at the beginning of this chapter. The first display in chapter 5 is the correlation between the knowledge scores and the opinion outcomes. A cross tabulation was also utilized (Table 7) to determine the effect of witnessing marijuana use on campus on whether or not the respondents thought individuals caught smoking marijuana on

campus should be expelled. The first hypothetical analysis performed in this study addresses the impact of a multivariate liner regression (OLS) model on the knowledge scores (Tables 8a and 8b) and the opinion outcomes (Tables 9a and 9b). These two measures, knowledge and opinion, act as dependent variables for these OLS analyses. Both are non-continuously measured, but their relatively normal distributions and wide ranges make this an appropriate analytical strategy. The variables included in these two OLS models are identical with one exception. The independent variables of sex, age, race, political affiliation, perceived age of onset for marijuana use and the items from the marijuana in everyday life section where included in both models. The additional unique independent variable to each model is the other dependent variable: knowledge for the opinion model and opinion for the knowledge model. This method (OLS) serves to display a truer report of the influences that these independent variables have on the knowledge scores and the opinion outcomes more so than simply analyzing individual correlations.

For the second hypothesis proposed at the beginning of this chapter, a descriptive breakdown of the results from the two survey questions about Social Learning Theory, and an ordinal regression model based on the demographics variables collected in the survey will serve to illustrate how different groups perceive marijuana use in a social learning context. Similar ordinal regression models based on the demographic variables will be used to analyze the items concerning the gateway theory of substance escalation as it relates to both alcohol and marijuana use independently, to test the third and fourth hypotheses outlined earlier. This analysis will help to identify what different groups think about each substance and offer a comparison to the differential perceptions about these two substances in a gateway context. All of the aforementioned statistical models were estimated and analyzed using SPSS 18.

Methodological Summary

This sample from Georgia State University produced a fairly representative sample of respondents in terms of sex and race. This sample showed an overall lack of knowledge about the marijuana related issues that were presented to them in the first section of the survey. The average score on this test was below fifty percent correct. The opinions about marijuana use were overall, positive on the scale used to measure this variable. The correlation of the relationship between these two measures is included at the beginning of chapter 5. To go with the positive overall view of marijuana and these related issues, the sample indicated a high degree of involvement with marijuana users in their social network. This involvement is less in the sample's intimate circles; 80.5% indicated that they had friends that used marijuana but 23.4% less respondents indicated that they would actually date a marijuana user. From this overview of the data it seems that opinions about this topic are highly specific to individuals. Chapter 5 will present further results from the statistical models outlined in the methodological section that are designed to test the four hypothesizes that are listed at the beginning of this chapter.

Chapter IV
Data

The final sample size of the subjects in this wave of data collection stands at 163. These subjects were from four classes being held at Georgia State University during the spring semester of 2011. Table 1 shows the demographical make-up of the sample and compares the sample to the overall Georgia State undergraduate population. The current sample has been shown to be representative in its racial identity and sexual make-up compared to the overall population; however, the age of the sample is non-representative. The mean sample age in Table 1 can be seen to be over a full year younger than that of the total Georgia State undergraduate population as of 2009. With the final number of respondents slightly lower than initially sought, the representativeness to the overall population is a welcome surprise. Previous waves of data collection on this topic at Georgia State University have produced a less representative sample than the current collection period. The lower age of the sample could possibly be attributed to the selection of the classes surveyed being lower-level courses and thus made up of younger students.

Table 1: Demographics of Survey Sample Compared to GSU Student Population

	Sample	**Georgia State**[2]	**Representative**
Age	22.83	24	.009[3]
Racial Identity	Black - 35.1% White – 38.3% Latino/Hispanic – 7.8% Asian – 12.3% Other – 6.5	Black – 36% White – 41% Hispanic – 7% Asian – 12% Not Reported – 6%	.976[4]
Sex	Male – 42% Female – 58%	Male – 39% Female – 61%	.435[5]

[2] Based on demographics obtained for the academic year of 2009
[3] Results of a one sample t-test indicate that finding a representative sample with a mean age of 22.83 from the overall population with a mean age of 24 is highly unlikely.
[4] A chi squared test produced an asymp sig of .976 which indicates that the sample is representative of the overall population in terms of racial identity of respondents.
[5] A chi squared test produced an asymp sig of .435 which indicates that the sample is representative of the overall population in terms of sex of respondents.

The first section of the survey instrument is the marijuana knowledge test. The responses to each of the questions are displayed in Table 2. For the first question, two responses were considered correct for purposes of scoring. From those surveyed, these two responses were correctly chosen 21.3% and 32.5% of the time, respectfully, for a total of 53.8% responding that they thought that marijuana was criminalized at the federal level in 1937 with the institution of the Marijuana Tax Act, or in 1970 with the passage of the Controlled Substance Act. Of the multiple choice questions, this question garnered the most correct responses, albeit this was the one that had two acceptable answers.

The question with the next highest correct response rate was "how long after usage would a typical marijuana user still be likely to fail a urine drugs test?" Almost half (48.1%) of the respondents in the sample correctly answered one month to this inquiry. Possible explanations for this could be attributed to the increased exposure in daily life to urine drug screenings for job applications, background checks or formal governmental supervision. Millions of Americans are out of work and job hunting and millions more are on probation or parole, these conditions have urine drug screenings as a major component of their operations. The remainder of the multiple choice questions produced between a 13% and 18.5% correct response rate. Overall, the sample's knowledge about marijuana related facts seems to be drastically lacking. This would not be as paramount of an issue if the classes surveyed were not criminal justice themed, and if these topics of issue were not at the forefront of the evolving American Criminal Justice System.

Where the sample failed at the multiple choice questions, they excelled at responding correctly to three of the four true/false items on the survey. The sample, for the most part, knew that smoking marijuana in and of itself does not help humans fight cancer, that marijuana does not have to be chemically processed for consumption and that there has never been a reported

death attributed exclusively to an overdose of the effects of using marijuana at rates of 83.4%, 83.4% and 74.4% correct, respectively. The sample was incorrect in indicating, for the most part, that marijuana has fewer carcinogens than tobacco by weight; marijuana actually has between two and four times the amount of carcinogens as tobacco by weight (Sridhar, Raub, Weatherby & Metsch, 1994).

Table 2: Responses to the Marijuana Knowledge Test (* designates a correct answer)

Questions 1-10: Marijuana Knowledge Test	**Answers by percentage correct (%)**[6]
What year was marijuana criminalized at the federal level?	1897 – 5.6 1937 – 21.3* 1951 – 20.0 1970 – 32.5* 1977 –19.4
What year did California pass Prop 215?	1985 – 3.7 1992 – 11.2 1996 – 14.3* 2000 – 23.0 2005 – 46.6
How many States have passed legislation to permit the use of medical marijuana?	2 – 28.0 5 – 31.1 9 – 14.9 15 – 13.0* 21 – 8.7 31 – 3.1
In terms of DEA scheduling what schedule is marijuana?	1 – 16.9* 2 – 23.1 3 – 26.9 4 – 31.9
In Georgia, what is the least amount of marijuana that someone could be charged with a felony for possessing?	7g – 52.5 16g – 19.8 28g – 18.5* 56g – 1.9 1kg – 6.8
How long after stopping usage would a typical marijuana user still be likely to fail a urine drug test?	One week – 19.8 Two weeks – 18.5 One month – 48.1* Three months – 12.3
T/F Marijuana has less carcinogenic substances by weight, than does tobacco.	True – 75.3 False – 23.5*
T/F Smoking marijuana, in and of itself, helps humans fight cancer.	True – 16.0 False – 83.4
T/F Raw marijuana must be chemically processed, similarly to cocaine and heroin, before it is ready for human consumption.	True – 15.3 False – 83.4*
T/F There has never been a reported fatal overdose explicitly attributed to marijuana use.	True – 74.4* False – 25.0

[6] All questions had a missing percentage value of between .6 and 1.3.

The second section of the survey consisted of fourteen likert scale opinion questions. The findings from these items are displayed in Table 3. Overall, the sample reported favorable opinions about marijuana and related issues. Some items produced a more moderate outcome, but for the most part the sample agreed with positive statements about marijuana and disagreed with the negative statements. The sample found it more palatable to use marijuana than alcohol to relax from daily stress. The sample indicated that they felt alcohol and marijuana use led to other hard drug use at about the same rate, 39.6% for alcohol and 38.7% for marijuana. The sample reported agreement at over 80 % that marijuana users were not criminals and that convicted users should not be sent to jail or prison. As it relates to opinions on whether policing marijuana use is a waste of public funds, 68.1% of the sample agreed with this statement. This again, is more telling and substantial in a sample of mostly criminal justice majors and/or those interested in criminal justice themed courses. With more and more state governments allowing for the medical use of marijuana, the degree to which this sample saw this as an appropriate course of action was of premier interest to this research. The sample reported at a rate of 85.3% that they felt "marijuana should be available to sick people who need it for medicine." The State of Georgia has not passed such legislation as was aforementioned, but this result shows a disparity in this sample's views and the current legal status of marijuana in Georgia. This also raises questions about legitimacy of laws (Tyler, 1990), timetables for readdressing and evaluating policies at the macro level, and even ethical questions about withholding what has been shown to be an effective medical treatment.

An interesting result from this section of the survey was the degree to which the sample became defensive when responding to questions about marijuana use on or around the Georgia State campus. Even when opinions were favorable to marijuana on the whole some respondents

had concerns about drug use on campus: “I don’t think marijuana should be illegal. I don’t think any drugs should be used on school campus” (Respondent #121, age 20). One possible explanation for this might be the influence of early DARE programs to which this sample could have been exposed. Approximately fifty-seven percent of the current sample saw smoking marijuana on Georgia State’s campus as a major concern, and almost a third of the respondents felt that those caught smoking marijuana on campus should be expelled. While the group advising expulsion is the minority of the sample, having that many respondents report agreement with such a stern punishment is more credit to the reverence of the learning environment.

Table 3: Responses to Marijuana Use Opinion Questions

Questions 11-24: Opinions about marijuana and related issues	At least agree by percentage %(N)	At least disagree by percentage %(N)
There is nothing wrong with using marijuana to relax from daily stress.	62.8(103)	37.2(61)
There is nothing wrong with using alcohol to relax from daily stress.	50.6(83)	49.4(81)
Policing marijuana use is a waste of public funds.	68.1(111)	31.9(52)
Marijuana users are criminals.	19.5(32)	80.4(132)
Marijuana should be available to sick people who need it for medicine.	85.3(140)	14.6(24)
Convicted marijuana users should be sent to jail or prison.	18.9(31)	81.1(133)
Alcohol use leads to harder drug use.	39.6(65)	60.3(99)
If legalized, marijuana use would be less socially harmful than current alcohol use.	63.6(101)	36.4(58)
Marijuana use leads to harder drug use.	38.7(63)	61.4(100)
Being illegal makes marijuana use more attractive to rebellious youths.	82.8(135)	17.1(28)
Marijuana use is picked up from older peers by the youth.	62.3(101)	37.6(61)
If legalized, marijuana use would increase among the youth of America.	59.8(97)	40.1(65)
People smoking marijuana on Georgia State's campus is not a major problem.	42.9(70)	57.1(93)
Students caught smoking marijuana on Georgia State's campus should be expelled.	30.3(49)	69.8(113)

The third section of the survey deals with respondents' opinions on the influence and impact that the involvement with marijuana users could have on a college student's everyday life. The first question to this effect asked if the respondent had ever in the past witnessed others smoking marijuana on Georgia State's campus. This sample reported that 33.5% of subjects had indeed witnessed others smoking marijuana on Georgia State's campus. This statistic is

interesting considering that while only 33.5% of the sample had witnessed this behavior on campus, 57.1% reported smoking marijuana on campus to be a major concern.

The next two items on the survey addressed the samples' perspective on working on a group school assignment with a person they knew to be a marijuana user. The respondents (82.9% and 78.3% respectfully) indicated that working on a school assignment with a marijuana user would not bother them and that they believed that working on a group project with a marijuana user would not negatively affect their grade. Additionally, 80.5% of the sample reported having marijuana using friends, but only 57.1% indicated that they would date someone that used marijuana. While the last variable still encompassed a majority of the sample, it is somewhat telling that over 80% of the sample allows marijuana users into their friend networks, but significantly fewer respondents allow marijuana users into their intimate lives. The next chapter includes statistical analysis performed on this collected data using SPSS 18, and will display more elaborate comparisons between and among the variables collected in this survey.

Table 4: Questions about Marijuana Use in Everyday Life

Questions 26-30: Marijuana in Everyday Life	**%(N)**
Have you ever witnessed others smoking marijuana on Georgia State's campus?	Yes – 33.5(55) No – 66.5(109)
Would working in on a school group assignment with a marijuana user bother you?	Yes – 17.1(28) No – 82.9(136)
Do you think that being in a school group project with a marijuana user would negatively affect your grade?	Yes – 21.7(35) No – 78.3(126)
Would you date someone that used marijuana?	Yes – 57.1(92) No – 42.9(69)
Do you have friends that use marijuana?	Yes – 80.5(132) No – 19.5(32)

Chapter V
Results

A major focus of this research was to determine to what extent knowledge about marijuana laws and related issues has on the formation of positive or negative opinions about marijuana use. The first section of this chapter addresses the first hypothesis outlined in the previous chapter.

> H1: The respondents that display a higher degree of knowledge about marijuana laws and practical issues related to the drug will report a more positive view of use of the substance in the attitudinal section.

Table 5 includes a more elaborate breakdown of the results from the marijuana knowledge test and the net score for the opinion of marijuana use outcomes of the survey. The mean score for the knowledge test was a 4.18, with the mode and median both being four. The range for the sample's test scores was eight, from zero to eight. None of the respondent correctly responded to more than eight of the ten items in this section of the survey. The standard deviation for this variable was 1.344. The graphical representation of the distribution of this variable can be seen in Figure 1 below. The histogram produced from this analysis is fairly normally distributed, with a slight positive skew. This could be expected with a mean higher than the mode and the median

Table 5: Descriptive Statistics for the Marijuana Law Knowledge and Opinion of Marijuana Use Outcome Variables.

Measure of Knowledge and Opinions	Statistics
Marijuana Knowledge Test Score – ten questions scored right or wrong produced a scale of 0-10	Mean–4.18 Median – 4.00 Mode - 4 Standard Deviation – 1.344 Variance – 1.805 Range - 8
Likert Scale Opinion Score – fourteen likert scale questions with a value of +1 for responses favorable to marijuana use and -1 for responses negative towards marijuana use produced a scale of -14 to +14.	Mean – 2.74 Median – 4.00 Mode - 4 Standard Deviation – 5.301 Variance – 28.097 Range - 26

The descriptive statistical analysis of the opinion of marijuana use score variable, shown above in Table 5, produced another reasonably normal distribution of responses (see also the histogram in Figure 2 below). The mean for this measure was 2.74, with a median and mode of four. The range of this variable's responses, twenty-six, was greater than the knowledge score, as this variable is measured on a larger scale of -14 to 14. The scores ranged from one purely positive opinion score of fourteen, to three respondents indicating an opinion score of negative twelve. The standard deviation from the mean score of 2.74 was plus or minus 5.301 opinion units. The mean score below the mode and the median illustrates the pull of negative outliers of responses outside of the first two standard deviation units away from the mean. Overall, the execution of this wave of data collection produced a much tighter set of variables and more significant findings during analysis.

Figure 1: Distribution of the Knowledge of Marijuana Laws Variable

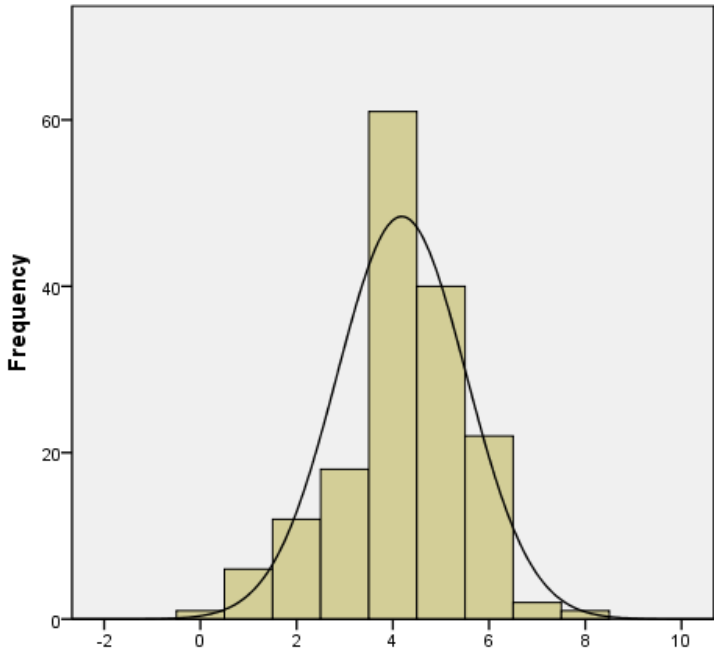


Figure 2: Distribution of the Opinion of Marijuana Use Variable

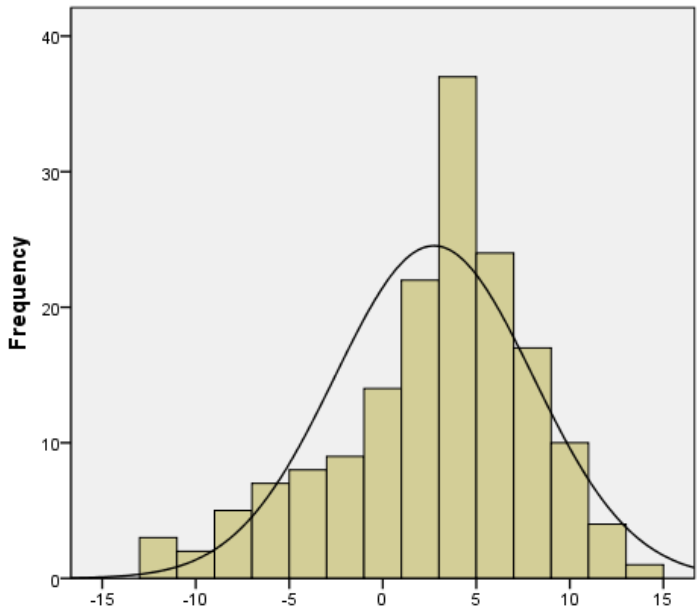
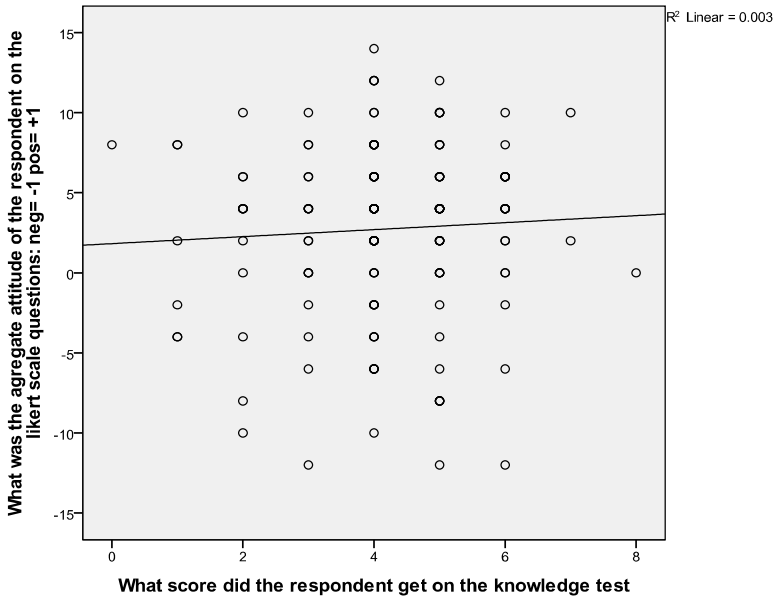


Table 6 shows the results of a Pearson's correlation analysis of the effect of the results of the respondent's knowledge score on the respondent's place on the opinion scale. This analysis produced a liner slope of the graphical relationship between these two measures that is relatively flat. The relationship, or lack thereof, is further illustrated below in Figure 3. In light of this finding, conclusions about this sample must hold that knowledge and opinions of marijuana are not related.

Table 6-Correlation between Knowledge Test and Opinion Score

	Pearson's r	**Sig (2 tailed)**
Knowledge Test and Opinion Score	.055	.482

Figure 3: Relationship between Knowledge Test and Opinion Score



To further address the issue of building opinions based on personal experience/knowledge, the cross tabulation presented below in Table 7 shows that of the 54 respondents who had seen someone smoking marijuana on campus, only nine (16.7%) agreed that those caught smoking marijuana on campus should be expelled. For those 108 respondents

that had not seen someone smoking marijuana on campus, 40 (37%) indicated that they felt that those caught smoking marijuana on campus should be expelled.

Table 7: Cross Tab of Seeing Someone Smoking Marijuana on Campus and Opinions on Expulsion for that Offense

Have you witnessed other smoking marijuana on Georgia State's campus?	**Students caught smoking marijuana on campus should not be expelled (113)**	**Students caught smoking marijuana on campus should be expelled (49)**	**Totals 162**
Yes (54) **% Within have you witnessed other smoking** **% Within agree/disagree for expelled** **% of Total**	45 83.3% 39.8% * 27.8%	9 16.7% 18.4%* 5.6%	54 100% 33.3%* 33.4%
No (108) **% Within have you witnessed other smoking** **% Within agree/disagree for expelled** **% of Total**	68 63% 60.2%* 42%	40 37% 81.6%* 24.7%	108 100% 66.7%* 66.7%
Phi value for crosstab	.209	Approx. sig.008	

* In table designates the percentage of respondents that shared responses on the agree/disagree for should be expelled and totals should be added vertically.

Two conclusions can be drawn from this analysis about the sample. First, if a respondent has seen someone smoking on campus, they will be more likely to disagree with expulsion as a punishment for the behavior. Second, while the majority of both witness experience groups disagree with expulsion, those that have not seen actual marijuana use are twice as likely to support the minority prescription of expelling those caught smoking marijuana on campus. This is not an attempt to define punishments for violations of University policy. Instead this just indicates that the respondents with personal witnessing experience seem to view marijuana use as less harmful to the learning environment. If knowledge of marijuana laws and opinions about marijuana use are not related among this sample (see Table 6 above), the next question to be addressed is what survey responses could be used to predict one or the other score independently? Tables 8a through 9b display the results of multiple linear regression (MLR) models predicting the two score variables while controlling for a variety of demographic

variables and the responses for the marijuana in everyday life section of the survey for first the knowledge test scores and then the net opinion outcomes. The demographic variables included in the model are sex, coded and 0 for males and 1 for females, age of the respondent, the race of the respondent, coded as 0 for white and 1 for non-white and political affiliation which has been dummy coded to compare conservatives and moderates to liberals in the sample. Additional variables included in these models are the indications of whether or not the respondents had seen other smoking marijuana on GSU campus, if the respondents thought that working on a school project with a marijuana users would bother them or negatively affect their grade, whether the respondent would date a marijuana user, whether the respondents have friends that use marijuana (all coded as 0 for yes and 1 for no), and at what age the respondents thought that most people instigate marijuana use.

Table 8a: MLR on Knowledge Score—Variance Explained

Model (knowledge test)	R	R squared	Adj R Squared	Std Error of the Estimate
2	.300	.090	.019	1.305

Table 8b: MLR on Knowledge Score—Estimates

	B	Std Error	Beta	t	Sig
Constant	4.488	1.182		3.797	.000
Sex	-.492*	.244	-.184	-2.198	.030
Age	.030	.020	.128	1.495	.137
Race	-.047	.068	-.058	-6.95	.488
School Work	-.082	.187	-.045	-.436	.663
Witnessed	-.350	.249	-.126	-1.405	.162
Date	-2.81	.252	-.106	-1.115	.267
Friends	.223	.323	.066	.690	.491
Age of Onset	-.018	.066	-.024	-.281	.779
Opinion	.000	.026	.001	.007	.995
Conservative	-.219	.154	-.435	-1.429	.155
Moderate	.231	.147	.473	1.569	.119

sig at the .05 level

For the knowledge scores, the MLR model only explained 9% of the variance and only one variable showed a significant relationship. Sex, coded as 0 for male and 1 for female, produced a B-value of -.492 with a sig. value of .030. This means that within the sample, females could be predicted to earn a knowledge score half a point lower than a comparable male

respondent. The variables of political affiliation, the opinion outcome, and predicted age of onset for marijuana use all proved insignificant for predicting the knowledge score produced by the respondents. This analysis further shows the overall lack of knowledge to be fairly consistent and, with the exception of sex, knowledge does not appear to vary across demographic characteristics. Where the knowledge score is unpredictable, the opinion outcome is heavily influenced by a similar MLR model shown in Tables 9a and 9b below.

Table 9a: MLR on Opinions Score—Variance Explained

Model (Opinion Outcome)	R	R Squared	Adj R Squared	Std Error of Estimate
3	.636	.405	.358	4.269

Table 9b:MLR on Opinion Score—Estimates

	B	Std Error	Beta	t	Sig
Constant	-2.713	4.054		-.669	.504
Sex	-.280	.745	-.026	-.376	.707
Age	.107	.066	.111	1.612	.109
Race	.424	.220	.129	1.923	.057
School Work	3.085*	.554	.418	5.566	.000
Witnessed	-1.125	.814	-.101	-1.382	.169
Date	-3.046*	.786	-.285	-3.874	.000
Friends	-.711	1.057	-.052	-.672	.502
Knowledge	.002	.276	.000	.007	.995
Age of Onset	.022	.215	.007	.100	.920
Conservative	.262	.505	.129	.519	.605
Moderate	-.112	.486	-.057	-.231	.818

* sig. at the .05 level

For the opinion outcome variable the constructed model for predictability produced an R squared value of .405. This indicates that over 40% of the variability in the opinion outcomes can be predicted by this model. As such, two of the model predictors exerted statistically significant influence on the opinion outcomes. First, if a respondent indicated that they would not date a marijuana user, the opinion outcome would be predicted to fall by three points. Second, if the respondents indicated that working on a group project with a marijuana user would not bother them and they did not believe it would negatively affect their grade, their predicted opinion outcome would rise by three points. Additionally, the race variable produced a B-value of .424 and a p-value of .057, which is on the edge of significance. Thus, it would appear that non-white

respondents could be predicted to have about a half a point increase over their white counterparts in their net opinion outcomes.

What the models in Tables 8 and 9 show is that while knowledge of marijuana laws and practical issues seems to be more or less a low constant, the opinion score appears to be a measure with a larger amount of flux and variability. Logically, it would not be a stretch to assume that users of marijuana would have a more favorable opinion about the substance—however the current survey did not ask respondents whether they had currently and/or previously used the drug. The degree to which this is a predictor of the opinion measure and what impact personal use has on the other modal relationships will be at the core of this research moving into future waves of the survey.

The main foundation of this thesis was to determine if opinions about marijuana are based on knowledge of the substance. Based on the results of this analysis, it would appear that the knowledge, or lack thereof, does not impact the respondents' opinions of marijuana use. Instead, indications about the acceptance of marijuana users into one's personal circle, and to a lesser degree some demographic factors, seems to be the most impactful for predicting perceptions of marijuana use among this college sample. All of these findings could be changed by the inclusion of a variable to measure the respondents' personal experience with the use of marijuana. Through these preliminary findings the path can be forged to direct further research to be more targeted and more fruitful. Measuring rates of respondents' marijuana usage will be beneficial to determining influences on opinion outcomes, and will serve as another indication as to the popularity of this type of substance use in a college setting.

As outlined in the prior chapter, this thesis was also interested in examining respondents opinions on issues related to the social learning of marijuana use and whether they viewed

marijuana as a gateway substance that leads to more serious drug use. Beginning with the social learning issue, the following hypothesis was tested and is displayed in Table 10.

H2: Marijuana use will be seen as a learned behavior by the sample.

An ordinal regression model was created to test the effect of the demographic variables on the survey items dealing with the social learning perceptions of the sample. The outcome variables of interest in this analysis were measured on a likert scale from (1) strongly disagree to (4) strongly agree. Included in this model are the variables of sex, age, race (coded as 0 for white and 1 for non-white respondents), political affiliation of conservative and moderates compared against liberal respondents and finally the knowledge test score result. For the first item, marijuana use is a habit picked up by the youth from older peers, the only significant influencing variable was race. In this sample those individuals that self-identified as belonging to a non-white racial group were more likely to disagree with the statement that marijuana use is picked up by the youth from older peers.

The second item concerning Social Learning Theory, if legalized marijuana use would increase among the youth, was analyzed using the same model of demographic variables. For this item only age was shown to have a significant impact on the agreement or disagreement with this survey question. In this sample older individuals were more likely to disagree with this statement based on the results of this analysis. Related to H2, in Table 3 of the previous chapter, a majority of respondents were seen to indicate that marijuana use is picked up from older peers and that if legalized, marijuana use would increase among the youth. These findings lend support to the foundation of H2, which predicted that the sample would indeed perceive marijuana use to be a socially learned behavior. Whether or not this is a negative aspect of the behavior is not addressed by this analysis. Marijuana use is a unique form of deviant behavior in this

criminological SLT context and the issues of societal right and wrong are not a focus of this research. It is interesting that neither of these items dealing with SLT were affected by the respondents' political affiliation, as this perception of marijuana in a SLT context is a highly politicized element of the public debate about marijuana's legal status.

Table 10: Ordinal Regression for Social Learning Theory – Estimates

	Picked up by Youth		**Increased Use if Legalized**	
	Estimate	**S.E.**	**Estimate**	**S.E.**
Sex	-.029	.323	-.097	.310
Age	-.007	.028	-.077*	.028
Race	-.325*	.112	.040	.093
Conservative	.231	.220	-.013	.209
Moderate	-.218	.213	.016	.202
Test Score	-.036	.119	.038	.115

*** sig at the .05 level**

Another paramount issue in the political debate about marijuana is to what degree it is, or seen as, a gateway step in substance use escalation. To test the effect of the demographical make-up of this sample on its perception of marijuana and alcohol as gateway substances, the two survey items, measured on a 1-4 likert scale, which addressed these notions, were analyzed using the same ordinal regression model used to test the hypothesis about SLT. The two hypotheses to now be discussed are:

H3: Marijuana is not seen as a gateway drug by the sample.
H4: Alcohol is seen as a gateway drug, more so than marijuana, by the sample.

Table 11 is the visual display of this ordinal regression. This analysis of the gateway theory of substance escalation was less productive in its predictability for determining if particular demographic groups are more likely to perceive alcohol or marijuana as gateway substances. For the survey item about alcohol, only age was seen to be a significant predictor with older respondents more likely to disagree with this assessment of alcohol as a gateway substance. As to marijuana's role as a gateway substance, the sample was not predictable in its responses based

on any of the demographical variables included in the model. To further address this issue, Table 12 is a crosstabulation of the sample's responses to these two survey items about alcohol and marijuana's roles as gateway substances.

Table 11: Ordinal Regression for Alcohol and Marijuana Gateway Effect – Estimates

	Alcohol Gateway		**Marijuana Gateway**	
	Estimate	**S.E.**	**Estimate**	**S.E.**
Sex	-.354	.310	-.281	.308
Age	-.068*	.029	-.002	.027
Race	.149	.097	-.048	.092
Conservative	.163	.209	-.185	.208
Moderate	-.181	.202	.135	.201
Test Score	-.032	.115	-.070	.115

* sig at the .05 level

Table 12: Crosstabulation for Marijuana and Alcohol as Gateway Substances

	Alcohol as gateway Agree (N)	**Disagree (N)**	**Totals (N)**
Marijuana as Gateway Agree (N)	33 (20.2%)	30 (18.4%)	63 (38.6%)
Disagree (N)	32 (19.6%)	68 (41.7%)	100 (61.4%)
Totals (N)	65 (39.9%)	98 (60.1%)	163 (100%)

% are of the total N=163.

From this display it can be seen that only 20.2% of the sample saw both marijuana and alcohol as gateway substances. Twice as many respondents (41.7%) indicated that they perceived neither marijuana nor alcohol to be a gateway substance; in the manner that the individuals personally understand what it is for a substance to be a gateway drug. About the same amount of respondents identified either marijuana (18.4%) or alcohol (19.6%) individually as a gateway substance. As this relates to the stated hypotheses, the largest category in this crosstabulation was that neither substance was viewed as a gateway substance. Still, most of the respondents (58.3%) perceived at least one or the other substance as a gateway substance. Additionally, the level to which marijuana and alcohol were seen as gateway substances was fairly even, 38.6% for

marijuana and 39.9% for alcohol. Thus it can be said that the majority of this sample did not perceive marijuana as a gateway substance, and that the degree to which the minority of the sample perceives marijuana and alcohol to be gateway substances is relatively equal. These findings support H3 and cast doubt on H4.

In sum, this wave of data collection produced a viable set of data, from which a variety of findings about this college-aged samples' perceptions about contemporary issues related to marijuana use, laws and practical applications of the substance in today's America have been drawn. The following chapter will discuss these findings in more details, note limitations of the current study, and outline issues to be addressed in future waves of this survey.

Chapter VI
Discussion and Conclusions

Discussion

The main goal of this thesis was to determine to what degree a sample of college students' opinions about marijuana use were related to the knowledge of practical and legal issues related to marijuana use. The statistical analysis of the survey responses showed that among this sample of 163 college students in four classes at Georgia State University opinions about marijuana use were unrelated to knowledge, or a lack there of, of practical and legal issues of marijuana use as measured by the marijuana knowledge test administered in section one of the survey. Additionally, very few variables measured in the survey had any effect on either one of these two items, knowledge or opinions of marijuana. Only sex of the respondent could be predicted to significantly influence the knowledge test score, with males being predicted to have a score one half of one point higher than their female counterparts. The only predictors that were significantly impactful in influencing the opinion score were items dealing with the social and scholarly incorporation of marijuana users into a respondent's daily life. One of the prolific predictors was whether or not the respondents would date a marijuana user. While this item displayed statistical significance, it could be argued that this measure is just an extension of the opinionated questions. The overall opinion outcome showed the sample to have a slightly positive view of marijuana, with the average opinion of 2.74 on a scale ranging from -14 to 14. There has been an association between marijuana use and college attendance since the popularization of marijuana use in the 1960s among the counter-culture. Thus, it could have been predicted that even among this majority criminal justice major sample, these college students would have a positive view of marijuana.

Conversely, the low level of knowledge of the practical and legal issues addressed in the survey was surprising. The average sore on the knowledge test for this wave of subjects was 4.18

on a scale from 0-10. No respondent correctly answered all of the questions in this assessment. Perhaps by surveying low-level courses in criminal justice the sample has simply not been exposed to these issues yet, but the overall lack of knowledge about legal and practical issues related to marijuana and the lack of a criminological based course in substance use at Georgia State University is a call for the institution of such a course. As it relates to this sample, opinions about marijuana use are not related to the knowledge assessment carried out in this investigation.

The next topic addressed in the analysis of this wave of data was to what degree the sample saw marijuana use as a learned behavior. Social Learning Theory (SLT) holds that the vast majority of human behavior is learned from observation or participation in said behaviors. It is this passage of marijuana use behaviors that lead, somewhat, to the later formation of the gateway theory of substance use escalation. This sample did indeed see marijuana use as a socially learned behavior. Because of this behavior being socially learned, the sample also felt that legalization of the substance would increase its use among the youth of America. This aspect of marijuana use is interesting because past studies have shown available marijuana to be a substitute for alcohol or other drug use. This begs the question of which substance, marijuana or alcohol, would a sample prefer youths to use illicitly? Currently marijuana use must be socially learned due to its legal status. Through association with marijuana using groups new users will be able to acquire and find acceptance for use of marijuana. The sample saw marijuana use as a socially learned behavior, but how, and more importantly, why this behavior is passed down will be future focuses of subsequent waves of data collection.

Does this social learning of marijuana use contribute to individuals escalating their substance use to more dangerous substances? This sample did not see marijuana or alcohol as gateway substances that lead to harder drug use. The neat, causal gateway notion associated with

marijuana and substance use escalation seems to be falling out of popular belief, even among a sample that is ignorant to so many practical and legal aspects of marijuana. By not identifying either marijuana or alcohol as a gateway substance this sample lends credence to the universal draw of substance use put forward by Morral, McCaffery, and Paddock (2002). Willing young people try whatever substance that is available to them, be it marijuana, alcohol or methamphetamines. The gateway mantle has been a burden unfairly attributed to marijuana since the escalation of the war on drugs in the 1980s. With a better understanding of the universal draw model, it seems counter-productive to label one substance, marijuana, as a gateway and allow dozens of advertisements daily in print, radio, television, and on the internet promoting another substance, alcohol.

People form opinions about things and concepts surrounding their daily lives, 80.5% of the respondents reported having marijuana using friends. Some people learn behaviors and then teach them to others, marijuana use is no exception. People will use substances like marijuana and alcohol if they have a want and access to said substances. The results from this analysis call for informing populations with interest about these topics instead of fear mongering and outdated political banter. Alcohol is promoted and pushed in thousands of stores, bars, and media outlets. Marijuana is a punch line in popular culture until its use comes to the attention of formal authorities. The debate about marijuana's legal status has been going on for some time in this country, and it would seem from the views of this sample and the direction of legislation surrounding this topic that progress seems to be moving in the direction of rationality and an overall positive perception of marijuana use.

Limitations

The Shackleford Marijuana Perception Survey is an independent construction for use in this series of data collection. The included data in this analysis come from the second wave of data collection. As such, this survey instrument will undergo considerable adjustment based on the experiences during this wave of data collection. The most prominent facet of the survey to be reformed will be the inclusion of questions addressing the respondents' personal experience with using marijuana. The lack of this item in the current survey contributed to shortcomings during the analysis. Additionally, the questions in the knowledge section will be reexamined to determine if these questions are the best suited to distill a measure of a respondents' knowledge of marijuana laws and practical issues related to the substance. Currently the lack of knowledge displayed by the sample could be attributed to the potential arbitrariness of the questions asked. The opinion section might also be altered to incorporate some of the questions from section three, marijuana in everyday life. The present opinion measurement can be seen as lacking somewhat in its targeting of issues and general understandability as the meaning of some of the questions in this section might have been misinterpreted by the respondents. The wording of the questions dealing with marijuana use around GSU seemed to be somewhat confusing.

Some elements of the experimental design can also be improved upon based on the limitations of the current wave of data collection. The recruitment of participants needs to be expanded to include a wider range of academic backgrounds. Moving the conduction out of a classroom environment might also serve to make participants in this survey not feel obligated to participate and draw out more honest responses. Increasing the avenues of recruitment will also serve to raise the amount of potential participants, as this wave's final N=163 was smaller than initially intended. Currently, the findings of this analysis are limited in their generalizability to

the overall GSU population based on the lack of variability in academic majors and the average age of the sample participants being younger than that of the total undergraduate population at GSU. In the face of internal and external validity issues, this wave of data collection was a vast improvement on the previous wave of collection. It is through continued exposure and practice that this living survey will be able to evolve and change to better suit its directives of producing valid and reliable results.

Future Research

The future of this research going forward will incorporate all the findings from the current study and to scope these findings in a context that includes the respondents' personal experience with marijuana use. That is, would having knowledge of the respondents' personally using marijuana change the outcomes found in this analysis. How does personal use among a like sample vary based on a variety of demographic indications? How does personal experience contribute to the opinions about marijuana use, and how does this relationship mediate or mitigate the relationships identified in this analysis as significant?

Additional improvements to the survey will address elements of this debate dealing with a hypothetical arena where marijuana use is legalized to determine if there is something inherent to marijuana or simply its legal status that is driving formation of opinions. Comparisons between marijuana and alcohol use in a purely recreational college dorm room environment context, away from the classrooms, but still on campus could be included in revisions to this survey. The formal knowledge and opinion score measurements are new to this second wave of data collection. As such, their ability to accurately measure their charged directives is limited, but through the process of conduction a wave of data collection items can be discounted and new items proposed to bolster reliability and validity.

The next waves in this series will be able to build off of this first wave of really fruitful data collection, and from this foundation build a pool of academic knowledge that will be able to be compared across academic majors and a variety of demographics. By adding new and better items to this survey instrument it is hoped that this survey will be administrable in other college environments by researchers other than the architect of the survey. The heart of the survey reforms going forward will be the inclusion of items asking about the respondents' personal experience with using marijuana. The need for these questions was pointed out by one of the respondents who noted on the survey that "[n]one of the questions specifically asked about my personal use of marijuana; which I thought would have been asked" (Respondent #28, age 23). Thus, at least some of the respondents seem to want to answer questions about their personal experience with using marijuana and through the evolution of this survey the next wave of data collection will oblige this request.

Conclusions

The major focus of the research was to determine to what degree opinions about marijuana use were based on knowledge of practical and legal issues associated with marijuana use. The analysis of the collected survey data indicates that opinions and knowledge about marijuana are not related as measured in this analysis. The knowledge of these practical and legal aspects of marijuana use was shown to average at 41% for correct responses and none of the respondents correctly responded to all ten questions in the knowledge test. This is somewhat startling to know that in this time of prolific legislative interest in this topic that a voting age population would be so uninformed about a variety of practical and legal issues of marijuana use that could soon directly affect their lives. Furthermore, this sample of mostly criminal justice majors needs to be informed about practical and especially legal aspects associated with

marijuana use in today's America. Vast proportions of organizational budgets in the professional realm of criminal justice are allocated to address issues related to substance use. As a majority these persons sampled are pursuing a college degree in criminal justice, their knowledge about substances and their use is critical not only to their own personal advancement but also that of effective policies developed upon their future professional recommendations.

The final lens through which to interpret this finding of ignorance of practical and legal aspects of marijuana use is that of the users. People use marijuana. This sample showed ignorance about a variety of issues related to the use of marijuana. To reduce the potential harm created from the ignorant use of marijuana, it makes sense to try and inform youths and allow those willing and able to use marijuana the opportunity to make an informed decision and then be accountable for their actions. Prevention efforts targeted at younger and younger individuals do not work to effectively reduce the usage of substances (West & O'Neal, 2004). Since abolition of substance use is not a realistic possibility, accurately informing young people about these substances, their use and effects seems to be the next best thing.

Opinions about marijuana use in this sample were shown to be related to the degree to which marijuana users played, or were proposed to play, a role in the respondent's everyday life. Based on this, the next execution of this survey will include items targeted at determining the level to which the respondents have personally used marijuana. A wide range of opinion scores were found across a wide variety of demographic indications. Age, sex, political affiliation and race were all seen to be ineffective at predicting increases or decreases in a respondent's opinion of marijuana use. Still, the average opinion score was positive. In past studies criminal justice majors have been shown to report a more punitive stance on issues related to law enforcement, so a comparison of this predominantly criminal justice majored sample to a more across the

board sample of college students might offer a clearer picture of the harshness of criminal justice majors opinions about legal and practical issues related to marijuana use. This sample displayed an overall positive opinion about marijuana use, but based on the analysis the drives behind this positive stance, from a criminal justice majored population, was undetermined. The inclusion of items addressing respondents' personal use of marijuana will hopefully serve to shed light where the present analysis fell short.

The final conclusion about this analysis looks at the degree to which the sample (1) saw marijuana as a socially learned behavior and (2) saw marijuana as a gateway substance. The context of social learning theory is usually framed in a negative context when addressing matters of criminality. It is bad to learn criminal behavior in lieu of more socially accepted behaviors. Marijuana use breaks from this mold. Over eighty percent of this sample reported having marijuana using friends, and only 38.7% of the sample saw marijuana as a gateway substance. While still illegal, it seems that marijuana use is perceived to be a socially learned criminal behavior, but, at the same time, it is seen as one that is socially accepted to a greater degree than other forms of criminality – i.e. theft or fraud which might be more socially frowned upon. In much the same way that individuals are initiated into adult alcohol use, legally at least at age twenty-one, the social learning of marijuana use seems to be acceptable by this sample. The drivers behind this acceptance could be attributed to a more widespread appreciation of the universal draw of substance use in redefining the role of any and all substance as potential gateways into escalation of other substance use. Marijuana is not the only or main gateway substance, but in some cases it can be a gateway substance. The removal of definite causal gateway substances in the model of the universal draw places a premium on personal choice and accountability. This explanation is also more difficult to measure, define and study than a direct

causal gateway model, but based on past research and the current analysis, the universal draw of substance use behavior seemingly has more explanative power to describe human substance use behaviors.

Going forward, this analysis has shown that this sample of college students is, on the whole, ignorant to a variety of practical and legal issues related to marijuana. In this time of mass legislative reform concerning this issue, a premium should be placed on providing more accurate information to replace propaganda on both sides of this debate. Marijuana has medical uses and limited addictive properties. Marijuana is also a powerful psychoactive substance that has a variety of effects on human physiology. While there is no correlation between the opinions and the knowledge of this sample about issues related to marijuana, the across the board lack of knowledge displays the lasting effect of the spread of misinformation. The real danger associated with marijuana use in America today is when decisions are made to promote, criminalize, cultivate, or constrain marijuana use based on misinformed holdings and beliefs. This is a topic in need of much fresh research and meaningful debate. It has been the goal of this research to gauge opinions of marijuana use among a college student sample and compare those opinions to the sample's knowledge of legal and practical issues related to marijuana use. In summary, as with many issues up for public debate, knowledge was shown to be lacking and opinions showed as many variations as there were subjects in the sample.

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Appendix 1

Shackleford Marijuana Perception Survey 2011

The following survey is intended to measure popular perceptions of issues associated with marijuana use, both recreational and medical in nature. This survey will be used for academic research purposes only; however, if there are any questions that you feel uncomfortable answering, please feel free to skip them and move on in the survey.

Section 1: Marijuana Knowledge Test

Questions 1-6 are multiple choice questions. Please select only one answer for each question

1. What year was marijuana criminalized at the federal level?
   a) 1897 b) 1933 c) 1951 d) 1970 e) 1977
2. What year did California pass Proposition 19, which allowed for the use of marijuana for medical purposes?
   a) 1985 b) 1992 c) 1996 d) 2000 e) 2005
3. How many States have passed legislation to permit the use of medical marijuana?
   a) 2 b) 5 c) 9 d) 15 e) 21 f) 31
4. In terms of DEA scheduling of drugs, with schedule one being the most dangerous and four being the least, what schedule is marijuana?
   a) 1 b) 2 c) 3 d) 4
5. In Georgia, what is the least amount of marijuana that someone could be charged with a felony for possessing?
   a) 7 grams b) 16 grams c) 28 grams d) 56 grams e) 1 kilogram
6. How long after stopping usage would a typical marijuana user still be likely to fail a urine drug test?
   a) 1 week b) 2 weeks c) 1 month d) 3 months

Questions 7-10 are True or False questions

7. True or false, marijuana has less carcinogenic substance by weight, than does tobacco.
   a) True b) False
8. True or false, smoking marijuana, in and of itself, helps humans fight cancer.
   a) True b) False
9. True or false, raw marijuana must be chemically processed, similarly to cocaine and heroin, before it is ready for human consumption.
   a) True b) False
10. There has never been a reported fatal overdose, explicitly attributed to marijuana use.
    a) True b) False

Section 2: Perceptions and Opinions

Next, please answer the next set of questions having to do with your personal opinions about these issues related to marijuana with the following scale of 1-4, where (1) is strongly disagree, (2) is disagree, (3) is agree and (4) is strongly agree.

11. There is nothing wrong with using marijuana to relax from daily stress.	1	2	3	4
12. There is nothing wrong with using alcohol to relax from daily stress.	1	2	3	4
13. Policing marijuana use is a waste of public funds.	1	2	3	4
14. Marijuana users are criminals.	1	2	3	4
15. Marijuana should be available to sick people who need it for medicine.	1	2	3	4
16. Convicted marijuana users should be sent to jail or prison.	1	2	3	4
17. Alcohol is a gateway drug.	1	2	3	4
18. Marijuana is more harmful than alcohol.	1	2	3	4
19. Marijuana is a gateway drug.	1	2	3	4
20. Being illegal makes marijuana use more attractive to rebellious youths.	1	2	3	4
21. Marijuana use is a habit picked up from older peers among the youth.	1	2	3	4
22. If legalized, marijuana use would increase among the youth of America.	1	2	3	4
23. People smoking marijuana on Georgia State's campus is not a major problem.	1	2	3	4
24. Students caught smoking marijuana on Georgia State's campus should be expelled.	1	2	3	4

Section 3: Marijuana in Everyday Life

25. At what age do you think most people smoke marijuana for the first time?_____

26. Have you ever witnessed others smoking marijuana on Georgia State's campus? (please circle)

Yes No

27. Would working in on a school group project with a marijuana user bother you?

Yes No

28. Do you think that being in a school group project with a marijuana user would negatively affect your grade?

Yes No

29. Would you date someone that used marijuana?

Yes No

30. Do you have friends that use marijuana?

Yes No

Please answer the following questions about yourself. This is to compare the surveyed sample to the overall Georgia State population.

31. What is your age? _____

32. What is your class year? a) freshmen b) sophomore c) junior d) senior

33. What is your academic major? _____

34. What is your sex? a) Male b) Female

35. What racial group do you identify with?

a) African American/Native African b) White c) Latino/Hispanic d) Asian e) other

36. Thank you for your participation and feel free to provide any additional comments that you might have about marijuana, other drugs or any other related topic in America Today.

_____

_____

_____