

The Relationship between Attitudes toward Deviance and Deviant Behavior: The Influence of
Science, Individualism, Social Bonds and Deviant Peers

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ABSTRACT

Various sociological theories of deviance have demonstrated the importance of an individual's attitudes toward deviance in determining whether or not that individual will engage in deviant behavior. This research contributes to the theoretical and empirical literature on deviant behavior by examining the strength of two cultural factors, the scientific worldview and individualism, in predicting an individual's attitudes toward deviance when tested alongside the tenets of other predominate individual level theories of deviance, namely Hirschi's (1969) social control theory and Sutherland's (1939) differential association theory. The sample for this analysis is 202 students from a large research university in Southwest Virginia. The findings of this research lend support to Sutherland's (1939) differential association theory and to the scientific worldview as significant predictors of tolerant attitudes toward deviance. Several of the bonds of Hirschi's (1969) social control theory were also supported in this research; however, some failed to predict deviant behavior, leading to the conclusion that future research should focus on clearly elucidating the conceptualization of the social bonds forwarded in the original theory. Finally, the cultural ideology of individualism was not a significant predictor of tolerant attitudes toward deviance in this study. Future empirical studies should work to more clearly operationalize this variable as Hawdon (2005) described it and investigate the variables significance as a predictor of tolerant attitudes toward deviance.

Dedication

I am dedicating this work to my family: my mom Jackie; my father, Tommy; and my younger brother, Thomas. Without their support I would not have been able to accomplish this goal. Thank you all.

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CHAPTER I

INTRODUCTION

Tests of sociological theories of deviance including problem-behavior proneness theory, differential association theory, and social control theory have demonstrated that attitudes toward deviance are an important predictor of who will engage in a variety of behaviors socially defined as deviant. More recently, Hawdon (2005) has argued that the cultural ideologies of science and individualism are some of the driving factors behind an individual's tolerance of deviance. The purpose of this research is to examine if the extent to which individuals adopt the cultural ideologies of science and individualism influence their attitudes toward deviance and to determine the strength of science and individualism as predictors of deviance when they are tested along with the constructs of Hirschi's (1969) social control theory and Sutherland's (1939) differential association theory. In addition to testing the overall model to determine the effects of the independent variables on tolerant attitudes toward deviance and deviant behavior, I will also be testing the model separately by gender. Conducting a separate gendered analysis is important because many of the theoretical and empirical statements on tolerant attitudes toward deviance and deviant behavior have found significant gender differences between males and females. While I am not proposing a general theory of crime, I am arguing that other theories of crime and deviance, some of which have proposed to be general theories of crime, have possibly ignored larger cultural factors that may be involved in the process of becoming deviant. For the purposes of this study, I am adopting a reactivist definition of deviance. Thus, deviant behavior is defined as any behavior that violates the norms of a society and elicits a negative formal or informal sanction. The research questions for this study are:

1) When controlling for known predictors of deviant behavior, specifically the social bonds of control theory (Hirschi 1969) and association with deviant peers (Sutherland 1939), does holding a secular scientifically oriented worldview indirectly lead to deviant behavior by influencing attitudes toward deviance?

2) When controlling for known predictors of deviant behavior, specifically the social bonds of control theory (Hirschi 1969) and association with deviant peers (Sutherland 1939), does adopting the cultural ideology of individualism indirectly lead to deviant behavior by influencing attitudes toward deviance?

CHAPTER II

REVIEW OF THE LITERATURE

The Importance of Attitudes toward Deviance

The sociological literature on deviant behavior has empirically demonstrated that an individual's attitudes toward deviance are a significant predictor of whether or not he or she will engage in deviance. Research has shown that favorable attitudes toward deviance are correlated with a wide variety of behaviors, including status offenses (Stylianou 2002), drug and alcohol use and abuse (Durkin et al 2005; Benda 2005; Hawdon 1996a; 1999; 2004; Stylianou 2002), sexual activity (Hope and Chapple 2005; Gillmore et al 1998; Costa et al 1995) and criminal activities ranging from gang membership (Hope and Damphouse 2002) to interpersonal violence (Li 2004) and economic crimes (Hawdon 1999; Li 2004; Ford 2005). In addition to the empirical research that has established favorable attitudes toward deviance as a significant predictor of deviant behavior, attitudes toward deviance are also directly and indirectly incorporated into many of the most prominent theoretical statements on deviant behavior. I now turn to a review of these theories to highlight how they explicitly or implicitly include attitudes toward deviance in their explanations of deviant behavior.

Problem behavior proneness theory and attitudes toward deviance

Problem behavior proneness theory (Jessor and Jessor 1977) specifically includes reference to an individual's attitudes toward deviance. This theory is a social-psychological theory that examines the relationship between three major systems that are believed to influence an individual's lifestyle: the personality system, the perceived environment system, and the behavior system. Each of these systems influences the individual separately, but they are also

interdependent. Further, within each of these systems is a structure of variables that all interact to “generate a resultant, a dynamic state that implicates a greater or lesser likelihood of occurrence of problem behavior” (Jessor and Jessor 1977: 19). When all of an individual’s risk and protective factors are taken together, individuals who have more risks than buffers when all three systems interrelate have what Jessor and Jessor (1977) term “proneness” to deviance.

Attitudes toward deviance are included in several theoretical aspects of problem behavior proneness theory. The personality system contains two variables, the personal belief variable and the social criticism variable which both address attitudes toward deviance. As Jessor and Jessor (1977: 20) state, “the personal belief structure refers to those restraints on engaging in non-conformity that originate in a variety of beliefs about self, society, and self in relation to society.” Further, the social criticism variable addresses the degree to which an individual accepts or rejects the norms and practices of the larger society. As Jessor and Jessor (1977: 21) state, “acceptance of societal norms and appropriateness can serve as a powerful control over engaging in actions that depart from, or may undermine society.” Reference to an individual’s attitudes toward deviance is also included in the personal control system of problem behavior proneness theory. This system contains the variable attitudinal tolerance of deviance, which directly refers to an individual’s attitudes, beliefs and values in relation to deviance. Thus, attitudes toward deviance are an important and integral part of problem behavior proneness theory.

Differential association theory and attitudes toward deviance

Differential association theory (Sutherland 1939) is arguably one of the most widely used and empirically supported theories of deviance. This perspective also directly incorporates attitudes toward deviance. Sutherland argued that through interaction with deviant others, individuals learn the values, attitudes, techniques and motives for engaging in criminal and deviant behaviors. Sutherland (1939) explained this theory in nine propositions that outline how an individual learns to engage in deviance through interaction with deviant others. As Akers (1998: 27) summarizes:

Differential association theory proposes that one learns criminal behavior in a process of symbolic interaction with others, mainly those in primary groups, who present the person with both criminal and anti-criminal patterns, techniques, motivations and definitional stances toward the legal norms. The balance of learned criminal and anti-criminal definitions determines whether one will be conforming or deviant with reference to a given legal code.”

According to Sutherland (1939), the key principle of the theory is that an individual will choose to be deviant when there is an excess of definitions favorable to violation of the law over definitions unfavorable to the violation of the law (Sutherland 1939). Thus, the heart of differential association theory directly addresses attitudes toward deviance, as an individual who associates with deviant others will develop an excess of definitions favorable to the violation of the law or, in other words, an excess of favorable attitudes toward deviance.

Social control theory and attitudes toward deviance

Like Sutherland's theory, Hirschi's (1969) social control theory is among the most widely tested and supported theories of deviant behavior (Kempf 1993; Stitt and Giacopassi 1992). Social control theory also directly incorporates an individual's attitudes toward deviance through the bond of belief. Belief refers to the acceptance of the conventional value system (Hirschi 1969). This element of the bond was originally developed to measure an individual's belief in the legitimacy of the law or normative system in a society. Hirschi (1969) argued that deviance resulted because individuals varied in their acceptance of the value system of their society. According to the theory, some individuals simply do not accept the validity of the normative system, and, therefore, are more likely to engage in deviance. Thus, their attitudinal orientation toward deviance is favorable.

Subsequent to Hirschi's (1969) original theoretical work on the belief element of the bond, others (Hirschi and Stark 1969) expanded this concept to include the influence of religious beliefs on deviant behavior. The literature predominantly measures an individual's belief in the social institution of religion through his or her participation in the various rites and rituals that are used to demonstrate one's devotion to the church. Religious institutions often send messages concerning the morality of certain beliefs and behaviors (Donaldson, Graham, & Hansen, 1994; Elliott & Menard, 1996). Those that believe in this institution and demonstrate their belief through their participation in the rites and rituals incorporate the moral messages into their personal belief system (Benda 1997), which, in turn, serves as a deterrent to deviant behavior (Zhang, Wieczorek, & Welte, 1997). Thus, belief, whether it is measured as belief in the legitimacy of the law or as religious belief, is a deterrent to deviance (Elifson, Peterson and Hadaway 2006; Benda and Corwyn 2002; Desrosiers and Miller 2008; Nonemaker, McNeely

and Blum 2003; Johnson et al 2001; Johnson et al 2000; Cernkovich and Giordano 1992; Rankin and Kern 1994), and it directly addresses an individual's attitudes toward deviance. As Rothwell and Hawdon (2008, p. 255) state, this element of the social bond "directly incorporates attitudes toward deviance....because the central concept of belief is the acceptance of the normative system, or, being intolerant of deviance."

Thus, each of these theories incorporates attitudes toward deviance in some way, and they each have been validated through empirical research. However, while most of these theories address an individual's attitudes toward deviance, they do not explore the genesis of these attitudes. As Hawdon (2005) argues, differential association and problem behavior proneness theory note the importance of peer groups and intimates in teaching attitudes toward deviance, but this begs the question of whether this is due to socialization or selection (Thornberry, Lizotte, Krohn, Farnworth and Jang 1994). Control theories and problem behavior proneness theory each, in their own way, examine how various socialization practices affect an individual and subsequently influence his or her attitudes toward deviance. Yet, none of these theories "elaborate the mechanism by which these influences occur" (Rothwell and Hawdon 2008: 256).

Focusing solely on the tenets of the predominant individual-level theories of deviance ignores the larger cultural level processes that may influence an individual's attitudes toward deviance. They address socialization from parents, peers and the environment without addressing the cultural factors that influence these socialization practices. The one cultural factor that has been addressed in the theoretical literature is the role that religion plays in the development of a belief system that promotes conforming behavior among its adherents (Johnson, De Li, and Larson 2000; Rostosky, Wilcox, Wright and Randall 2004; Stack and

Kposowa 2006). One of the most representative definitions describes religion as a formal set of beliefs and rituals that show an outward expression of an internal and commonly held belief system (Hodge, Cardenas, and Montoya 2001; Donaldson, Graham, and Hansen 1994; Elliot and Menard 1996). These rites and rituals involve church attendance and prayer among other indicators, and the empirical literature abounds with studies that use these variables as indicators of an individual's religiosity (see for example: Desrosiers and Miller 2008; Elifson, Peterson and Hadaway 2006; Kerley, Matthews and Blanchard 2005; Nonemaker, McNeely and Blum 2003; Hardy and Raffaelli 2003; Benda and Corwynn 2002). Indeed, in the sociological literature the rites and rituals performed by religious individuals demonstrate their devotion to a common set of beliefs that are fostered by religious institutions and translated into individual moral commitments (Durkheim [1915] 1968); Marx ([1844] 1978); Weber ([1904-1905] 1958). Further, as Hirschi and Stark (1969) have demonstrated, the set of beliefs that are espoused by religion are highly correlated with a respect for the law.

As Durkheim ([1915] 1966) argues, the state is the embodiment of the collective conscious, and often the collective conscious is based on religious beliefs. This can be seen through the heavy influence of Judeo-Christian traditions and values in the formation of the early common law and later in the development of law in America. The set of beliefs that are espoused by religion are highly correlated with a respect for the law and often concern the morality of certain actions (Hirschi and Stark 1969; Benda 1997). Thus, the religious belief system influences not only an individual's personal orientation toward crime and deviance (Herzog 2003) but also his or her propensity to engage in a wide variety of acts, including drug use (Johnson, De Li, and Larson 2000), premarital sex (Rostosky, Wilcox, Wright and Randall

2004) tax fraud (Stack and Kposowa 2006) and social deviance in general (Johnson et al 2000; Johnson et al 2001; Baier and Wright 2001).

However, this still begs the question of whether or not there are cultural factors that could be associated with non-conforming behavior. Hawdon's (2005) argument, however, does address these larger cultural factors that may be associated with nonconforming behavior. Hawdon (2005) argues that the processes of modernization and rationalization have led to the emergence of scientific rationalism and individualism as ideological systems and that these ideological systems are, in turn, related to tolerant attitudes toward deviance (see also Rothwell and Hawdon 2008). Hawdon's original theoretical statement was developed to explain normative crimes, in particular drug use. In this research I will be expanding this original theoretical explanation to test its applicability not only to normative infractions including drug use but also to other acts of deviance. I will also be testing the theory alongside the tenets of several predominant individual level theories of deviance to determine the theory's strength as a predictor of deviant behavior when controlling for these factors.

Science, individualism, and attitudes toward deviance

Science and attitudinal tolerance of deviance

As Sire (1998:17) states "a worldview is a set of presuppositions (or assumptions) which we hold (consciously or unconsciously) about the basic makeup of our world." Among the many possible worldviews that individuals may choose to adopt, or are socialized to accept is the scientific worldview. This worldview has been conceptualized within the sociological literature in a variety of ways, and it can thus have different connotations and consequences dependent upon which definition the researcher chooses to adopt. Some (Smith 2001; Orr 2006; Borchardt 2007) have argued that those who adopt the scientific worldview espouse the superiority of the

scientific method in helping humans to discern knowledge about their physical world through the use of observational research. For these individuals other forms of knowledge are superseded by this scientifically based knowledge. Others (Bruce 2002; Berger and Luckman 1966; Wilson 1982) have posited that the scientific worldview is synonymous with the sociological concept of secularism wherein religion has retracted from predominance in the public sphere and has become a matter of private conviction. Many of the researchers that have adopted this standpoint actually equate the scientific worldview with secularism. For the most part, they base their argument for the equation of secularism and the scientific worldview on arguments of theorists such as Durkheim ([1915] 1964; [1915] 1866; [1915] 1966), (Parsons 1977), (Habermas 1984, 1984b) and (Weber [1922] 1964). Like Durkheim, they argue that early pre-modern societies were dominated by a mythical worldview, wherein powerful spirits were able to manipulate both humans and their physical environment. However, as the social processes of modernization and rationalization occurred, societies advanced to ever greater levels of development, and with each successive stage, the world became more profane and less sacred, and the power of religion as an explanatory mechanism decreased. Further, in the tradition of Weber and Habermas, they contend that the consequences of these processes created a modern society where the spiritual and natural worlds occupied completely separate domains, and a secular worldview is predominant. It is argued by theorists that conflate the scientific worldview with secularism that in modern societies, science becomes the predominant marker, and instrumental rational action dominates. Thus, for these researchers, the mark of a modernized society is one that has become rationalized through the process of secularism, wherein the religious predominance of earlier times has been superseded by the explanatory power of the

scientific worldview. For these theorists, secularism is indeed equated with a culture that is dominated by scientific rationalism instead of religious worldviews.

While the notion of secularism is indeed an important part of the scientific worldview in the view of many sociological theorists and researchers, and while notions of this concept are included in the operationalization of the “scientific and secular worldview” that is being utilized in this paper, an examination of the effect of secularism in an of itself on attitudinal tolerance of deviance and deviant behavior is not the main objective of this study. Instead, the focus is directed more toward an explanation of the scientific worldview as described by Sire (1998). According to Sire (1998) some of the tenets of this worldview are that progress and evolutionary change are inevitable, that man is autonomous and self-centered and will save himself, that education is the guide to life and that intelligence and freedom grant full human potential. Finally, and most important in relation to the current study, Sire (1998: 17) states that “science is the ultimate provider of both knowledge and morals and it is in direct opposition to Christian Theism, God is irrelevant.” These two elements of Sire’s (1998) formulation of the scientific worldview examine both the level of trust that one has in science as an explanation of the world and the notion that the scientific worldview is in direct opposition to a religious worldview. Among the various definitions of the scientific worldview that have been posited within the sociological literature, it is the most similar in content to Hawdon’s (2005) description of the scientific worldview as it contains both a description of the supremacy of science and the idea that the scientific worldview is in direct opposition to Christian theology.

Hawdon (2005) further elaborates the consequences of a rise in scientific rationalism as an explanation of the world by arguing that the secular scientifically oriented worldview encourages us to have broad intellectual interests, to be flexible in our thinking, and to be open

and receptive to new experiences. In societies where science has become the predominant method of explaining the world, there is uncertainty about the world that is open to investigation with the goal of achieving a more objective understanding of the world. Moreover, in these scientifically dominated societies, uncertainty, ambiguity and otherness are tolerated and this tolerance extends to others in society whose views and behaviors differ from ours. Science leads to a situation where there is no way to absolutely determine what is morally right and wrong, leading to an increased tolerance of others' deviance as well as their normative transgressions (Hawdon 2005). In 2008, Rothwell and Hawdon demonstrated a statistical relationship between ascription to a scientific worldview and tolerance of normative deviance.

Individualism and attitudinal tolerance of deviance

The social process of modernization also leads to the emergence of individualism (Durkheim [1915] 1966). The concept of individualism, like the scientific worldview, has long been a subject of interest to sociologists. Theorists including Durkheim ([1915] 1968; [1915] 1966), Weber ([1919] 1946), Parsons (1951), Luhman (1982), Habermas (1984), and others have argued that modernization leads to the breakdown of the normative consensus in a society which in turn, allows for the emergence of individual freedom. Numerous theorists have also commented on the specifics of this individual freedom. It has been argued that in modern societies personalities have become more autonomous in nature, and interests have become increasingly defined as private (Habermas 1984a; Parsons 1951), that the general affluence afforded to members of modernized societies allows individuals who reside there to focus their energies on matters of self-expression and self-actualization rather than on matters of basic survival (Inglehart, Basanez, and Moreno 1998). Still others have focused on the shift in attitudes toward authority and deviance as well as the increased emphasis that is placed on

individual autonomy in modernized societies (Inglehart and Norris 2003; Inglehart and Baker 2001). Bellah and colleagues (1985) explored the current cult of individuality in the United States as opposed to the former predominance of a collective mentality. They argued that the interdependent lifestyle of the past had declined, and individuals have become increasingly self-centered and focused on the pursuit of their individual, self-expressive pleasure. It is this conceptualization of individualism as outlined by Bellah et al (1985) that will be utilized in this study. Overall, it can be stated that while the concept of individualism, has been conceptualized, in a multitude of ways, it is generally agreed upon that individualism; however it is conceptualized is more prevalent in modern societies than in their more traditional counterparts that are more collectivist in nature (Inglehart and Norris 2003).

In much of the current empirical literature that examines the concept of individualism, there is still a focus on the comparison of individualism to collectivism (see Inglehart and Norris 2003; Oyserman, Coon, and Kemmelmeier 2002; Shulruf, Hattie, and Dixon 2007). In their meta-analysis Shulruf et al (2007), redefined Oyserman et al's (2002) methodological operationalization of individualism and collectivism and produced what they named the Auckland Individualism and Collectivism Scale. This scale consists of three dimensions of individualism and two dimensions of collectivism, each with various questions in each domain that are designed to tap the overall construct (see Shulruf et al 2007). The three components of individualism that emerged from Shulruf et al's (2007) analysis were competition, uniqueness, and responsibility. Similar to Shulruf et al's (2007) findings, Hawdon (2005) argues that the ideology of individualism espouses that one should be unique and non-conforming, independent and rebellious (Hawdon 2005). Thus, it seems that the overall common element of individualism is that those who value individualism should be different, and according to Clinard and Meir

(2004) difference is an inherent part of the various definitions of deviance. Therefore, it would be expected that those who adopt the cultural ideology of individualism would be likely to hold tolerant attitudes toward deviance. In 2008, Rothwell and Hawdon empirically demonstrated that the cultural ideology of individualism was a significant predictor of tolerant attitudes towards normative deviance. However, more recent research conducted by Browne (2009) did not find support for the relationship between the cultural ideology of individualism and tolerance of various types of sexuality. While Browne (2009) did not find support for the link between the cultural ideology of individualism and various types of sexuality in the majority of her analyses, she utilized a different operationalization of the variable individualism than the operationalization that will be used in this study.

The ideologies of science and individualism that arise from the processes of modernization and rationalization promote worldviews that are tolerant of deviance (Hawdon 2005). In the United States, a modernized nation state, there are a variety of worldviews and ideologies to which individuals may and can ascribe. Based on the argument presented, the expectation would be that those individuals who adopt the culturally based ideological systems of science and individualism would be more attitudinally tolerant of deviance than individuals who hold a more traditional, religiously oriented worldview. Existing research has shown this argument to hold true (Rothwell and Hawdon 2008). However, based on previous theoretical and empirical work, we know that social bonds and differential association are important predictors of deviance. Thus, their influence on an individual's attitudes toward deviance and his or her propensity to engage in deviant behavior must also be explored and accounted for.

The importance of social bonds

Social control theory

The previous culturally based explanation of favorable attitudes toward deviance gives rise to the question of whether or not this explanation is ignoring other possible factors. Namely, Hawdon's (2005) argument is a cultural argument, and it does not directly include the role of social institutions. Other theories, namely Hirschi's (1969) social control theory, basically argue that institutions control individuals behavior via their bonds to these institutions and their members. That is, Hirschi (1969) argues that an individual's level of integration into the various social institutions in a society and his or her attachment to significant people within these institutions determines the amount of social control to which they are subjected and therefore his or her propensity to engage in various acts of deviance.

The theoretical and empirical literature has highlighted the importance of social controls in determining whether or not an individual will engage in deviance. Travis Hirschi's (1969) social control theory emphasizes the importance of an individual's bonds to the institutions of society and significant others in his or her lives in exerting a controlling influence on his or her behavior. Through attachment, commitment, involvement and belief, Hirschi (1969) outlined how an individual develops a stake in conformity that deters him or her from violating the norms of society. The original formulation of the theory examined the role of the four elements of the bond in relation to family, education, peers and the state through law (Hirschi 1969), and subsequent research has extended the theory to include the social institution of religion. The following sections outline the theoretical framework and empirical research that has been conducted to test the assumptions of Hirschi's (1969) social control theory.

Social control through attachment to significant others

Social control through attachment to significant others has usually been measured in relation to the family and attachment to significant individuals in the educational institutions, such as teachers. The role of the family is one of the most persistent explanations of the origins of deviance that is forwarded in the theoretical and empirical literature (Shoemaker 2005). Hirschi's (1969) social control theory specifically addresses the role of the family in inhibiting deviant behavior. As Shoemaker (2005: 176) notes "attachment is the psychological and emotional connection one feels toward other persons or groups and the extent to which one cares about their opinions and feelings." Hirschi's (1969) original conceptualization of the bond of attachment in relation to the family was measured using questions such as: *how often do your parents explain their reasons for the rules they make, how often do you share your thoughts with parents, how often do you talk to your parents about your future, and my family is important to me* among others. While some have invalidated Hirschi's (1969) claim concerning the relationship of attachment to the family and abstention to deviant behavior (Agnew 1991; Agnew 1993; Akers and Cochran 1985), other research examining the relationship of this element of the bond and deviant behavior has demonstrated that attachment to the family, particularly a law abiding family is associated with abstention from a host of behaviors considered to be deviant (Warr 2007; Kostelecky 2005; Buist, Dekovic, Meeus and Van Aken 2004; Hawdon 2004; 1999; 1996a).

Hirschi (1969) also argued that attachment to significant others, such as teachers, within the educational institutions was a strong deterrent to deviant behavior. Subsequent empirical research has validated Hirschi's claim (Cernkovich and Giordano 1992; Le Blanc 1992; Jenkins

1995; Jenkins 1997; Drapela 2005; 2006; Crosnoe 2006; Hawdon 1996a; Hawdon 1999).

Attachment to significant others in the educational institution, as conceptualized by Hirschi (1969), involves the individual's respect for teachers, the importance an individual places on receiving respect from teachers and other significant individuals within the educational institution, and how much he or she values their education. Hirschi (1969) argues that the more an individual is attached to the educational institution the less likely they are to engage in acts of deviance because their attachment to the significant members of this institution has led them to respect and value the opinion these significant others hold of them and therefore they are less inclined to engage in behaviors that would be reproved of by these significant others.

Social control through commitment to conventional lines of action

The social bond of commitment has traditionally been examined in relation to the educational institution. According to Hirschi (1969: 162) commitment refers to the individual's "pursuit of and desire to achieve conventional goals." In this case the conventional goal is the attainment of education. As Hirschi (1969) argues, educational aspirations are a constraint on deviance. Those that engage in deviant activities find themselves precluded from attaining their desired educational and other life goals. Being committed to obtaining an education "implies that the individual has something *invested* in that line of activity. Those committed to educational success as evidenced by their current efforts should be least likely, according to control theory, to commit deviant acts" (Hirschi 1969: 178 emphasis in the original). The original measures of this concept of social control theory were measured by questions such as: *I try hard in school and how important is getting good grades to you personally*. Those who indicated that they agreed with and found these goals important were considered to be "the

ambitious, the strivers who were less likely to commit deviance (Hirschi 1969: 178). Being committed to obtaining an education leads the individual to be socialized into a conforming member of society (Yogan 2000), and as Hirschi (1969: 162) argues, “Deviation automatically jeopardizes ones chances of success in a society.” This element of the social bond is conceptualized as the rational choice element of social control theory. The more committed an individual is to achieving success through the legitimate means, in this case educational attainment, the more they have to lose if they violate normative expectations (Hirschi 1969). Therefore, as Hirschi (1969) argues the individual’s commitment to conformity increases the potential punishments or sanctions of engaging in deviance and therefore alters their rational calculation of the costs and benefits of deviance in such a way that engaging in these activities is not defined as rational. The literature, in general, has upheld Hirschi’s (1969) claim (Cernkovich and Giordano 1992; Mak 1991; Junger-Tas 1992; Rankin and Kern 1994).

Social control through involvement in conventional activities

Like commitment, the bond of involvement has also been discussed in relation to the educational institution. Hirschi (1969) described involvement as the extent to which an individual is involved in conventional activities. Hirschi (1969) argued that the more an individual is involved in conventional activities, the less time he or she will have to engage in acts of deviance. Yet, of the elements of the bond, involvement has received the least support in the empirical literature and has been criticized by theorists as being a vague concept that is often conceptually similar to the bond of commitment (see Kempf 1993; Hawdon 1999). While there have been criticisms of this element of the bond, Hawdon (1999) argues that when involvement

is re-conceptualized as routine activity patterns and the instrumentality and visibility of routines is considered, this element of the bond is a significant predictor of deviant behavior.

According to Hawdon (1999) the greater the visibility and instrumentality of a routine, the greater the amounts of social control that are exerted on the individual engaged in the routine. Those routines that are not visible and instrumental allow the individual to avoid social control and, therefore, provide the opportunity for them to engage in deviance. Thus, as Hawdon (1996a; 1999) argues, it is not simply involvement as Hirschi (1969) originally conceptualized the measure that matters; it is involvement in specific activities that are institutionally defined as legitimate that exert a controlling influence on deviant behavior. Schools provide a venue where daily routines are both, to a large extent, goal directed and performed in view of supervising adults. Included in the list of daily routines examined by Hawdon (1996a; 1999) that are inversely related to deviant behavior is participation in school clubs, studying, and playing team sports. Thus, involvement in the educational institution through the aforementioned activities provides a controlling influence on deviant behavior through the limitation of opportunity and through the increase in guardianship that provides a controlling influence on behavior (Hawdon 1999; Osgood 1996).

Social control through belief in the legitimacy of the law

As Hirschi (1969) argues, the social bond of belief refers to belief in the legitimacy of the law. While some theories (Sutherland 1939; Cohen 1955; Miller 1958) argue that individuals learn the attitudes and values needed to engage in deviance and others argue that deviants must rationalize the guilt they experience from violating normative standards (Sykes and Matza 1957), control theories simply argue that the respect for the law varies among individuals. As Hirschi

(1969: 25) states, “many persons do not have an attitude of respect toward the rules of society; many persons feel no obligation to conform regardless of personal advantage.” Thus, an individual’s belief in the legitimacy and therefore respect for the laws of a society are a powerful determinant of their adherence to the laws and norms of a society. This element of the bond was conceptualized by Hirschi (1969) to include an individual’s belief concerning the honesty of the police and their respect for the police, among other things. Empirical research has demonstrated that an individual’s belief in the legitimacy of the law is a significant predictor of their conformity (Hirschi 1969; Hirschi and Stark 1969; Krohn and Massey 1980; Massey and Krohn 1986; Tyler 1990; Sampson and Bartusch 1998).

Involvement with deviant peers

For young adults in the United States, involvement with their peers constitutes a major portion of their lives. Thus, time spent with peers can be re-conceptualized as a routine activity pattern of young adults. Peers represent a close primary group that exists in an individual’s life and therefore constitute a primary group from which the individual learns and subsequently adopts various attitudes, beliefs, and behaviors. According to Sutherland (1939), these peer groups may serve as catalysts for the adoption values and attitudes that are conducive to deviant behavior. As Sutherland (1939) argued, deviant behavior is learned just as non-deviant behavior is learned, in interaction with others that comprise the individual’s intimate primary groups. When an individual is exposed to an excess of definitions favorable to deviance over definitions unfavorable to deviance, they will themselves become deviant. Thus, according to this theory, interaction with deviant peers leads not only to favorable attitudes toward deviance but also to deviant behavior. Subsequent research has validated the theoretical propositions of differential

association theory in relation to a variety of deviant activities, including, but not limited to, academic misconduct (Vowell and Chen 2004), corporate crime (Piquero, Tibbetts and Blankenship 2005), underage smoking (Nofziger and Hye-Ryeon 2006) and drug use (Rebellion and Van Gundy 2006).

Thus, it can be seen that the activities individuals engage in and the individuals that they interact with exert varying levels on social control on the attitudes and behaviors of individuals and are a powerful determinant of whether or not an individual will engage in deviant behavior (Hirschi 1969; Hirschi and Stark 1969; Vowell and Chen 2004; Rostosky, Wilcox, Wright and Randall 2004; Sampson and Bartusch 1998; Drapela 2005; 2006; Hawdon 1999). Further, we also know that attitudes toward deviance are an important predictor of who will engage in deviant activities (Hirschi 1969; Jessor and Jessor 1977; Sutherland 1939) and that the cultural ideologies of science and individualism are significant predictors of attitudes toward deviance (Rothwell and Hawdon 2008). However, what has yet to be explored is the relationship of the cultural ideologies of science and individualism to attitudes toward deviance and deviant behavior when controlling for known correlates of deviant behavior. While the question of whether or not the cultural ideologies of science and individualism have been both theorized and tested in relation to normative crime and attitudes toward non-normative behavior (see Hawdon 2005; Rothwell and Hawdon 2008), the relationship between science, individualism and less serious acts of deviance including acts such as cheating, binge drinking, smoking marijuana and using other illicit substances, has not yet been established. Further, the relationship between science, individualism and behaviors considered to be more serious acts of deviance, including piracy, robbery, burglary and violence has as of yet to be examined. The answer to these questions is the objective of this study.

The importance of gender

In addition to testing the overall model in this study, I will also be testing the model separately by gender to determine what, if any, differences exist between males and females in the sample for the key indicator variables in relation to tolerant attitudes toward deviance and deviant behavior. Studies have shown that males and females differ in their propensity to engage in deviant behavior (Tracy, Kempf-Leonard and Abramoske-James 2009; Hadjar, Baier, Boehnke and Hagan 2007). Research has shown that males tend to not only have a higher rate of criminal and deviant behavior in official statistics (Tracy et al 2009; Hadjar et al 2007) but that they also consistently tend to commit more serious acts of crime and deviance (Kerpelman and Smith-Adcock 2005; Chesney-Lind and Shelden 2004) while females tend to commit fewer criminal and deviant acts overall (Kerpelman and Smith-Adcock 2005), and when they do engage in deviant behavior their acts are often less serious in nature than those of males (Chesney-Lind and Shelden 2004). Theorists who have examined these gender differences in rates and type of deviant behavior have explained the findings in numerous ways. One of the earliest explanations of gender differences in deviant behavior argued that females are inherently less deviant than males due to their biological makeup (Lombroso and Ferrero 1895; Freud 1933; Pollak 1950). Others (Simon 1975; Adler 1975; Chesney-Lind and Shelden 2004) have argued that there are different causal mechanisms that lead to the expression of deviant behavior between males and females and that these causal factors can also explain the different types of deviance committed by males and females. Another theoretical explanation that has been posed to explain the different rates of deviant behavior by gender argue that the causal mechanisms that lead to deviance are the same for both males and females. The difference is that males and females are differentially exposed to these precipitating factors (Hartman, Turner, Daigle, Exum,

and Cullen 2009; Daigle, Cullen and Wright 2007). Yet another explanation of differing rates of deviance between males and females argues that it is a function of the intersection of gender roles and the criminal justice system's attempt to enforce those gender roles (Chesney-Lind and Shelden 2004). Due to the findings of previous research that highlight differences in male and female deviant behavior, it is important to test the model in this study separately by gender to determine if there are any significant gender differences in this sample.

In the current analysis, two key theories being tested, social control theory and differential association theory, point out that attitudes toward deviance are a strong predictor of who will engage in deviant behavior. Each of these theories was originally developed to explain the deviant behavior of males (Chesney-Lind and Shelden 2004). While subsequent theoretical tests have shown that these theories are indeed able to explain female deviant behavior, the majority of these studies have found that they are more adept at explaining male deviant behavior than female deviant behavior. This finding leads to the supposition that males would potentially hold more tolerant attitudes toward deviance than females. Another objective of this study is to determine if there is indeed a relationship between gender and tolerant attitudes toward deviance.

In addition to testing the model to determine if there are gender differences in relation to tolerant attitudes toward deviance, I will also be examining gender differences in ascription to the scientific and secular worldview and the cultural ideology of individualism. While studies have not yet been conducted to determine whether or not males and females differ in their acceptance of the scientific worldview, research has shown that males are more likely than females to be exposed to scientific curriculum during their formative educational years (Lynn

and Mikk 2008) and that males are overrepresented in the scientific fields at universities (Hartman and Hartman 2008) and in scientific occupations (Phipps 2006). Thus, one could project that males and females would indeed differ on their acceptance of the scientific worldview. Further, with the notion of secularism included in the objective measure of the scientific worldview it would be expected that males and females would differ on this indicator as research has shown that females tend to be more religious in both their behaviors and faith than males (Roth and Kroll 2007; Sullins 2006; Jang and Johnson 2005). In relation to the cultural ideology of individualism, there are also no studies to date that examine gender differences in the power of this variable as a predictor of deviant behavior. However, previous studies have shown that females tend to value more cooperative and group oriented relationships whereas males tend to value more competitive relationships (Watkins et al 1998; Realo, Allik and Vadi 2002). A further objective of the current study is to determine, what, if any difference exists between males and females on these two key indicators of deviant behavior. Based on all the previous research and theoretical statements, it is predicted that gender differences are likely to exist on a number of key indicators in this study. Thus, in order to more completely understand the phenomenon of tolerant attitudes toward deviance and deviant behavior, it is important not only to test the model as a whole but to also test it separately by gender to determine what, if any differences, emerge in the data. I now turn to the basic theoretical model that will be tested in this research.

The Model

Science and Individualism. Science and individualism are inter-related. As the social process of modernization and rationalization (Durkheim [1915] 1966; Weber [1922] 1964) alter

the societies that experience them, secularism slowly encroaches on the domain of religion and the scientific worldview becomes predominant. Additionally, individual freedom increases and the variety of behaviors that individuals engage in increases, as well as the rate of social deviance (Durkheim [1915] 1966; Simmel [1908] 1971). Thus, it is hypothesized that science and individualism are both directly and positively related to one another. While I am hypothesizing that science and individualism are directly and positively related, I am not hypothesizing a causal relationship between these two variables because this complex question is beyond the scope of this research and cannot be resolved with the cross-sectional data that will be used to test the model. (See Model 1).

Science and Attitudes toward Deviance. As Hawdon (2005) argues, the cultural ideology of science is associated with many of the known psycho-social correlates of deviant behavior. Science encourages us to have broad intellectual interests, to be flexible in our thinking, and to be open and receptive to new experiences. The scientific worldview creates a situation where there is no way to absolutely determine what is morally right and wrong, leading to an increased tolerance of others' deviance as well as their normative transgressions (Hawdon 2005). As Rothwell and Hawdon (2008) have demonstrated, valuing science is a significant predictor of tolerant attitudes toward deviance. Thus, it is hypothesized that science is directly and positively associated with tolerant attitudes toward deviance. (See Model 1).

Science and deviant behavior. As Rothwell and Hawdon (2008) have demonstrated, the adoption of a scientific and secular worldview is positively related to tolerant attitudes toward deviance, and other theoretical statements and empirical research have demonstrated that attitudes toward deviance are an important predictor of deviant behavior (see Rothwell and

Hawdon 2008). Thus, it is hypothesized that the adoption of a scientific and secular worldview is indirectly related to deviant behavior through its influence on attitudes toward deviance. The direct relationship between science and deviant behavior will be examined in the overall model, but I hypothesize that this relationship will not be statistically significant. (See Model 1).

Individualism and Attitudes toward Deviance. As with the scientific and secular worldview, Hawdon (2005) argues that individualism is associated with many of the psychosocial correlates of deviant behavior. The ideology of individualism espouses that one should be unique and non-conforming, independent and rebellious. Thus, the common element of individualism is that those who value individualism should be different, which is an inherent aspect of most definitions of deviance (see Clinard and Meir 2004). Further, Rothwell and Hawdon (2008) have demonstrated that individualism is a significant predictor of an individual's tolerance of deviance. It is therefore hypothesized that individualism is directly and positively associated with being tolerant of deviance. (See Model 1).

Individualism and deviant behavior. Rothwell and Hawdon (2008) have empirically demonstrated that individuals who value the cultural ideology of individualism are more likely to hold favorable attitudes toward deviance than individuals who hold more traditional, collectivist ideologies, and other research has demonstrated that attitudes toward deviance are an important predictor of deviant behavior (see Rothwell and Hawdon 2008 for review). While the direct relationship between the adoption of the cultural ideology of individualism and deviant behavior will be empirically examined in this model, I hypothesize that this relationship will be statistically insignificant. Instead, it is hypothesized that adopting the cultural ideology of

individualism indirectly leads to deviant behavior through its influence on attitudes toward deviance. (See Model 1).

The relationship between, commitment, involvement, belief and association with deviant peers. As Hirschi (1969) argues, four elements of the social bond, attachment, commitment, involvement, and belief are not only each individually related to deviant behavior but are all positively inter-related to one another, and together they all exert a controlling influence on deviance. As research has shown non-deviants have a tendency to be committed to the educational institution, and those who are committed also tend to abstain from deviant peer associations (Hirschi 1969; Free 1991; Sampson and Laub 1993). Further, research has shown that individuals who associate with deviant peers are more likely to do poorly in school (Thornberry 1987). Those who are committed to the educational institution also tend to be involved in instrumental and visible routines (Hawdon 1999), and the bond of belief is highly correlated with commitment, involvement and association with non-deviant peers (Hirschi 1969; Free 1991; Sampson and Laub 1993). While previous research has demonstrated that there are inter-relationships among many of the variables discussed in this project and while these inter-relationships are included in the model, I am not hypothesizing specific relationships between these variables. Instead I will fit the empirical correlations among the variables in the model. (See Model 1)

Attachment to significant others and attitudes toward deviance. Individuals who are attached to their families (Hirschi 1969) come from a home environment where parents interact with their children, and lines of communication are open. The interaction between parent and child in this type of family involves the parent teaching the child the proper means of interaction

in society through the instilment of the ability to self-regulate their behavior (see Gottfriedson and Hirschi 1990). Familial involvement involves the parents teaching their children the difference between right and wrong in society. Parents are among the most important socializing agents in a society, and their role includes teaching the child the difference between right and wrong, or in other words, teaching them the norms of the dominant culture. The role of the educational institution in society, like the role of the family, is to socialize individuals not only so that they are capable of performing their roles in society but also to socialize them to understand the norms and expectations of their society. The schools are informal grounds where we learn what is expected of us and what is not tolerated within our society (Ehman 1980). As these schools teach us about what is and is not acceptable within our society, we internalize these lessons (see Gottfriedson and Hirschi 1990) and incorporate them into our own moral code. As Durkheim (1998: 203) states, “It is the ideal which is both integral and diverse, that is the function of education. Its function then is to develop in the child a certain number of physical and mental states that the society to which he belongs considers should be possessed by all members...society can only survive if there exists among its members a sufficient degree of homogeneity; education perpetuates and reinforces this homogeneity by fixing in the mind of the child, from the beginning, the essential similarities that social life demands.” This socialization occurs via the individuals who are agents of this institution, namely teachers.

While Hirschi (1969) did not originally theorize the relationship of attachment to significant others and attitudes toward deviance, it is logical to argue that this element of the bond will be directly related to attitudes toward deviance. An individual who values his or her parent’s opinions of them will strive to conform to their parent’s standards, and when the parent’s standards involve the valuing of law abiding behavior, it is expected that the individual,

wanting to gain the approval of their parent's, will develop a personal orientation that is intolerant of deviance. Further, an individual who is attached to significant individuals within the educational institution will develop a personal orientation that is geared toward obtaining favorable reactions from the teachers whose opinions they hold important. As Durkheim (1998: 204 [emphasis added]) states, "education is the influence exercised by adult generations on those who are not yet ready for social life. Its object is to stimulate a certain number of physical, intellectual and *moral states* which are demanded of him..." Thus, one of the functions of the educational institution, like the familial institution, is to generate in individuals favorable attitudes toward the moral boundaries of a society. Therefore, it is hypothesized that attachment to significant others within the family and educational institution will be directly and negatively associated with tolerant attitudes toward deviance. (See Model 1).

Attachment to significant others and deviant behavior. Familial participation is characterized by parents who are involved in their children's lives and are able to monitor and correct the behavior of their children (see Gottfriedson and Hirschi 1990). Those who are attached to their parents value their parent's opinions and are therefore likely to gear their personal behavior in such a way that they receive favorable responses from their parents (Wright and Wright 1994; Hirschi 1969). Further, as Hirschi (1969) argues, attachment to significant others within the educational system provides individuals with a stake in conformity that decreases their propensity to engage in deviant behavior. Subsequent research has validated Hirschi's claim (Cernkovich and Giordano 1992; Le Blanc 1992; Jenkins 1995; Jenkins 1997; Drapela 2005; 2006; Crosnoe 2006; Hawdon 1996a; Hawdon 1999). Thus, it is hypothesized that attachment to significant others is directly and negatively related to deviant behavior. (See Model 1).

Commitment to conventional lines of success and attitudes toward deviance. Hirschi (1969) originally conceptualized the bond of commitment to refer to an individual's investment in the conventional means of success within a society. Among the conventional means of success described by Hirschi was commitment to educational attainment. Hirschi's (1969) research examined the individual's motivation to do well in school and the importance they placed upon getting good grades. According to Hirschi (1969), an individual who has placed an emphasis on trying hard and obtaining good grades has invested a great deal of time and effort into succeeding through the legitimately defined means to success in our society. They therefore have a lot to lose if they deviate from the normative system promulgated by this institution. Thus, it would be expected that individuals who define themselves as committed to their education would internalize the normative system forwarded by the educational institution and would therefore develop unfavorable attitudes toward deviant behaviors that would jeopardize their success within this realm. Therefore, it is hypothesized that commitment to the educational institution is directly and negatively associated with tolerant attitudes toward deviance (see Model 1).

Commitment to conventional lines of success and deviant behavior. As Hirschi (1969: 162) argues, "social control is inherent in the organization of a society; deviation automatically jeopardizes one's chances of success in that society. In order for such a built-in system of regulation to be effective, actors in the system must perceive the connection between deviation and reward and must value the rewards society proposes to withhold as punishment for deviation." Among those conventional goals discussed by Hirschi (1969) is educational attainment. Education is a means by which individuals move toward a legitimate adult status and the means through which they will eventually move into an occupational field. When the

individual is motivated to strive for success through conventional goals, in this case educational attainment, this aspiration provides a buffer against deviance, as deviance is a means of precluding the attainment of this valued goal. Thus, as Hirschi (1969: 171) argues, “the higher the aspiration, the less likely the child is to deviate.” Based on this argument, it is hypothesized that commitment to the conventional lines of success through educational attainment is directly and negatively associated with deviant behavior. (See Model 1).

Involvement in legitimate activities and attitudes toward deviance. As Hirschi (1969) argues, involvement in activities deemed to be legitimate by a society decreases the motivation that an individual has to engage in deviance. While the original bond of involvement has been criticized in the theoretical research (see Hawdon 1999 for review) the theoretical re-conceptualization of this bond as routine activity patterns has clarified the concept and has been demonstrated to be a sound concept by empirical research (Hawdon 1999). Through involvement in instrumental and goal directed activities, the individual has decreased opportunity to engage in acts of deviance due to the level of guardianship exerted upon their routines. While Hirschi (1969) and Hawdon (1999) did not conceptualize the bond of involvement in relation to attitudes toward deviance, it could also be argued that individuals who become involved in legitimate activities would be exposed to the normative attitudes promulgated by these activities and would therefore develop a disposition that is intolerant of deviance. Thus, it is hypothesized that involvement will be directly and negatively associated with attitudes toward deviance. (See Model 1).

Involvement in legitimate activities and deviant behavior. According to Hawdon (1999) the greater the visibility and instrumentality of a routine, the greater the amounts of social control

that are exerted on the individual engaged in the routine. Those routines that are not visible and instrumental allow the individual to avoid social control and therefore provide the opportunity for them to engage in deviance. Thus, as Hawdon (1996a; 1999) argues, it is not simply involvement as Hirschi (1969) originally conceptualized the measure that matters; it is involvement in specific activities that are institutionally defined as legitimate that exert a controlling influence on deviant behavior. Therefore, it would be expected that involvement in activities that are defined as legitimate by the society at large would provide a controlling influence on deviant behavior through the limitation of opportunity and through the increase in guardianship that provides a controlling influence on behavior (Hawdon 1999; Osgood 1996). It is hypothesized that involvement in legitimate activities has a direct and negative association with deviant behavior. (See Model 1).

Belief in the legitimacy of the law and attitudes toward deviance. As Hirschi (1969) argues, belief involves an individual's acceptance of the legitimacy of the law. Hirschi (1969: 25) specifically notes that some individuals "do not have an attitude of respect toward the rules of society." While Hirschi did not originally formulate this element of the bond in such a way, it is logical to conclude that individuals who respect the rules of society would hold unfavorable attitudes toward deviance while those who do not believe in the legitimacy of the law would hold favorable attitudes toward deviance. While this element of the bond is, as previously stated, conceptually the same as attitudes toward deviance, the way that it is operationalized in this study is distinct from the operationalization of attitudes toward deviance. While attitudes toward deviance are being measured with a series of questions regarding the individual's personal stance toward a variety of deviant behaviors, belief in the legitimacy of the law is operationalized as the individual's respect for the authority figures of our society. While conceptually similar, these

two concepts represent two distinct measures in this study, and therefore both concepts will be retained in the analysis and treated as two separate and distinct measures. Thus, it is hypothesized that belief in the legitimacy of the law will be directly and negatively related to attitudinal tolerance of deviance. (See Model 1).

Belief in the legitimacy of the law and deviant behavior. Hirschi's bond of belief refers to an individual's belief in the legitimacy of the law. Research that has examined this element of the bond in relation to deviant behavior has shown that individuals who believe in the legitimacy of the law are less likely to engage in various acts of deviance (Hirschi 1969; Hirschi and Stark 1969; Krohn and Massey 1980; Massey and Krohn 1986; Tyler 1990; Sampson and Bartusch 1998). Thus, it is hypothesized that belief in the legitimacy of the law is directly and negatively related to deviant behavior.

Association with deviant peers and attitudes toward deviance. The deviant peer group provides a venue in which the individual can engage in acts of deviance while simultaneously having their behavior validated by their friends (Pope 1971). Sutherland (1939) argues that when the peer group an individual associates with holds favorable attitudes toward deviance, they will expose the individual to these deviant attitudes, and the individual is also likely to personally adopt these favorable attitudes toward deviance. Further, as Akers (1985) elaborates groups, particularly primary groups consisting of the individual's peers, expose individuals to definitions and provide them with models to imitate and reinforcements for particular behavior patterns. These peers expose individuals to definitions that are both general and specific, that is they provide definitions concerning the moral code, conventional values and norms that are either favorable or unfavorable, and they also orient the person to particular acts or series of acts.

If an individual is exposed to deviant peers and the non-normative behavior of the individual is reinforced through various types of rewards, it is reasonable to assume that the individual will develop a positive orientation to deviance with the goal of continued acceptance and positive reinforcement from their deviant peer group. Thus, it is hypothesized that association with deviant peers will have a direct and positive relationship with attitudinal tolerance of deviance. (See Model 1).

Association with deviant peers and deviant behavior. As Sutherland (1939) argues, and ample empirical research suggests (Vowell and Chen 2004; Brownfield 2003; Piquero, Tibbetts and Blankenship 2005; Nofziger and Hye-Ryeon 2006; Rebellon and Van Gundy 2006), an individual who associates with deviant others is more likely to engage in deviant behavior than an individual who associates with conforming others. Through association with deviant others and an absence of other conforming influences in their lives, the individual develops an excess of favorable attitudes toward deviance over unfavorable attitudes toward deviance, and through these attitudes they develop the drives, motivations, and rationalizations for deviance (Sutherland 1939). Thus, it is hypothesized that participation with deviant peers has a direct and positive relationship with deviant behavior. (See Model 1).

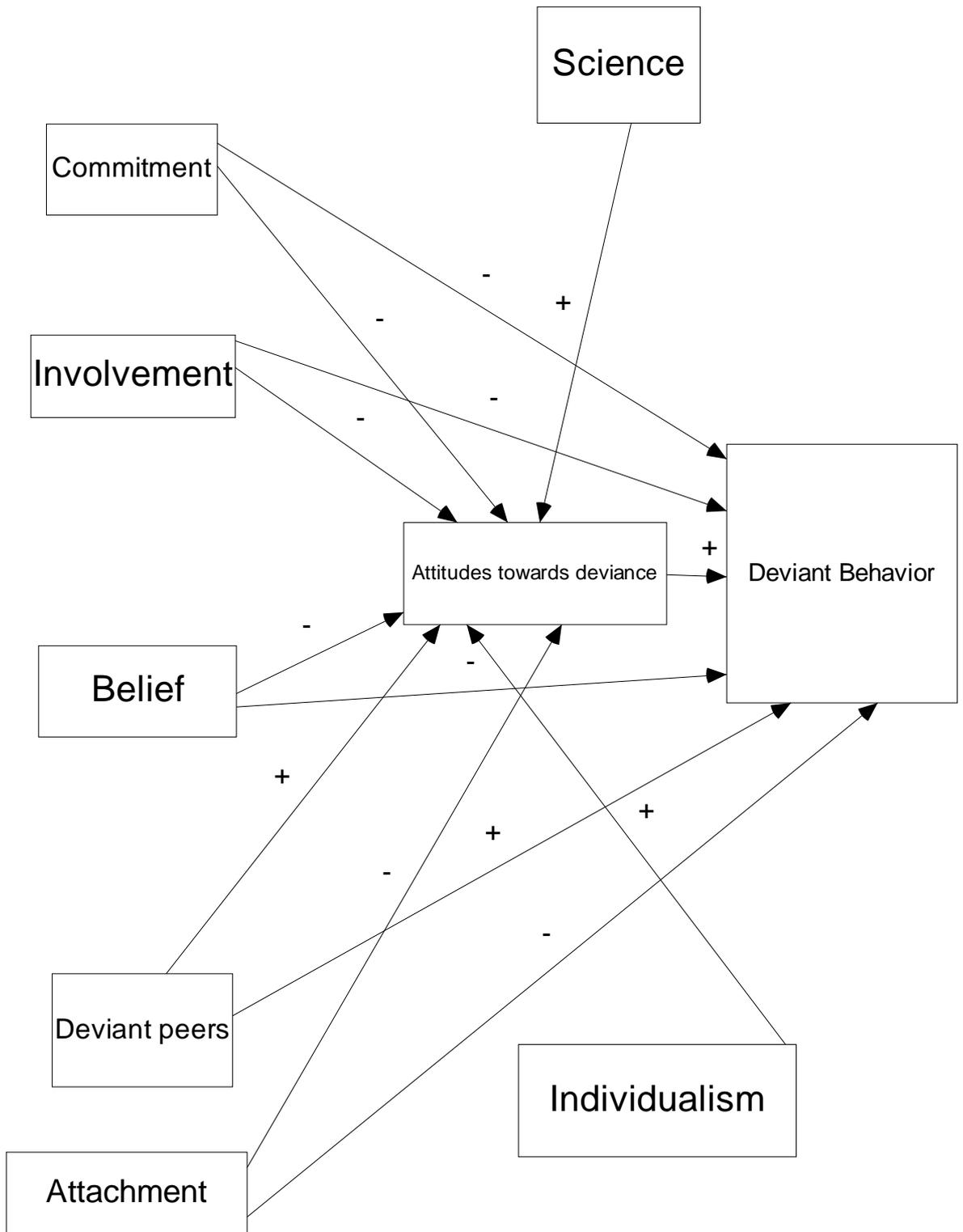
Attitudes toward deviance and deviant behavior. The empirical and sociological literature on deviant behavior has demonstrated the importance of attitudes toward deviance in predicting deviant behavior (see Jessor and Jessor 1977; Kaplan 1975; Hirschi 1969; Sutherland 1939; Hawdon 2005 for example). Thus, it is hypothesized that tolerant attitudes toward deviance are directly and positively related to deviant behavior. (See model 1).

Gendered Models. In addition to testing the overall model to determine the factors that contribute to tolerant attitudes toward deviance and deviant behavior, I will also be running the models separately by gender. This step will be taken to ascertain whether there are any significant gender differences between males and females in the sample. Based on previous literature and empirical studies, there are certain indicators in the statistical model that would be expected to differ by gender. First, the empirical literature has demonstrated that the social bond of attachment has an overall inhibiting influence on deviant behavior for both males and females (Warr 2007; Kostecky 2005; Buist, Dekovic, Meeus and Van Aken 2004), but other studies have shown that this particular bond is a more robust predictor of female deviance than male deviance (Cerkovich and Giordano 1987; Alarid, Burton and Cullen 2000; Daigle, Cullen and Wright 2007; Kerpelman and Smith Adcock 2005, Huebner and Betts 2002). Thus, it is expected that the social bond of attachment will be a stronger predictor of tolerant attitudes toward deviance and deviant behavior for females than for males. Like attachment, commitment has also been generally validated as an inhibiting factor for deviance for both males and females (Cernkovich and Giordano 1992; Mak 1991; Junger-Tas 1992; Rankin and Kern 1994). However, some research has shown that commitment is a stronger predictor of deviance for females than for males (Laundra, Kiger and Bahr 2002; Jenkins 1995). It is therefore expected that the social bond of commitment will be a stronger predictor of deviant behavior for females than for males. Research has shown that the social bond of involvement provides an inhibiting influence on deviant behavior (Hawdon 1999; Osgood 1996). Despite the general negative influence of involvement on deviant behavior, some research has shown that this bond is a stronger predictor for males than for females (Huebner and Betts 2002; Ozbay and Ozkan 2008; Daigle, Cullen and Wright 2007). Based on this previous research, it is expected that the bond of

involvement will be a stronger predictor of tolerant attitudes toward deviance and deviant behavior for males in the sample. Belief in the legitimacy of the law has also been empirically validated as a deterrent to deviant behavior (Krohn and Massey 1980; Massey and Krohn 1986; Tyler 1990; Sampson and Bartusch 1998). While no research has shown this social bond to be a more valid predictor of deviant behavior for one gender over another, it is predicted that belief will have a stronger influence on females' attitudes toward deviance and deviant behavior due to the inter-relationship of religious belief and belief in the legitimacy of the law (Donaldson, Graham, & Hansen 1994; Elliott & Menard, 1996 Benda 1997; Zhang, Wieczorek, & Welte 1997; Elifson, Peterson and Hadaway 2006; Benda and Corwyn 2002; Desrosiers and Miller 2008; Nonemaker, McNeely and Blum 2003; Johnson et al 2001; Johnson et al 2000; Cernkovich and Giordano 1992; Rankin and Kern 1994). This relationship is predicted based on the literature that demonstrates that females tend to be more religious than males (Roth and Kroll 2007; Sullins 2006; Jang and Johnson 2005). In relation to differential association theory, it is expected that association with deviant peers will have a stronger influence on tolerant attitudes toward deviance and deviant behavior for males in the sample. This relationship is predicted based on empirical research that has established that association with deviant peers is a more powerful predictor of tolerant attitudes toward deviance and deviant behavior for males rather than females (Alarid, Burton and Cullen 2000). Finally, it is expected that both the scientific worldview and the cultural ideology of individualism will be a stronger predictor of males' tolerant attitudes toward deviance and deviant behavior than females. This relationship is predicted based on previous research that demonstrates that males are socialized into the scientific realm at a greater rate than are females (Hartman and Hartman 2008; Phipps 2006) and that, in relation to males, females tend to express preference for cooperative and group oriented

relationships while males favor competitive relationships (Realo, Allik and Badi 2002; Watkins et al 1998).

Model 1: Hypothesized relationships among study variables



CHAPTER III

METHODOLOGY

Data for this dissertation was collected from a sample of college students at a large research-based university located in the southwestern part of Virginia. All data included in this study was collected within one semester (approximately one and a half months). Questionnaires were distributed to students in attendance for six undergraduate sociology classes. One of the classes was an introductory level freshman course, four were sophomore level courses, and one was a senior level course. Participation in this study was voluntary. Since student attendance records were not taken on the days of survey distribution, there is no way to accurately configure the rate of participation. However, from the number of completed surveys obtained from each class and based on a visual inspection of the classes, there is no reason to believe that rates of participation fell below fifty percent.

A total of 239 surveys were collected from students. However, only 202 surveys provided all of the necessary information. The course levels of classes involved in the study range from freshman to senior, and there was a relatively even distribution of each year in school represented in the final sample. Roughly, 27% of the sample were freshmen, 24% were sophomore, 30% were juniors and 19% were seniors. Of the 202 respondents whose data was utilized in this study, 71 or roughly 35% were male and 131 or roughly 65% were females, thus the survey is heavily skewed toward females. The overall gender distribution for the sample roughly matches the gender distribution within each of the courses that was surveyed; the data was also skewed toward females. In the introductory course, 69.3% of those enrolled were female; in the four sophomore level courses that were surveyed the data was also skewed toward females. The gender distribution in these courses was 69.2% female, 88.1% female, 50%

female, and 56.3% female respectively. Finally, the senior level course was 68.2% female. Thus, overall the classes were approximately 66% female. When compared with the overall gender distribution that indicated that the sample was 65% female, it indicates that the sample is not as heavily skewed toward females as it first appeared. Instead, it reflects the gender distribution of the population from which it was selected. Roughly 84% of the sample identified themselves as white, 1.0% indicated that they were white, not of Hispanic descent, 3% indicated that they were white and were of Hispanic descent, 5% identified themselves as black, .5% identified themselves as black and not of Hispanic descent, 1% responded that they were black and were of Hispanic descent, 4.5% indicated that they were Asian and 1.5% indicated that they fell into some other racial or ethnic classification.

The survey instrument was constructed using Dillman's (2000) Tailored Design Method and consisted of nine different sections-in order of appearance: (1) informed consent attainment, (2) description of self and self beliefs, (3) importance of goals and perceived likelihood of achieving said goals, (4) behavior of close friends, (5) attitudes toward a variety of deviant behaviors, (6) self-report deviance, (7) involvement in various activities (8) personal opinions on frequently discussed issues and (9) demographic and social characteristics of the respondent (see Appendix A for the complete survey). In total, the survey contained fifty-eight questions and took approximately twenty minutes for participants to complete. The survey document was approved for use by Virginia Tech's Internal Review Board [approval # 08-574 FR] (see Appendix A for complete survey).

In addition to the survey, each respondent was given two copies of an IRB approved consent form (see Appendix B) and was instructed to read it carefully and sign both copies if they agreed to participate in the study. Individual respondents were asked to return one copy of

the informed consent document to the principal investigator and to keep the other copy for their own personal records. The consent form included an introduction to the study as well as instructions of anonymity and notification of freedom to withdraw from the study at any time.

Subsequent to the data collection process, individual respondent's sheets were taken to the University's test scoring center where they were scanned and entered into a spreadsheet program. Upon receipt of the original file from the test scoring center, I transferred the data into an SPSS format using the STAT transfer program. The data set originally consisted of 239 cases; however, 37 respondents refused to answer survey questions and were eliminated from the data set. A final data preparation process was the assignment of variable names and variable labels to the survey questions.

The dependent variable

The dependent variable for this analysis is deviant behavior. The behaviors chosen to represent the dependent variable reflect a range of criminal and deviant behavior with differing degrees of severity. Overall, 11 different items were included on the survey (see Table 1 for the items included in the measure of deviant behavior and Appendix A for exact question wording). An overall formative index of deviant behavior was created that included all eleven measures of deviance that were asked of survey participants. These measures were adapted from the National Youth Survey (Elliot 1977-1983) and used in a formative index of deviance by Elliot, Huizinga, and Ageton (1984). Items included in this scale range from acts of deviance that are mild in nature to more major criminal acts. Furthermore, there are acts included in this index that few people in the sample have engaged in. The theory, as presented in this research, does not specify that holding a scientific worldview and valuing the cultural ideology of individualism will lead to a specific type of deviant behavior. The measure was designed to include a wide range of

deviant behaviors, all of which are deviant by legal definition and all of which have face validity. Including this wide range of measures, despite the fact that few people in the sample have engaged in several of the selected measures, accomplishes two goals. First, it captures people that only engage in more serious forms of deviant behavior, and it avoids the criticism often made of Hirschi (1969) that his theory only explains minor acts of deviance. While analyzing these items separately could pose methodological problems such as an extremely skewed dependent variable that makes it difficult to explain any variation, including them in an index does not pose this problem because overall the index has a fairly normal distribution. Overall, the dependent variable in this study provides a valid measure of a wide range of deviant behaviors which allows for a more stringent test of the theory. Limiting the measure to only minor acts of deviance would only increase the probability that the theory would be supported. In creating this measure of deviant behavior, I am conducting a more critical test of the proposed theory.

In order to create the formative index of deviant behavior, each of the eleven deviance variables was first reverse coded so that a high score of 4 indicated that the respondent had engaged in the deviant behavior six or more times over the past year, and a low score of 1 indicated that the respondent had not engaged in the behavior at all over the past year. Next, each of the variables was again recoded into a dummy variable where a score of zero indicated that the individual had not engaged in the deviant behavior and a score of one indicated that they had. The decision to recode the scale into dummy variables was made because, recoded in this manner, each item designates whether or not an individual has engaged in a particular behavior, and the more behaviors that a respondent has engaged in the more deviant they can be considered. Finally, the formative index of deviance was computed by adding each of the

deviant behaviors together. (See Table 1 for descriptive statistics). An alpha reliability analysis conducted on the formative index produced a Chronbach's alpha of .57. Since this index is a "formative indicator" or a "composite latent variable" the inter-item correlations are unimportant. That is, for these concepts, the indicators are not reflective of their respective concepts. Instead, the concepts are dependent on their respective indicators with each item representing engaging in deviance. In this type of measurement model, the items may be positively correlated, inversely correlated or uncorrelated (see Bollen and Lennox 1991).

Table 1: Descriptive Statistics for Dependent Variable

	Range	Mean	Standard Deviation
Variables used to construct measure of deviant behavior			
<i>How often have you cheated on school tests</i>	1	.41	.49
<i>How often have you binge drank alcohol</i>	1	.76	.43
<i>How often have you smoked marijuana?</i>	1	.40	.49
<i>How often have used stimulants?</i>	1	.04	.20
<i>How often have you used designer drugs?</i>	1	.04	.20
<i>How often have you used opiates?</i>	1	.01	.10
<i>How often have you destroyed property?</i>	1	.08	.28
<i>How often have you stolen something?</i>	1	.22	.41
<i>How often have you burglarized a home or business?</i>	1	.01	.01
<i>How often have you downloaded songs or movies off the internet without paying for them?</i>	1	.71	.46
<i>How often have you used violence against another person?</i>	1	.13	.34
<i>Formative index of deviant behavior</i>	9	2.8	1.7

The independent variables

The independent variables in this analysis are individualism, the scientific worldview, attachment, commitment, involvement, belief, association with deviant peers and attitudes toward less serious deviance. While all of the independent variables were saved as a standardized factor, I will still be reporting the metric scale descriptive for each measure to give a sense of what the variable distribution looks like. Measures of individualism included in the survey were adapted from measures used in the Auckland Individualism and Collectivism Scale (AICS) (Shulfruf, Hattie, and Dixon 2007). Respondents were asked to indicate their level of agreement to four questions designed to tap levels of individualism. The questions asked respondents to report whether they “always,” “almost always,” “almost never,” or “never” would use the following statements to describe themselves: 1) *I see myself as my own person*, 2) *it is important for me to be able to act as an independent person*, 3) *I enjoy being unique and separate from others*, and 4) *I consider myself as a unique and separate person from others*. Each of these items was recoded so that the high value, 4, indicated the respondent always thought of, or described himself or herself in these ways, and a low score of 1 indicated that they never thought of or described themselves in this manner. Subsequent to the recoding of the variables, a factor analysis was conducted. This analysis showed that all four variables loaded on a single factor. Therefore, the items were retained in one measure of individualism and saved as a standardized scale. Scale reliability analysis for this variable is .61. See Table 2 for descriptive statistics.

Table 2: Descriptive Statistics and Chronbach's Alpha for Individualism Variables N=202

	Range	Mean	Standard Deviation	Chronbach's Alpha for Scale
Variables used to construct scale of individualism				
<i>I see myself as "my own person"</i>	4	3.50	.55	
<i>It is important for me to be able to act as an independent person</i>	4	3.50	.55	
<i>I enjoy being unique and different from others</i>	4	3.27	.54	
<i>I consider myself as a unique person separate from others</i>	4	3.31	.61	
Individualism Scale	16	13.58	1.52	.61

The second independent variable in this analysis, the scientific worldview, was constructed using the following questions: 1) *Science is likely to solve the world's problems such as global warming, overpopulation and hunger*, 2) *I consider myself to be religious person*, 3) *how often do you attend religious services*, and 4) *how often do you pray*. The trust in science variable is an original measure developed for this study and was designed to measure the extent to which the individual respondent ascribes to scientific rationalism or the scientific worldview. The variables measuring the individual's religiosity, religious service attendance and frequency of prayer were adapted from measures used in the General Social Survey (Davis, Smith and Marsden 2003). The questions designed to measure the respondent's trust in science and religiosity were both recoded so that a high score of 4 indicated that the respondent "tended to strongly agree" with the statement and a low score of 1 indicated that the respondent "tended to strongly disagree" with the statement. The variables designed to measure frequency of religious service attendance and frequency of prayer were left in their original coded form where

a high score indicated that the respondent “never” attended religious services or prayed and a low score indicated that they attended religious services or prayed “almost every day.” After the recoding procedures were completed, the variables were factor analyzed. The analysis showed that all four variables loaded a single factor. This factor was saved as a standardized variable and was labeled the scientific worldview. The scale reliability analysis for this variable is .77. See Table 3 for descriptive statistics.

Table 3: Descriptive Statistics and Chronbach’s Alpha for Scientific Worldview (N =202)

	Range	Mean	Standard Deviation	Chronbach’s Alpha for Scale
Items used to construct the scientific worldview scale				
<i>Science is likely to solve the world’s problems such as global warming, overpopulation and hunger</i>	4	2.67	.76	
<i>How often do you attend religious services?</i>	6	4.48	1.25	
<i>How often do you pray?</i>	6	3.01	1.85	
<i>I consider myself to be a religious Person</i>	4	2.43		
Scientific Worldview Scale	20	12.58	3.93	.77

Association with deviant peers is the third independent variable for this analysis. The measures used to develop this variable were adapted from the National Youth Survey (Elliot 1977-1983) and used by Elliot, Huzinga, and Ageton (1984) and are designed to represent Sutherland’s (1939) differential association theory. The questions: 1) *During the past year, how many of your closest friends have cheated on school tests*, 2) *during the past year, how many of your closest friends have binge drank alcohol*, and 3) *during the past year how many of your closest friends have smoked marijuana* were each recoded so that a high score indicated that almost all of the respondents’ friends had engaged in these behaviors, and a low score indicated

that none of the respondents' friends had engaged in these behaviors. Next, a factor analysis was conducted on these three variables. The analysis showed that all three variables loaded on a single factor. Therefore, the scale was standardized and saved as the variable association with deviant peers. Scale reliability analysis showed that the association with deviant peers scale has an alpha reliability of .73. See Table 4 for descriptive statistics.

Table 4: Descriptive Statistics and Chronbach's Alpha for Association with Deviant Peers Scale (N=202).

	Range	Mean	Standard Deviation	Chronbach's Alpha
Variables used to construct the scale association with deviant peers				
<i>During the past year, how many of your closest friends have cheated on school tests?</i>	5	2.78	1.04	
<i>During the past year, how many of your closest friends have binge drank alcohol?</i>	5	4.05	1.12	
<i>During the past year, how many of your closest friends have used marijuana?</i>	5	3.02	1.02	
Association with Deviant Peers Scale	15	9.86	2.57	.73

The variables attachment to significant others, commitment to legitimate lines of success, belief in the legitimacy of the law and involvement in legitimate activities are included as independent variables and represent the four social bonds theoretically described and methodologically developed by Hirschi (1969). The questions devised to measure the bond of attachment were based on Hirschi's (1969) original measures of this methodological concept (see Appendix A for all variables designed to measure attachment). After a preliminary investigation of the correlations among the variables designed to measure this bond, the following survey questions were selected for use: 1) *My family is important to me*, 2) *It is important for my mother or female guardian to respect me*, and 3) *it is important for my father or male guardian*

to respect me. Survey respondents were asked to indicate their level of agreement with each of these questions using the following categories: “Tend to strongly agree,” “tend to agree,” “tend to disagree,” and “tend to strongly disagree.” Each of these variables was reverse coded so that a response of “tend to strongly agree” received the highest value and a response of “tend to strongly disagree” received the lowest coded value. Next, a factor analysis of these variables was conducted that showed that the three items loaded on a single factor. The scale reliability for this analysis produced an alpha of .58. Therefore, the items were saved as a standardized variable and labeled attachment. See Table 5 for descriptive statistics.

Table 5: Descriptive Statistics for Attachment (N=202).

	Range	Mean	Standard Deviation
Items used to construct the attachment scale			
<i>My family is important to me</i>	4	1.12	.36
<i>It is important for my mother or female guardian to respect me</i>	4	1.35	.62
<i>It is important for my father or male guardian to respect me</i>	4	1.48	.78
Attachment scale	12	11.09	1.29

The commitment variable was constructed using questions based on Hirschi’s (1969) original conception of the bond of commitment. The questions 1) *I try hard in school* and 2) *getting a good education is important to me* were used to measure this variable. Each of these variables was recoded so that a high score indicated that the respondent “tended to strongly agree” with the statement, and a low score indicated that the respondent “tended to strongly

disagree” with the statement. The inter-item correlation for these two variables was .290 (p<.01). A factor analysis of these two variables showed that they both loaded on a single factor. Therefore, they were saved as a standardized variable used to measure commitment to legitimate lines of success. See Table 6 for descriptive statistics.

Table 6: Descriptive Statistics for Commitment (N=202).

	Range	Mean	Standard Deviation
Items used to construct the commitment scale			
<i>I try hard in school.</i>	4	3.36	.67
<i>Getting a good education is important to me.</i>	4	3.79	.46
Commitment Scale	8	7.15	.92

Measures of involvement in the educational institution were adapted from Hawdon’s (1999) re-conceptualization of involvement as routine activity patterns. In his analysis of the bond of involvement, Hawdon (1999) found that seven distinct patterns of involvement emerged: athletic pattern, recreational pattern, social pattern, literary pattern, academic pattern, performing arts pattern and arts and crafts pattern. The factor analysis of items developed to measure the involvement bond for the current study showed that a clear academic pattern emerged. Thus, the following questions were selected to compose the measure of academic involvement: 1) *How often do you participate in school clubs or activities such as volunteer work and 2) How often do you study.* The inter-item correlation for these two variables was .204 (p<.01). Each of these variables was first recoded so that a high value of 5 indicated that the respondent engaged in these academic activities “almost every day,” and a low score of 1 indicated that they “never” engaged in these activities. Next, the two items were used to create a scale of involvement and were saved as standardized variables. See Table 7 for descriptive statistics.

Table 7: Descriptive Statistics for Involvement (N=202).

	Range	Mean	Standard Deviation
Variables used to construct the involvement scale			
<i>How often do you participate school clubs or activities such as volunteer work?</i>	5	3.26	1.13
<i>How often do you study?</i>	5	4.46	.55
Involvement scale	10	7.71	1.35

Measures of belief in the legitimacy of the law were adapted from Hirschi's (1969) original conceptualization of the bond of belief. While belief in the legitimacy of the law can refer to belief in the moral validity of written law, it can also refer to the legitimacy of law enforcement. Measures originally used by Hirschi (1969) that gauge belief in the moral validity of the law such as "*It is alright to get around the law if you can get away with it,*" were not selected for use in this study because the content of this measure is similar to the measures of attitudes toward deviance utilized in this study. Further, most studies on social control theory operationalize the variable belief in the legitimacy of the law as it is in this study (see Kemp 1993). While not measuring belief in the moral legitimacy of the law could be a potential limitation to this study, it is not, as measures that tap belief in the moral legitimacy of the law are included in the measure of attitudes toward deviance. The measures used to construct belief in the legitimacy of law enforcement add further elucidation to the process through which individuals become deviant. Respondents were asked to indicate whether they "tend to strongly agree," "tend to agree," "tend to disagree," or "tend to strongly disagree" with the following statements: 1) *You should respect the police and 2) the police are honest.* The inter-item

correlations between these two variables are .481($p < .01$). Each of these variables was reverse coded so that a high score indicated that the respondents “tended to strongly agree” with the statement, and a low score indicated that the respondent “tended to strongly disagree” with the statement. Subsequent to the recoding procedures a factor analysis was conducted on these two variables. The results of the factor analysis indicated that the two variables comprised a single measure. Therefore, the variables were saved as one standardized measure of belief in the legitimacy of the law. See Table 8 for descriptive statistics.

Table 8: Descriptive Statistics and Chronbach’s Alpha for Belief in the Legitimacy of the Law (N=202).

	Range	Mean	Standard Deviation
Items used to construct scale			
<i>The police are honest.</i>	4	2.62	.67
<i>You should respect the police.</i>	4	3.35	.66
Belief in the legitimacy of the law scale	8	5.97	1.14

Finally, the survey contained measures designed to assess an individual’s attitudes toward deviance that was adapted from the National Youth Survey (Elliot 1977-1983) and was used by Elliot, Huzinga, and Ageton (1985). Respondents were asked to indicate, in their opinion, how wrong they felt various acts of deviance were using the following response categories: “Not wrong at all,” “a little bit wrong,” “wrong” or “very wrong.” After conducting a factor analysis on all the attitudes toward deviance variables included in the survey (see Appendix A for full listing of questions designed to measure attitudes toward deviance) a measure of attitudes toward less serious deviance was selected for use in this analysis. While the dependent variable, deviant behavior, includes both minor and major acts of deviance, the attitudinal tolerance of deviance

scale only includes attitudes toward less serious types of deviance. Using this measure to predict more serious types of deviance speaks to the overall validity of the assertions that these factors predict or possibly cause deviant behavior. It is much more powerful to demonstrate that someone who is attitudinally tolerant of less serious types of deviance is personally engaging in more serious types of deviant behavior. The attitudes toward deviance scale includes the following questions: 1) *How wrong is it to cheat on school tests*, 2) *how wrong is it to binge drink alcohol*, 3) *how wrong is it to smoke marijuana*, and 4) *how wrong is it to download songs or movies off the internet without paying for them*. Each of these variables was reverse coded so that a high score indicated tolerance of deviance and a low score indicated intolerance of deviance. The variables were then entered into a factor analysis and saved as standardized scores. The alpha reliability analysis for this variable produced an alpha of .73. See Table 9 for descriptive statistics.

Table 9: Descriptive Statistics and Chronbach’s Alpha for Attitudes toward Deviance (N=202).

	Range	Mean	Standard Deviation	Chronbach’s Alpha for Scale
Items used to construct attitudes toward deviance scale				
<i>In your opinion, how wrong is it to cheat on school tests?</i>	4	1.72	.73	
<i>In your opinion, how wrong is it to binge drink alcohol?</i>	4	2.94	.84	
<i>In your opinion, how wrong is it to smoke marijuana?</i>	4	2.69	1.0	
<i>In your opinion, how wrong is it to download songs or movies off the internet without paying for them?</i>	4	2.86	.76	
Attitudes toward deviance scale	16	10.22	2.48	.73

CHAPTER IV

RESULTS

Zero-order correlations

Table 10 presents the zero-order correlations among the variables under investigation. Attachment to significant others only obtained significant correlations with involvement (.148, $p < .05$) and the scientific worldview (-.197, $p < .01$). The variable commitment to legitimate means of success was positively correlated with involvement in legitimate activities (.268, $p < .01$), belief in the legitimacy of the law (.258, $p < .01$) and individualism (.244, $p < .01$) and was significantly and negatively correlated with association with deviant peers (-.147, $p < .05$), tolerant attitudes toward deviance (-.144, $p < .05$) and deviant behavior (-.235, $p < .05$).

Involvement in legitimate activities is significantly and positively correlated with belief in the legitimacy of the law (.139, $p < .05$) and is significantly and negatively correlated with association with deviant peers (-.155, $p < .05$), the scientific worldview (-.171, $p < .05$), tolerant attitudes toward deviance (-.182, $p < .01$) and deviant behavior (-.269, $p < .01$). The variable belief in the legitimacy of the law obtained a positive and significant correlation with individualism (.147, $p < .05$) and is negatively and significantly correlated with association with deviant peers (-.272, $p < .01$), the scientific worldview (-.167, $p < .05$), tolerant attitudes toward deviance (-.373, $p < .01$) and deviant behavior (-.308, $p < .01$). Association with deviant peers is positively and significantly correlated with the scientific worldview (.259, $p < .01$), tolerant attitudes toward deviance (.547, $p < .01$) and deviant behavior (.591, $p < .01$). The scientific worldview is positively and significantly correlated with both tolerant attitudes toward deviance (.384, $p < .01$) and deviant behavior (.260, $p < .01$). Finally, tolerant attitudes toward deviance are positively and significantly correlated with deviant behavior (.582, $p < .01$).

Table 10: Zero-order Correlations for Attachment, Commitment, Involvement, Belief, Association with Deviant Peers, Science, Individualism, Attitudes toward Deviance and Deviant Behavior (N=202).

	Attachment	Commitment	Involvement	Belief	Deviant Peers	Science	Individualism	Attitudes toward Deviance	Deviant Behavior
Attachment	1	.148*	.082	.103	.015	-.197**	.065	-.036	-.054
Commitment	.148*	1	.268**	.258**	-.147*	-.061	.244**	-.144*	-.235**
Involvement	.082	.268**	1	.139*	-.155*	-.171*	-.037	-.182**	-.269**
Belief	.103	.258**	.139*	1	-.272**	-.167*	.147*	-.373**	-.308**
Deviant Peers	.015	-.147*	-.155*	-.272**	1	.259**	-.086	.547**	.591**
Science	-.197**	-.061	-.171*	-.167*	.259**	1	.051	.384**	.260**
Individualism	.065	.244**	-.037	.147*	-.086	.051	1	-.053	-.109
Attitudes toward Deviance	-.036	-.144*	-.182**	-.373**	.547**	.384**	-.053	1	.582**
Deviant Behavior	-.054	-.235**	-.269**	-.308**	.591**	.260**	-.109	.582**	1

**** Correlation is significant at the .01 level**

*** Correlation is significant at the .05 level.**

Structural Equation Modeling

The multivariate statistical technique that was utilized in this analysis was structural equation modeling. Structural equation modeling was selected due to its ability to use regression equations to construct both direct and indirect paths between the study variables and for the ability of this statistical technique to estimate a total causal effect of the entire model (Knoke, Bohrnstedt and Mee 2002). A preliminary analysis of the hypothesized model showed that the variable attachment had a non-normal distribution, and none of the paths involving this variable were statistically significant. Since this variable was not significantly related to any of the other variables in the study, it was dropped from the subsequent analyses. The first model that was

tested included all the hypothesized relationships among the study variables as well as relationships among variables suggested by the modification indices of AMOS. Tables 11 and 12 present the results of the structural equation model on the full model. The chi-square for the full model was 4.05 with 4 degrees of freedom and a probability level of .399. This statistic indicates that the null hypothesis that the model does not adequately fit the data should not be rejected. In the full model, individualism has a direct, significant, and positive relationship with commitment ($B=.248, p<.01$), commitment has a direct, significant, and positive relationship with involvement ($B=.259, p<.01$), association with deviant peers has a direct, significant and positive relationship with tolerant attitudes toward deviance ($B=.422, p<.01$), the scientific worldview has a direct, significant, and positive relationship with tolerant attitudes toward deviance ($B=.231, p<.01$), belief in the legitimacy of the law has a direct, significant, and negative relationship with tolerant attitudes toward deviance ($B=-.213, p<.01$), association with deviant peers has a direct, significant, and positive relationship with deviant behavior ($B=.606, p<.01$) and tolerant attitudes toward deviance has a direct, significant, and positive relationship with deviant behavior ($B=.546, p<.01$). Individualism was hypothesized to have a direct and positive relationship with favorable attitudes toward deviance. While the path coefficient between the two variables was positive, ($B=.001$), the path did not obtain statistical significance. Commitment to the legitimate means of success was also hypothesized to be directly and negatively related to tolerant attitudes toward deviance; however the path coefficient for this relationship ($B=.000$) also failed to obtain statistical significance. Further, belief in the legitimacy of the law, commitment to the legitimate means of success, and involvement in legitimate activities were all hypothesized to have a direct and negative relationship with deviant behavior. While each of these variables was negatively related to deviant behavior with path

coefficients of -.070, -.134, and -.210 respectively, none of the paths obtained statistical significance. The model fit statistics for the full model indicate that the model is a good fit. The GFI for this model was .995 (A GFI statistic of 1.00 indicates a perfect fit), the CFI was 1.00 (A CFI statistic of 1.0 indicates a very good fit) and the RMSEA was .08 (A RMSEA .05 or less indicates a close fit and .08 is acceptable). In the full model, the independent variables explained 47.6% of the variance in deviant behavior.

Table 11: Results of Structural equation model on Full Model (N=202).

	B	Standard Error
Commitment ← Individualism	.248*	.068
Commitment ← Science	-.074	.068
Involvement ← Commitment	.259*	.067
Belief ← Individualism	.100	.069
Belief ← Science	-.159	.067
Belief ← Commitment	.224	.069
Involvement ← Science	.155	.067
Association with Deviant Peers ← Science	.207	.068
Association with Deviant Peers ← Involvement	-.074	.069
Association with Deviant Peers ← Belief	-.212	.069
Attitudes toward Deviance ← Association with Deviant Peers	.422*	.058

Table 11 continued...

	B	Standard Error
Attitudes toward Deviance←Individualism	.056	.058
Attitudes toward Deviance←Commitment	.060	.057
Deviant Behavior←Association with Deviant Peers	.363*	.103
Deviant Behavior←Belief	-.042	.095
Deviant Behavior←Attitudes toward Deviance	.327*	.111
Deviant Behavior←Commitment	-.080	.093
Deviant Behavior←Individualism	-.040	.088
Deviant Behavior←Science	.010	.093
Deviant Behavior←Involvement	-.126	.090
GFI	.995	
CFI	1.00	
RMSEA	.008	
Squared Multiple Correlation	47.6	

Table 12: Standardized Direct, Indirect and Total Effects of the Independent Variables on Deviant Behavior in the Full Model (N=202).

	Direct effects	Indirect effects	Total effects
Scientific Worldview	.010	.247	.266
Individualism	-.040	-.072	-.112
Commitment	-.080	-.125	-.205
Involvement	-.126	-.053	-.178
Belief	-.042	-.176	-.218
Association with Deviant Peers	.363	.138	.501
Attitudes toward deviance	.327	.000	.327

Due to the lack of significant relationships among many of the variables in the study, the full model was trimmed to eliminate insignificant paths with the exception of the path between individualism and attitudes toward deviance since this variable was a key independent variable in the study. The trimmed model was then analyzed to determine direct and indirect relationships among study variables. The results of this analysis are presented in Model 2 and in Tables 13 and 14.

Direct effects in trimmed model

The trimmed model utilized a sample size of 202 cases, and the chi-square for this model was 13.713 with 12 degrees of freedom ($F=.319$). Several of the relationships between study variables that were hypothesized obtained statistically significant direct paths in the trimmed model. First, association with deviant peers is positively related to tolerant attitudes toward deviance ($B= .427, p<.01$). For each standard deviation unit increase in association with deviant peers, there is a corresponding .427 standard deviation unit increase in tolerant attitudes toward deviance. As hypothesized, belief in the legitimacy of the law is significantly and negatively related to tolerant attitudes toward deviance ($B= -.218, p<.01$). Thus, as a respondent's belief in the legitimacy of the law increases one standard deviation unit, tolerant attitudes toward deviance decreases .218 standard deviations. A key finding is that ascribing to the scientific worldview is directly, positively, and significantly related to tolerant attitudes toward deviance ($B= .237, p<.01$). For each standard deviation unit increase in ascription to a scientific worldview there is a corresponding .237 standard deviation unit increase in attitudinal tolerance of deviance. As hypothesized, association with deviant peers is positively related to deviant behavior ($B= .376, p<.01$). An increase of one standard deviation unit in association with deviant peers leads to an

increase in deviant behavior by .376 standard deviation units. Involvement has a negative effect on deviant behavior ($B = -.165, p < .05$). For each standard deviation unit increase in involvement in legitimate activities, deviant behavior decreases by .165 standard deviation units. Finally, attitudinal tolerance of deviance is directly, significantly and positively related to deviant behavior ($B = .349, p < .01$). As attitudinal tolerance of deviance increases by one standard deviation unit, deviant behavior increases by .349 standard deviation units.

In addition to the hypothesized relationships that obtained statistically significant relationships, several other paths in the model were directly and significantly related. Involvement in legitimate activities and commitment to the legitimate means of success were positively and significantly related ($B = .248, p < .01$). For each standard deviation unit increase in involvement, there is a corresponding .248 standard deviation unit increase in commitment. Commitment to the legitimate means of success was directly and significantly related to belief in the legitimacy of the law ($B = .224, p < .01$). As commitment increases one standard deviation unit, there is a corresponding .224 standard deviation unit increase in belief. Ascription to the scientific worldview and belief in the legitimacy of the law are directly and negatively related ($B = -.159, p < .01$). For each standard deviation unit increase in ascription to the scientific worldview, there is a corresponding .159 standard deviation unit decrease in belief in the legitimacy of the law. Ascription to the scientific worldview and association with deviant peers is also directly and significantly related ($B = .219, p < .01$). As ascription to the scientific worldview increases by one standard deviation unit, association with deviant peers increases by .219 standard deviation units. Belief in the legitimacy of the law is directly, negatively and significantly related to association with deviant peers ($B = -.236$).

Model 2: Trimmed model

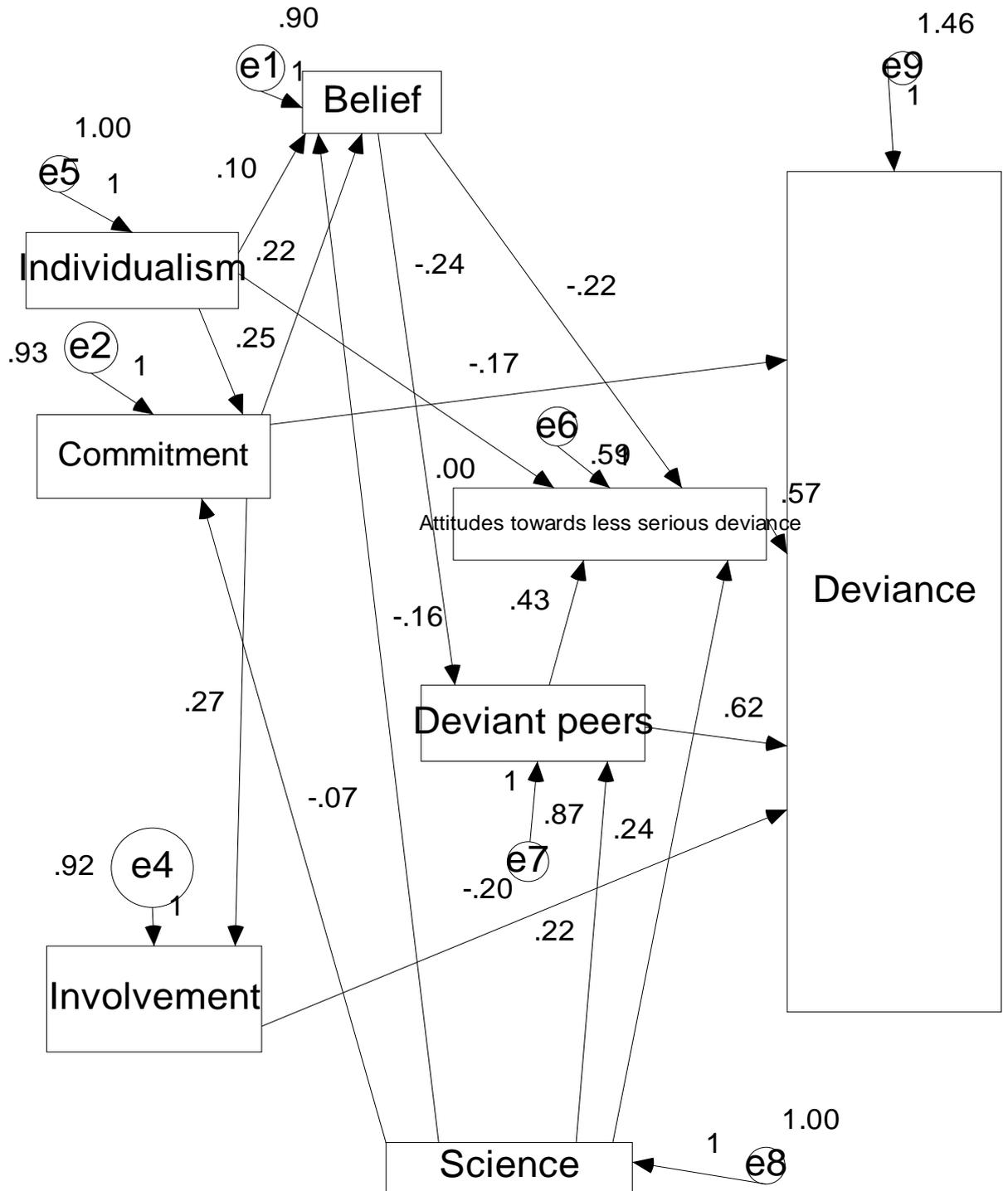


Table 13: Direct Effects in Trimmed Model (N=202).

	B	S.E.
Commitment ← Individualism	.248*	.068
Science ← Commitment	-.074	.068
Belief ← Individualism	1.0	.069
Belief ← Commitment	.224	.069
Belief ← Science	-.159*	.067
Deviant Peers ← Science	.219*	.067
Deviant Peers ← Belief	-.236*	.067
Attitudes ← Deviant Peers	.427*	.058
Attitudes ← Individualism	.004	.055
Attitudes ← Science	.237*	.057
Involvement ← Commitment	.268*	.068
Attitudes ← Belief	-.218*	.057
Deviant Behavior ← Deviant Peers	.376*	.102
Deviant Behavior ← Attitudes	.349*	.102
Deviant Behavior ← Commitment	-.101	.089
Deviant Behavior ← Involvement	-.125	.089
GFI	.983	
CFI	.994	
RMSEA	.027	
Squared Multiple Correlation	45.6	

* Indicates significant relationship

Table 14: Standardized Direct, Indirect and Total Effects of the Independent Variables on Deviant Behavior in the Trimmed Model (N=202).

	Direct Effects	Indirect Effects	Total Effects
Science	.000	.242	.242
Individualism	.000	-.063	-.063
Commitment	-.101	-.078	-.179
Involvement	-.125	.000	-.125
Belief	.000	-.200	-.200
Association with Deviant Peers	.376	.149	.525
Attitudes toward Deviance	.349	.000	.349

For each standard deviation unit increase in belief in the legitimacy of the law, there is a corresponding .236 standard deviation unit decrease in association with deviant peers. Finally, commitment to the legitimate means of success and involvement in legitimate activities are directly and positively related ($B = .268, p < .01$). As commitment to the legitimate means of success increases by one standard deviation unit, involvement in legitimate activities increases by .268 standard deviation units.

While the previously discussed paths were the only paths to obtain statistically significant relationships in the trimmed model, there are several other paths worth mentioning due to the hypothesized relationships previously stated in this study. First, while individualism and tolerant attitudes toward deviance were positively related in the model ($B = .004$), the path coefficient between these two variables failed to obtain statistical significance. Commitment to the legitimate means of success in society was hypothesized to have a direct, negative and statistically significant effect on deviant behavior. While commitment was indeed negatively associated with deviant behavior ($B = -.165$), the path between these two variables failed to obtain a statistically significant relationship.

Indirect relationships in the trimmed model

In addition to the direct relationships among variables in the trimmed model, there are also several indirect relationships of note between the key independent variables, the scientific worldview and individualism and attitudinal tolerance of deviance as well as between the independent variables and deviant behavior. (See Table 13 for summary of all indirect relationships in model.) First, in addition to its direct effect, the scientific worldview is indirectly related to tolerant attitudes toward deviance. The indirect relationship between the scientific worldview and tolerant attitudes toward deviance is mediated through the scientific worldview's effect on association with deviant peers and through its affect on belief in the legitimacy of the law. Individualism is also indirectly related to tolerant attitudes toward deviance. The indirect relationship between individualism and tolerant attitudes toward deviance is mediated by individualism's affect on belief in the legitimacy of the law. Both the scientific worldview and individualism are indirectly related to deviant behavior. The scientific worldview is indirectly related to deviant behavior in two separate ways: first, through its effect on association with deviant peers and secondly through its effect on attitudinal tolerance of deviance. Individualism is indirectly related to deviant behavior first through its effect on commitment to the legitimate means of success and secondly through its affect on tolerant attitudes toward deviance.

Summary of Trimmed Model

The following section contains the total effects of the independent variables in the model on the dependent variable deviant behavior, model fit statistics for the trimmed model and the squared multiple correlation for the effects of the independent variables on the dependent

variable, deviant behavior. The total standardized effect of commitment to the legitimate lines of success on deviant behavior was $-.179$, involvement in legitimate activities had a total effect on deviant behavior of $-.125$. The variable belief in the legitimacy had a total standardized effect of $-.200$ on deviant behavior, for association with deviant peers the total standardized effect was $.525$ on deviant behavior. The scientific worldview had a total effect on deviant behavior of $.242$ and individualism had a total effect of $-.063$. Finally, tolerant attitudes toward deviance had a total standardized effect on deviant behavior of $.349$. Thus, the total effects of the variables designed to measure Hirschi's (1969) social control theory each had a negative total effect on the dependent variable as would be expected given the hypothesized relationships among these variables and deviance. Further, as expected, association with deviant peers, the adoption of a scientific worldview and tolerant attitudes toward deviance all had positive total standardized effects on the dependent variable deviant behavior. However, contrary to the hypothesized relationship, individualism had a negative total standardized effect on deviant behavior. Overall, the model was a good fit. The GFI for the trimmed model was $.983$, the CFI was $.994$ and the RMSEA was $.027$. In total, the independent variables in the trimmed model explained 45.6% of the variance in the dependent variable, deviant behavior.

Gendered Results

The Male Model

The final step in the multivariate analysis for this study was to conduct two separate tests of the trimmed model, one for males and one for females, to determine if there were any significant differences in results between these two groups. The total sample contained 71 males. Model 3 presents the structural equation model results for males. Tables 15 and 16

present the results in table format. For the male model the chi-square statistic is 16.161 with 12 degrees of freedom ($F=.184$). Several relationships hypothesized to be directly and significantly related in the overall trimmed model also gained statistical significance in the male model. First, association with deviant peers and tolerant attitudes toward deviance were directly, positively and significantly related ($B=.523, p<.01$). For each standard deviation unit increase in association with deviant peers, there is a corresponding .523 standard deviation unit increase of tolerance for deviance among the male sample. The path coefficient between ascription to the scientific worldview and tolerant attitudes toward deviance obtained a statistically significant positive relationship ($B=.224, p<.05$). As ascription to the scientific worldview increases by one standard deviation unit, tolerant attitudes toward deviance increases by .224 standard deviation units. The direct path between belief in the legitimacy of the law and tolerant attitudes toward deviance also obtained statistical significance ($B=-.172, p<.05$). Thus, for each standard deviation unit increase in belief in legitimacy of the law there is a corresponding .172 standard deviation unit decrease in tolerant attitudes toward deviance among the male sample. Finally, association with deviant peers is directly and positively related to deviant behavior ($B=.507, p<.01$). For each standard deviation unit increase in association with deviant peers among males in the sample, there was a .507 standard deviation unit increase in deviant behavior.

Model 3: Male Model

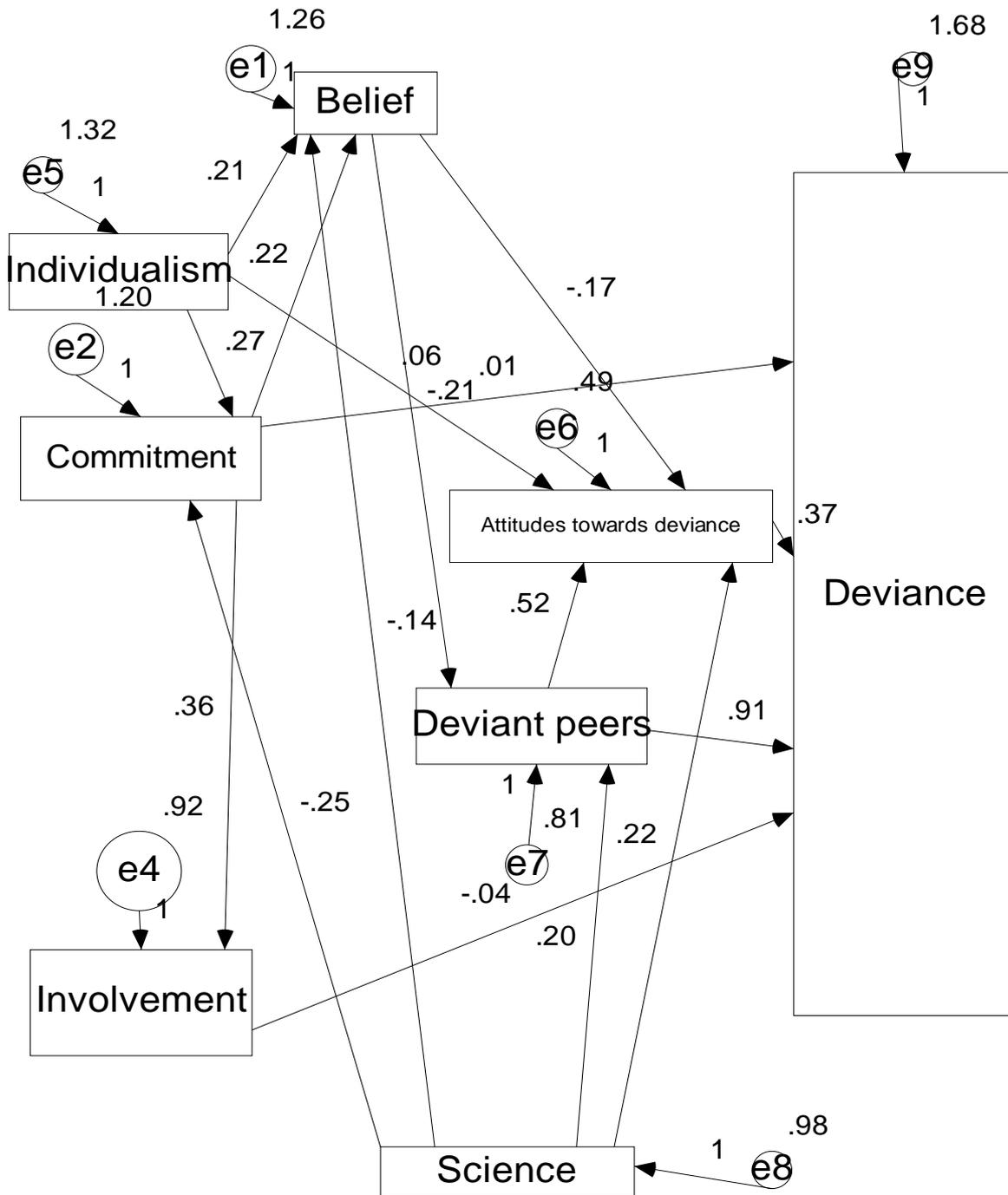


Table 15: Direct Effects in Male Model (N=71).

	B	S.E.
Commitment←Individualism	.265*	..114
Commitment←Science	-.209	.132
Belief←Individualism	.202	.122
Science←Belief	-.118	.139
Deviant Peers←Belief	-.259*	.091
Attitudes←Deviant Peers	.514*	.093
Attitudes←Individualism	.067	.076
Attitudes←Science	.225*	.088
Deviant peers←Science	.203	.110
Involvement←Commitment	.403	.099
Attitudes←Belief	-.212*	.076
Deviance←Deviant Peers	.507*	.206

Table 15 continued...

	B	S.E.
Deviance←Attitudes	.203	.203
Deviance←Commitment	.007	.147
Deviance← Involvement	-.025	.162
GFI	.950	
CFI	.963	
RMSEA	.070	
Squared multiple correlation	43.4	

*Indicates significant relationship

Table 16: Direct, Indirect and Total Effects of the Predictor Variables on the Dependent Variable in the Male Sample (N=71).

	Direct Effects	Indirect Effects	Total Effects
Science	.000	.205	.205
Individualism	.000	-.039	-.039
Commitment	.007	-.053	-.046
Involvement	-.025	.000	-.025
Belief	.000	-.203	-.203
Association with Deviant Peers	.507	.107	.614
Attitudes toward Deviance	.208	.000	.208

In addition to the direct paths expected to obtain statistical significance in the male model, there were also two other direct paths that were statistically significant. First, individualism was a direct and statistically significant predictor of commitment to the legitimate means of success ($B = .268, p < .05$). For each standard deviation unit increase in individualism there is a corresponding .268 standard deviation unit increase in commitment. Belief in the legitimacy of the law was also directly and negatively related to association with deviant peers ($B = -.208, p < .05$). As belief in the legitimacy of the law increases by one standard deviation unit, association with deviant peers decreases by .208 standard deviation units among the male sample.

In the male model there were also several expected relationships among study variables that failed to obtain statistical significance. First, while individualism and tolerant attitudes toward deviance were indeed positively related ($B = .058$), the path coefficient between these two variables failed to obtain statistical significance. Commitment was expected to have a negative and statistically significant relationship with deviant behavior in the male model; however, this relationship was positive ($B = .007$) and not statistically significant. Involvement also failed to obtain statistical significance as a predictor of deviant behavior ($B = -.025$) however, the path coefficient between involvement and deviant behavior was in the expected direction. Finally, tolerant attitudes toward deviance failed to obtain statistical significance as a predictor of deviant behavior ($B = .208$). While this relationship failed to obtain statistical significance at either the .01 or .05 probability level the p value of .072 for this relationship indicates that it nearly obtained statistical significance at the .05 level.

Overall, in the male model, the total effects of the scientific worldview on deviant behavior were .205. Individualism had a total negative effect on deviant behavior of -.039 as did commitment to the legitimate means of success, involvement in legitimate activities and belief in the legitimacy of the law with coefficients of -.046, -.025, and -.203 respectively. Association with deviant peers and tolerant attitudes toward deviance both had positive total effects on deviant behavior with coefficients of .614 and .208 respectively. The fit statistics for the male model indicate that the model was a good fit (GFI= .950; CFI= .963; RMSEA= .070). In total, the independent variables in the model explained 43.4% of the variance in deviant behavior among males in the sample. Although, the RMSEA is slightly higher than what is preferred, this inflated RMSEA is likely due to the small sample size. Given the other fits, statistics indicate the model is a good fit to the data and that the coefficients are similar to those observed in the full model, I consider this model to fit the data adequately.

The female model

The following sections discuss the structural equation model conducted on females in the sample. In total, there were 131 females in the sample. For the female model, the Chi-square statistic was 9.921 with 12 degrees of freedom ($F=.623$). The structural equation model conducted on the females in the sample is presented in model 4 and in Tables 17 and 18. Many of the expected relationships in the model gained statistical significance in the female model. First, association with deviant peers was a direct, positive and significant predictor of tolerant attitudes toward deviance ($B= .331, p<.01$). For each standard deviation unit increase in association with deviant peers there is a corresponding .331 standard deviation unit increase in tolerant attitudes toward deviance among females in the sample. Ascription to the scientific

worldview is a positive and statistically significant predictor of attitudes toward deviance for females ($B=.152, p<.01$). As ascription to the scientific worldview increases by one standard deviation unit, tolerant attitudes toward deviance increases by .152 standard deviation units. Belief in the legitimacy of the law is a negative predictor of tolerant attitudes toward deviance for females ($B= -.525, p<.01$). For each standard deviation unit increase in belief in the legitimacy of the law there is a corresponding .525 standard deviation unit decrease in attitudinal tolerance of deviance. Both association with deviant peers ($B=.342, p<.01$) and attitudinal tolerance of deviance ($B= .394, p<.01$) are statistically significant, positive predictors of deviant behavior. For each standard deviation unit increase on association with deviant peers, deviant behavior increases by .342 standard deviation units, and for each standard deviation unit increase in attitudinal tolerance of deviance, there is a corresponding .394 standard deviation unit increase in deviant behavior. Finally, both commitment and involvement were significant and negative predictors of deviant behavior at the .01 level of significance with path coefficients of -.194 and -.184 respectively.

Model 4: Female Model

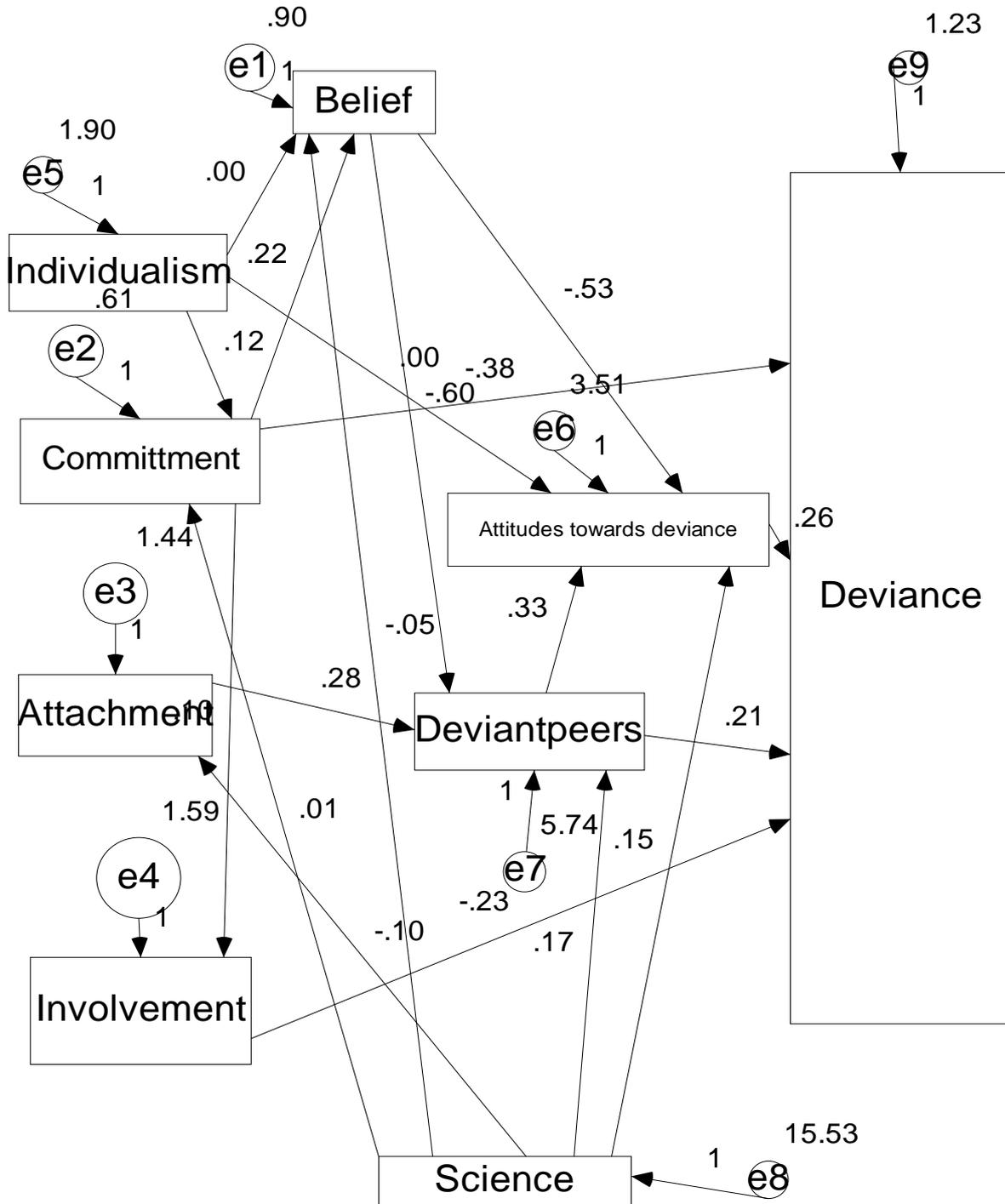


Table 17: Direct Effects in Female Model (N=131).

	B	S.E.
Commitment←Individualism	.207*	.050
Commitment←Science	.034	.017
Belief←Individualism	.005	.062
Belief←Commitment	.177*	.106
Belief←Science	-.182*	.021
Deviant Peers←Science	.221*	.055
Deviant Peers←Belief	-.209*	.220
Attitudes←Deviant Peers	.364*	.068
Attitudes←Individualism	.000	.119
Attitudes←Science	.257*	.043
Involvement←Commitment	.065	.138
Attitudes←Belief	-.220*	.175
Deviance←Deviant Peers	.342*	.043

Table 17 continued...

		B	S.E.
Deviance←Attitudes		.394*	.048
Deviance←Commitment		-.194*	.122
Deviance←Involvement		-.184*	.077
GFI	.982		
CFI	1.0		
RMSEA	.000		
Squared multiple correlation	49.0		

* Indicated significant relationship

Table 18: Direct, Indirect and Total Effects of Predictor Variables on Dependent Variable in the Female Model (N=131).

	Direct Effects	Indirect Effects	Total Effects
Science	.000	.235	.239
Individualism	.000	-.050	-.050
Commitment	-.194	-.045	-.239
Involvement	-.184	.000	-.184
Belief	.000	-.189	-.189
Association with deviant peers	.342	.143	.486
Attitudes toward deviance	.394	.000	.394

In addition to the paths expected to obtain statistical significance, several other paths in the female model were statistically significant. Individualism and commitment were positively related ($B=.120, p<.05$). For each standard deviation unit increase in individualism there is a corresponding .120 standard deviation unit increase in commitment. Commitment was also directly, positively and significantly related to belief in the legitimacy of the law ($B=.007, p<.05$). As commitment increases one standard deviation unit, belief in the legitimacy of the law increases .007 standard deviation units. Ascription to the scientific worldview is a direct and negative predictor of belief in the legitimacy of the law for females ($B= -.045, p<.05$). For each standard deviation unit increase in ascription to the scientific worldview among female respondents, there is a corresponding .045 standard deviation unit decrease in belief in the legitimacy of the law. The scientific worldview is positively and directly related to association with deviant peers ($B= .144, p<.05$). As ascription to the scientific worldview increases one standard deviation unit for females, association with deviant peers increases .144 standard deviation units. Finally, belief in the legitimacy of the law was negatively related to association with deviant peers ($B= -.548, p<.05$). For each standard deviation unit increase in belief in the legitimacy of the law in the female sample, there is a corresponding .548 standard deviation unit decrease in association with deviant peers. While individualism was expected to have a positive and statistically significant relationship with tolerant attitudes toward deviance, this direct path failed to obtain statistical significance ($B= .001$).

In sum, the total effects of the two key independent variables, the scientific worldview and individualism, on the dependent variable, deviant behavior in the model was .235 and -.050 respectively. As expected, the other independent variables, involvement, commitment, and belief, all had total negative effects in the model with coefficients of -.184, -.239 and -.189

respectively while association with deviant peers and tolerant attitudes toward deviance both had total positive effects in the model as expected with coefficients of .486 and .394 respectively. The fit statistics for the female model indicate that the model was a good fit (GFI= .982; CFI= 1.0; RMSEA = .000). In total, the independent variables in the model explained 49% of the variance in deviant behavior among females.

Comparison of Male and Female Models

The following section provides a comparison of the male and female models. I realize that the standardized beta coefficients between the two models cannot be directly compared because these are functions of the standard deviations in the two different samples. However, they still provide a clue to the relative importance of each path. There were many similarities between the two gendered models. First, association with deviant peers was a positive and statistically significant path in both the male and female models with path coefficients of .523 and .331 respectively. Ascription to the scientific worldview and tolerant attitudes toward deviance were both directly, positively and significantly related for both males ($B=.224, p<.05$) and females ($B=.152, p<.01$). Belief in the legitimacy of the law was a significant and negative predictor of tolerant attitudes toward deviance for both males and females. For males, each standard deviation unit increase in belief led to a -.172 standard deviation unit increase in tolerant attitudes toward deviance while each standard deviation unit increase in belief led to a -.525 standard deviation unit decrease for females. For males this relationship was significant at the .05 level while the significance was at the .01 level for females. Association with deviant peers and deviant behavior were both positively and significantly related for males ($B=.507, p<.01$) and for females ($B=.342, p<.01$). In addition to the expected relationships, several other

significant paths were significant in both the male and female models. Individualism and commitment were positively related in both models, and belief in the legitimacy of the law and association with deviant peers were both negatively related in both models. Finally, while individualism was expected to have a direct and positive relationship with tolerant attitudes toward deviance in both models, this path failed to obtain a statistically significant relationship in both the male and female models.

Despite the similarities between the two models, there are some differences of note. First, while tolerant attitudes toward deviance was a significant predictor of deviant behavior for females ($B=.394, p<.01$), it failed to obtain statistical significance as a predictor of deviant behavior among males in the sample. However, this path did come close to obtaining statistical significance with a p value of .07. Involvement was a direct, negative and statistically significant predictor of deviant behavior for females ($B= -.184, p<-.01$), but this path failed to obtain statistical significance in the male model. Finally, the path between commitment to the legitimate means of success and deviant behavior was both significant and negative ($B=-.194, p<.01$). This path not only failed to obtain statistical significance in the male model, but the path coefficient was positive ($B=.007$). The variance in dependent variable that was explained by the independent variables in the male and female models was similar with the male model explaining 43.4% of the variance in deviant behavior and the female model explaining 49% of the variance in deviant behavior. Again, the reader must be cautioned that the standardized beta coefficients between the two models cannot be directly compared because these are functions of the standard deviations in the two different samples. Table 19 presents the total effects of the independent variables on the dependent variable in the full, trimmed model, the male model and the female model.

Table 19: Total Effects of the Independent Variables on the Dependent Variable in the Trimmed Full Model, the Male Model and the Female Model.

	Trimmed Model	Male Model	Female Model
Science	.242	.205	.235
Individualism	-.063	-.039	-.050
Commitment	-.179	-.046	-.239
Involvement	-.125	-.025	-.184
Belief	-.200	-.203	-.189
Association with deviant peers	.525	.614	.486
Attitudes toward deviance	.349	.208	.394
Squared Multiple Correlation	45.6	43.4	49.0

CHAPTER V

DISCUSSION AND CONCLUSION

A primary goal of this research was to contribute to the theoretical and empirical literature on deviant behavior. Using Hawdon's (2005) culturally based theory, I investigated the strength of the scientific worldview and individualism as predictors of tolerant attitudes toward deviance when the two concepts were tested alongside the tenets of other predominate, individual-level explanations of deviance, namely the social bonds of Hirshi's (1969) social control theory and Sutherland's (1939) differential association theory. While many of the hypothesized relationships among variables in the model were supported, others were not. In this chapter, I will review the results obtained in this study and attempt to explain why some of the hypothesized relationships that were expected were not found. In addition, I will provide recommendations for further studies based on the findings of the current study.

Commitment to the conventional means of success in society

In both the trimmed model and the male model, commitment was directly and statistically significant as a predictor of involvement in legitimate activities; this finding, however, was not replicated in the female model. The significant relationship between commitment and involvement is not surprising given Hirschi's (1969) original discussion of the elements of the social bond. While he argued that each of the bonds operated on an individual separately, he also stated that they could be inter-related and therefore produce additive effects that either pushed an individual toward or buffered them from deviance. In addition, for the purposes of this analysis, commitment was conceptualized in relation to the educational institution and involvement was conceptualized as the "academic" routine activity pattern theoretically and

methodologically developed by Hawdon (1999). The “academic” involvement measure involves how often individuals study and how often they participate in school clubs or activities. Thus, it would be expected that commitment to education as well as involvement in educational activities would be positively related, as was found in this analysis. For females, the bond of commitment was also a significant predictor of belief in the legitimacy of the law. It seems that for females the educational institution provides a setting where the expectations for obtaining a legitimate adult status in society are clearly promulgated. Therefore, those who are committed to obtaining their legitimate adult status through educational attainment develop a respect for or belief in the legitimacy of the law.

In the preliminary test of the full model with all hypothesized relationships included, the bond of commitment failed to obtain statistical significance as a predictor of intolerant attitudes toward deviance. This path also failed to obtain statistical significance in both the male and female models conducted in this analysis. It should be noted that while this relationship was hypothesized to exist, the analysis was an exploratory analysis to determine if commitment would be significantly related to attitudes toward deviance. This hypothesized relationship was not based on any previous theoretical or empirical research. As Hirschi (1969: 62) originally theorized, commitment involves the “pursuit and desire to achieve conventional goals.” This desire, in relation to educational attainment, may indeed curtail actual involvement in deviant behavior; however, it does not, on its own, provide a catalyst for the development of an internalized normative system that is intolerant of deviance. Therefore, while this bond may inhibit one’s own behavior, it does not necessarily produce the negative effect on attitudes that was expected to develop in this analysis.

In the trimmed model, commitment was indeed a negative predictor of deviant behavior. Though the path coefficient failed to obtain statistical significance as a predictor of deviant behavior, the p value neared statistical significance at the .05 level. Thus, while this element of the bond did fail to obtain statistical significance, the direction of the relationship was in the hypothesized direction implying that commitment to conventional lines of success does indeed prove to be an inhibiting factor on deviant behavior. Educational attainment is a means of obtaining a legitimate adult status in the occupational world in American society. As Hirschi (1969: 162) argued “social control is inherent in the organization of a society, deviation automatically jeopardizes one’s chances of success in that society.” For those individuals who are committed to obtaining a legitimate status through their educational aspirations, engaging in deviant acts would seriously jeopardize their ability to reach their desired goal. Thus, as shown by the findings of this analysis, commitment does provide a deterrent to deviant behavior even if the relationship is weak.

An interesting finding in this analysis concerning the relationship between commitment and deviant behavior emerged when the gendered models were analyzed. For females, the bond of commitment was a negative and significant predictor of deviant behavior while the relationship between commitment and deviant behavior for males obtained a positive but not statistically significant path coefficient. Studies have criticized social control theory along with other predominate theories of deviance for being male centered and inapplicable to non-normative female behavior (see Chesney-Lind 1985; Chesney-Lind 1997; Chesney-Lind and Shelden 2004). While the sample for the current study has its limitations and while generalizations cannot be made from this study alone, the results implicate that, contrary to

numerous criticisms, the bond of commitment may have relevance for females as a deterrent to deviant behavior, even more so than it does for males.

Involvement in legitimate activities

In the preliminary test of the full model with all hypothesized relationships included, the bond on involvement, like the bond of commitment, failed to obtain statistical significance as a negative predictor of tolerant attitudes toward deviance. The relationship was therefore not included in subsequent analyses conducted in this study. While this theoretical relationship was hypothesized to exist, the relationship was examined in an exploratory form and was not based on any previous theoretical or empirical research conducted on attitudes toward deviance. As with the bond of commitment, it seems that involvement is a better deterrent for actual behavior than it is a basis for the development of an internal moral code that promotes intolerance of deviance.

In all three models, involvement was a negative predictor of deviant behavior. The relationship gained statistical significance as a predictor in both the trimmed model and the female model but failed to obtain statistical significance as a predictor of deviance in the male model. However, as mentioned previously, the relationship was indeed negative for males. This finding is contrary to what was predicted for males as previous research (Huebner and Betts 2002) has found that involvement is a stronger predictor of male deviance than female deviance. Involvement, as conceptualized in this study, was composed of measures that gauged the respondent's involvement in academically oriented routines that were both visible and instrumental (see Hawdon 1999 for discussion). As Hawdon (1999) argues, the more visible and instrumental the routine activity patterns of an individual are the more social control they are

exposed to. The social control, in turn, limits their opportunity to engage in acts of deviance. It seems that involvement in legitimate activities does, as Hirschi (1969) originally theorized, limit the amount of time that individuals have to engage in deviant behavior.

Belief in the legitimacy of the law

In all three models analyzed in this study, belief in the legitimacy of the law was a negative and statistically significant predictor of association with deviant peers. Having respect for and believing in the legitimacy of the law seems to provide a framework to use when individuals select their peer group. Those who respect the law tend to select peers who have a similar outlook as they do. This finding is not surprising given that individuals tend to select their voluntary associations based on like interests (Akers 1985). Thus, one would expect, as was found in this analysis, that individuals would choose peers who held similar values concerning the legitimacy of the law in our society.

Belief in the legitimacy of the law also obtained statistical significance as a negative predictor of tolerant attitudes toward deviance in each of the models analyzed in this study. As predicted, the relationship between belief in the legitimacy of the law and tolerant attitudes toward deviance was stronger for females than it was for males. This finding can be viewed in light of other studies that have demonstrated that females tend to be more religious (Roth and Kroll 2007; Sullins 2006; Jang and Johnson 2005) and that religiosity is interrelated with the formation of an internal moral code that is in line with the laws of society (Donaldson, Graham, & Hansen 1994; Elliott & Menard, 1996 Benda 1997; Zhang, Wieczorek, & Welte 1997; Elifson, Peterson and Hadaway 2006; Benda and Corwyn 2002; Desrosiers and Miller 2008; Nonemaker, McNeely and Blum 2003; Johnson et al 2001; Johnson et al 2000; Cernkovich and Giordano

1992; Rankin and Kern 1994). As Hirschi (1969: 25) stated, “respect for the law varies among individuals, and many persons do not have an attitude of respect toward the rules of society; many persons feel no obligation to conform regardless of personal advantage.” However, those individuals who did respect the law would, in turn, hold unfavorable attitudes toward behaviors that violated the normative code of society. While Hirschi’s (1969) original theoretical formulation involved the relationship between belief in the legitimacy of the law and deviant behavior, this study has extended his theory and has shown that belief is a predictor of attitudes toward deviance. Specifically, belief in the legitimacy of the law provides an individual with a firm standing from which to judge normative transgressions; and those who espouse that the law is legitimate, look unfavorably upon those who choose to transgress the normative and legal boundaries of our society.

Contrary to Hirschi’s (1969) original theoretical statement and subsequent empirical research (see Hirschi 1969; Hirschi and Stark 1969; Krohn and Massey 1980; Massey and Krohn 1986; Tyler 1990; Sampson and Bartusch 1999) the analysis conducted in this study failed to support the hypothesis that belief in the legitimacy of the law was a direct, negative and statistically significant predictor of deviant behavior. While the relationship was indeed negative in the full model that was originally tested to explore the relationships among hypothesized variables, it was not statistically significant. The relationship also failed to obtain statistical significance in the male and female models. Perhaps this finding is an artifact related to the sample used rather than to the true relationship between belief in the legitimacy of the law and deviant behavior as this measure has been a robust predictor of deviant behavior in many previous studies.

Association with deviant peers

Involvement with peer groups constitutes a major portion of the lives of young adults, especially on college campuses. These primary groups provide an avenue through which individuals learn and subsequently adopt various attitudes and beliefs. In other words, the peer group helps the individual to develop a moral code (Akers 1985). Not only does the peer group serve as a basis for a moral code that is in line with the normative system of society, but it can also be the basis of immorality. As Sutherland (1939) argued, the peer group can provide a catalyst where the individual can learn tolerant attitudes toward deviance. The theoretical arguments of Sutherland (1939) and Akers (1985) were indeed upheld in this study. As hypothesized, association with deviant peers was both positively and significantly related to tolerant attitudes toward deviance. Indeed, this predictor was the most robust predictor of tolerant attitudes toward deviance in the model once again showing the predominance of Sutherland's (1939) theory as an explanation of deviance when tested along with the constructs of Hirschi's (1969) theory. In addition, when tested separately by gender, association with deviant peers was a significant predictor of tolerant attitudes toward deviance for both males and females. As predicted this relationship was stronger for males than females. This finding upholds previous findings that have demonstrated this (see Alarid, Burton and Cullen 2000) and indicates that it may indeed be differential exposure to the precipitating elements of deviant behavior that creates differential patterns in male/female deviance (see Hartman, Turner, Daigle, Exum, and Cullen 2009; Daigle, Cullen and Wright 2007). Thus, peers do seem to provide a moral compass that guides the attitudes, values and beliefs of individuals. Specifically, for this study, it seems that peers who are engaged in deviant behavior provide a means of socialization wherein the individual learns and personally adopts tolerant attitudes toward deviance.

Association with deviant peers was also the single most powerful direct and significant predictor of deviant behavior in the overall model and in the male and female models. This relationship was, however, a stronger predictor of male deviance than female deviance. Peer groups serves as a group from which the individual can obtain models to imitate and where they can be provided with reinforcements and validation for their behavior by their friends (Pope 1971; Akers 1985). The peer group orients the individual as to the correct way to act based on peer group's orientation toward deviance (Akers 1985). If the peer group is oriented toward deviant activities, if they hold tolerant attitudes toward deviance, they are likely to also engage in acts of deviance (Sutherland 1939). The findings of this study validate Sutherland's (1939) original theoretical statement concerning the relationship between association with deviant peers and deviant behavior and adds empirical support to the already strong body of research supporting Sutherland's (1939) theory (see Vowell and Chen 2004; Brownfield 2003; Piquero, Tibbetts, and Blankenship 2005; Nofziger and Hye-Ryeon 2006; Rebellon and Van Gundy 2006 for example).

The scientific worldview

In the trimmed model as well as in the female model, the scientific worldview obtained statistical significance as a direct and negative predictor of belief in the legitimacy of the law. As Hawdon (2005) argues, the scientific worldview leads us to challenge that which we have held as the truth and to question authority. In our society, legal authority lies in the hands of the state, and it is upheld by agents of the state, in other words the police. The finding that the scientific worldview is negatively related to belief in the legitimacy of the law suggests that individuals who ascribe to the scientific worldview may question the normative structure of our

society; namely, the legal structure and the agents who enforce it. The scientific worldview was also a direct, positively and statistically significant predictor of association with deviant peers in the trimmed model. Hawdon (2005) argues that the scientific worldview encourages us to be flexible in our thinking and to be open and receptive to new experiences and to challenge tradition and authority. Deviance is, by definition, a challenge to existing authority; thus it would make sense that individuals who are scientifically oriented would potentially congregate with likeminded peers who challenge authority and tradition through their normative transgressions.

One of the main goals of this study was to examine the strength of the scientific worldview as a predictor of tolerant attitudes toward deviance when the concept was tested alongside the tenets of other predominant, individual level theories of deviant behavior. Hawdon (2005) argues, that the cultural ideology of science encourages the adherent to have broad intellectual interests, to be flexible in their thinking and to be open and receptive to new experiences. Further, Hawdon (2005) argued that the adoption of a scientific worldview creates a situation where there is no absolute way to determine what is morally right and wrong, which in turn leads to increased tolerance of others and their normative transgressions. Previous studies (Rothwell and Hawdon 2008) have demonstrated that espousing a scientific worldview is a significant predictor of tolerant attitudes toward deviance. This study upholds the findings of Rothwell and Hawdon (2008). Next to association with deviant peers, the scientific worldview is the strongest predictor of tolerant attitudes toward deviance in the trimmed model as well as the male and female models. However, contrary to what was predicted, the scientific worldview was a stronger predictor of tolerant attitudes toward deviance for females than for males.

Previous research (Rothwell and Hawdon 2008), as well as the current study, have demonstrated that the scientific worldview is a significant predictor of tolerant attitudes toward deviance. One goal of this study was to determine if there was a direct relationship between ascribing to the scientific worldview and engaging in deviant behavior or if this relationship was indirect through the scientific worldview's affect on attitudes toward deviance. As hypothesized, the direct relationship between the scientific worldview and deviant behavior was not statistically significant. However, the hypothesized relationship between the scientific worldview, attitudes toward deviance and deviant behavior did develop in the model as well as in the male and female models. The scientific worldview is positively related to tolerant attitudes toward deviance which is in turn a positive predictor of deviant behavior. Thus, ascribing to a scientific worldview seems to create a situation where the individual, whether male or female, is more tolerant of normative transgressions as Hawdon (2005) originally argued, and it is this increased tolerance that leads the individual to actually engage in deviant activities.

Individualism

In both the trimmed model and the male model, individualism has a direct, positive and statistically significant relationship with commitment. This finding is surprising given the idea that the cultural ideology of individualism encourages us to be different and to stand out from the crowd (see Rothwell and Hawdon 2008). However, due to methodological limitations in the measurement of individualism that will be discussed later in this section, this finding could simply be due to improper measurement.

It was hypothesized that individualism would have a direct, positive and statistically significant relationship with tolerant attitudes toward deviance. Hawdon (2005) argued that the

ideology of individualism espouses that one should be unique, non-conforming and rebellious. Previous research (see Rothwell and Hawdon 2008) has demonstrated that individualism was a significant predictor of tolerant attitudes toward deviance; however, the relationship between individualism and tolerance of deviance failed to gain statistical significance in this study. The relationship was, however, positive in all three models. The failure of this variable to obtain statistically significance as a predictor of tolerant attitudes toward deviance could potentially suggest that the theoretical argument forwarded by Hawdon (2005) is invalid or that the concept of individualism was not adequately developed in the theorist's original work. This assertion is supported by the work of Browne (2009) who also did not find a significant effect of individualism on tolerant attitudes towards various types of sexuality. Despite the results obtained in this study, it would be a hasty decision to discard the notion that the cultural ideology of individualism is an insignificant factor in promoting tolerant attitudes toward deviance.

Based on the theoretical argument forwarded by Hawdon (2005), a more likely reason for the findings concerning individualism and tolerance of deviance in this study lies within the methodological operationalization of individualism. Individualism is a multifaceted concept (Fischer 2008; Inglehart 2001) that is not easily conceptualized. Theorists and empirical researchers have conceptualized individualism as everything from "thinking for oneself" (Rothwell and Hawdon 2008) to valuing responsibility for oneself (Shulruf et al 2007) to the desire for limited government (Oyserman et al 2002) with many other operational definitions in between. The measures selected for use in this study were empirically validated as measures of individualism by Shulruf et al 2007 and tapped an overall type of "thinking" individualism (see Appendix A for measures of individualism). While this conceptualization of individualism is indeed a methodologically validated measure, it may not adequately grasp the type of

individualism Hawdon (2005) described. When referring to the effect of individualism on deviant behavior Hawdon (2005: 327) stated individualism leads to deviant behavior “when taken to extreme.” Using the arguments of Weber ([1922] 1978), Parsons (1951), Habermas (1984b), Simmel (1955), Bellah et al (1985) and others, Hawdon (2005) argued that the cultural processes of modernization and rationalization promote the development of individualism as a cultural value. Further, Hawdon concurred with Bellah et al (1985) in asserting that individualism had become a predominant American norm. Individualism, according to Hawdon, (2005: 325) leads to an ideological system where “there is primacy placed on being unique and ‘standing out’ from the crowd... Thus, those subscribing to the doctrines of individualism are more likely to be non-conforming... Individualism in extreme contends that no one has the right to tell the individual what to think, feel or do... Further, if taken to the extreme, individualism promotes hedonism and low self-control.” It is this “extreme individualism” in the form of hedonism and low self-control that is associated with deviant behavior according to Hawdon (2005). The empirical research that examines the relationship of low self-control in relation to deviant behavior utilizes behavioral measures in their research (see Gottfriedson and Hirschi 1990). Thus, it seems that a behavioral measure of individualism would be more fitting this study than the measure used in this study. The measure of individualism adopted for this study was more of a “thinking of oneself” type of individualism. Therefore, the conceptualization of this variable as “uniqueness” and “responsibility to oneself” is not accurate in regards to the theory which stresses that deviance will result from “extreme individualism.

Attitudes toward deviance

In all three models, tolerant attitudes toward deviance were a positive predictor of deviant behavior. The relationship between the two variables obtained statistical significance in both the trimmed model and the female model but failed to obtain statistical significance in the male model. Empirical research and various sociological theories (see Jessor and Jessor 1977; Sutherland 1939; Hirschi 1969; Hawdon 2005) have highlighted the importance of attitudes toward deviance as a predictor of various forms of deviant behavior. This study supports the previously made theoretical and empirical claims by demonstrating that tolerant attitudes toward deviance are indeed a predictor of deviant behavior.

In conclusion, the research conducted in this study has highlighted the importance of several of the bonds of Hirschi's (1969) social control theory as predictors of deviant behavior. The current research did not support many of Hirschi's (1969) claims. There are several reasons why this may have occurred. First, the findings may be due to the limitations of the data. Second, this research was conducted on young adults, and Hirschi's original theory was tested on a juvenile sample. Some have argued that Hirschi's (1969) theory only has applicability to youth and is an invalid determinant of deviance among young adults. Finally, another criticism of Hirschi's (1969) theory is that the concepts are not methodologically distinct and are further rarely tested in a causal model. When they are tested in a causal model, many of the concepts fail to predict deviant behavior (see Akers 1985 for a full critique). An interesting finding in this research in relation to Hirschi's social control theory was the differential impact of the bond of commitment for males and females. Future studies should examine this relationship to determine this bond's strength and meaning as a predictor of female deviance. Further,

Sutherland's (1939) differential association theory was supported in this research. Association with deviant peers is indeed a significant predictor of who will engage in deviant activities. The key research questions in this analysis examined the relationship of the scientific worldview and the cultural ideology of individualism as predictors of deviant behavior. With the exception of association with deviant peers, the scientific worldview was the single most robust predictor of tolerant attitudes toward deviance. This finding lends credence to previous theoretical and empirical statements on the influence of this concept on tolerant attitudes toward deviance (see Hawdon 2005; Rothwell and Hawdon 2008). In addition, the analysis conducted in this research demonstrated that the scientific worldview is indirectly related to deviant behavior through its affect on attitudes toward deviance. Finally, the expected relationship between the cultural ideology of individualism and attitudes toward deviance was not obtained in this analysis. While the results are contrary to what was expected, this is potentially due to problems in the conceptualization of individualism methodologically and not due to the inaccuracy of the theory. Future studies should examine this methodical concept in more depth with the goal of developing a measure of individualism that is more true to Hawdon's (2005) description of the concept. Once the concept of individualism is accurately conceptualized, research should be conducted to determine the relationship of the cultural ideology of individualism, as described by Hawdon (2005), to deviant behavior.

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APPENDIX A

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

Invent the Future

Office of Research Compliance

Institutional Review Board
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DATE: March 4, 2009

MEMORANDUM

TO: Donald J. Shoemaker
Virginia Rothwell
James Hawdon

FROM: David M. Moore

IRB Amendment 1 Approval: "Attitude, Belief and Behavior Survey", IRB # 08-574

This memo is regarding the above referenced protocol which was previously granted approval by the

IRB on October 13, 2008. You subsequently requested permission to amend your IRB application.

The Board has granted approval for the requested protocol amendment, effective as of February 26,

2009. The anniversary date will remain the same as the original approval date.

As an investigator of human subjects, your responsibilities include the following:

1. Report promptly proposed changes in previously approved human subject research activities to the IRB, including changes to your study forms, procedures and investigators, regardless of how minor. The proposed changes must not be initiated without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subjects.
2. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.
3. Report promptly to the IRB of the study's closing (i.e., data collecting and data analysis complete at Virginia Tech). If the study is to continue past the expiration date (listed above), investigators must submit a request for continuing review prior to the continuing review due date (listed above). It is the researcher's responsibility to obtain re-approval from the IRB before the study's expiration date.

4. If re-approval is not obtained (unless the study has been reported to the IRB as closed) prior to the expiration date, all activities involving human subjects and data analysis must cease immediately, except where necessary to eliminate apparent immediate hazards to the subjects.

Approval date:

Continuing Review Due Date:

Expiration Date:

10/13/2008

10/12/2009

9/28/2009

VIRGINIA POLYTECHNIC INSTITUTE UNIVERSITY AND STATE UNIVERSITY

SUBJECT:

cc: File

FWA00000572(expires 1/20/2010)

IRB # is IRB00000667

Office of Research Compliance

Institutional Review Board

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APPENDIX B

ATTITUDE, BELIEF AND BEHAVIOR SURVEY

Q1: I have read the consent document and understand that by completing this survey I acknowledge that I was provided a consent document, with a description of the rationale for this study, issues related to confidentiality, and possible risks and benefits of participation.

1 Yes

2 No

Q2: I understand that I must be at least 18 years of age to participate in this survey and certify that I am, indeed 18 years of age.

1 Yes, I am 18 years of age and am thereby eligible to participate

2 No, I am not 18 years of age and am thereby ineligible to participate

IF YOU ARE NOT 18 YEARS OF AGE OR OLDER PLEASE STOP THE SURVEY AND RETURN THE STUDY DOCUMENTS TO THE RESEARCHER.

The following questions ask about who you are as a person. Using the categories: *Always, almost always, almost never or never* please indicate how often you would use these descriptions to describe yourself or your beliefs.

Q3: I see myself as “my own person”.

1 Always

2 Almost always

3 Almost never

4 Never

Q4: It is important for me to be able to act as an independent person.

1 Always

2 Almost always

3 Almost never

4 Never

Q5: I enjoy being unique and different from others.

1 Always

2 Almost always

3 Almost never

4 Never

Q6: I consider myself as a unique person separate from others.

1 Always

2 Almost always

3 Almost never

4 Never

Q7: Sometimes I will take a risk just for the fun of it.

- 1 Always
- 2 Almost always
- 3 Almost never
- 4 Never

The following question asks you about a specific goal. Please indicate whether the goal is *very important, somewhat important or not important to you.*

Q8: How important is it to you to have a good job or career after you have finished with school?

- 1 Very important
- 2 Somewhat important
- 3 Not important

The previous question asked you about the importance of a specific goal to you. The next question asks you about your expectations for achieving this goal. Please indicate whether you think your chances for achieving this goal are *good, fair or poor.*

Q9: What do you think your chances are for getting the job you would like after finishing school?

- 1 Good
- 2 Fair
- 3 Poor

The following section contains questions about the behavior of your closest friends over the past year. For each question, please indicate how many of your friends have engaged in the behavior.

Q10: During the past year, how many of your closest friends have cheated on school tests?

1 Almost all of them

2 Most of them

3 Some of them

4 Very few of them

5 None of them

Q11: During the past year, how many of your closest friends have binge drank alcohol? Binge drinking is defined as 5 or more drinks in one outing for a male and 4 or more drinks in one outing for a female.

1 Almost all of them

2 Most of them

3 Some of them

4 Very few of them

5 None of them

Q12: During the past year, how many of your closest friends have used marijuana?

1 Almost all of them

2 Most of them

3 Some of them

4 Very few of them

5 None of them

The questions in this next section ask you about your attitudes or opinions on a variety of behaviors. For each question, please indicate whether you think it is *not wrong at all*, *a little bit wrong*, *wrong* or *very wrong* for someone to engage in these behaviors.

Q13: In your opinion, how wrong is it for someone to cheat on school tests?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q14: In your opinion, how wrong is it for someone to binge drink alcohol? Binge drinking is defined as having five or more alcoholic drinks in one night for males and four or more alcoholic drinks in one night for females.

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q15: In your opinion, how wrong is it for someone to use marijuana?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q16: In your opinion, how wrong is it for someone to use stimulants such as cocaine or methamphetamine?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q17: In your opinion, how wrong is it for someone to use designer drugs such as Ecstasy or GHB?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q18: In your opinion how wrong is it for someone to use opiates such as opium or heroin?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q19: In your opinion, how wrong is it for someone to purposefully damage or destroy property that does not belong to them?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q20: In your opinion, how wrong is it for someone to steal something that does not belong to them?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q21: In your opinion, how wrong is it for someone to burglarize a home or business?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q22: In your opinion, how wrong is it for someone to download songs or movies off the internet without paying for them?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

Q23: In your opinion, how wrong is it for someone to physically attack another person?

1 Not wrong at all

2 A little bit wrong

3 Wrong

4 Very wrong

This next section asks about behaviors that you may or may not have engaged in over the past year. Using the categories provided below, please indicate how often over the past year you have engaged in the following behaviors.

Q24: Over the past year how often have you cheated on school tests?

1 Never

2 One to two times

3 Three to five times

4 Six or more times

Q25: Over the past year, how often have you binge drank alcohol? Binge drinking is defined as having five or more alcoholic drinks in one night for males and four or more alcoholic drinks in one night for females.

1 Never

2 One to two times

3 Three to five times

4 Six or more times

Q26: Over the past year, how often have you used marijuana?

1 Never

2 One to two times

3 Three to five times

4 Six or more times

Q27: Over the past year, how often have you used stimulants such as cocaine or methamphetamine?

1 Never

2 One to two times

3 Three to five times

4 Six or more times

Q28: Over the past year, how often have you used designer drugs such as Ecstasy or GHB?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

Q29: Over the past year, how often have you used narcotics such as opium or heroin?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 3 Six or more times

Q30: Over the past year, how often have you purposefully damaged or destroyed property that did not belong to you?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

Q31: Over the past year, how often have you stolen something?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

Q32: Over the past year, how often have you burglarized a home or business?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

Q33: Over the past year, how often have you downloaded songs or movies off the internet without paying for them?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

Q34: Over the past year, how often have you physically attacked another person?

- 1 Never
- 2 One to two times
- 3 Three to five times
- 4 Six or more times

The following section asks about activities in which you may or may not participate. Please indicate the response for each question that most accurately indicates your involvement in these activities.

Q35: How often do you attend religious services?

- 1 Almost everyday
- 2 Once or twice a week
- 3 Once a week
- 4 Once a month
- 5 Once or twice a year
- 6 Never

Q36: How often do you pray?

- 1 Almost everyday
- 2 Once or twice a week
- 3 Once a week
- 4 Once a month
- 5 Once or twice a year
- 6 Never

Q37: How often do you play intramural, collegiate sports or sports for recreation?

- 1 Almost everyday
- 2 Once a week
- 3 Once a month
- 4 Once or twice a year
- 5 Never

Q38: How often do you participate in school clubs or activities such as volunteer work?

- 1 Almost everyday
- 2 Once or twice a week
- 3 Once a month
- 4 Once or twice a year
- 5 Never

Q39: How often do you study?

- 1 Almost everyday
- 2 Once or twice a week
- 3 Once a month
- 4 Once or twice a year
- 5 Never

Q40: How often do you go to bars or other clubs?

- 1 Almost every night
- 2 Once or twice a week
- 3 Once a month
- 4 Once or twice year
- 5 Never

The following section asks some questions about issues that are frequently discussed.

Q41: I respect the opinions of my teachers.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q42: I try hard in school.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q43: Getting a good education is important to me.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q44: You should respect the police.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q45: My family is important to me.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q46: I respect my mother or female guardian's opinion.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree
- 5 Does not apply to me

Q47: I respect my father or male guardian's opinion.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree
- 5 Does not apply to me

Q48: I consider myself to be a religious person.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q49: You should obey the rules of adults.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q50: It is alright to do something your parents tell you not to do as long as you can get away with it.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q51: The police are honest.

- 1 Tend to strongly agree
- 2 Tend to agree
- 3 Tend to disagree
- 4 Tend to strongly disagree

Q52: Science is likely to solve the world's problems such as global warming, overpopulation and hunger.

1 Tend to strongly agree

2 Tend to agree

3 Tend to disagree

4 Tend to strongly disagree

The final section of this survey is about your demographic and social characteristics. These are included for comparison.

Q53: What is your gender?

1 Male

2 Female

Q54: How old are you?

1 Eighteen

2 Nineteen

3 Twenty

4 Twenty one

5 Twenty two

6 Twenty three

7 Twenty four

8 Twenty five and above

Q55: What year are you in school?

- 1 Freshman
- 2 Sophomore
- 3 Junior
- 4 Senior

Q56: If you have a job, on average, how many hours do you work a week?

- 1 1-5 hours
- 2 6-10 hours
- 3 11-15 hours
- 4 16-20 hours
- 5 20 or more hours
- 6 Do not have a job

Q57: Which of the following categories best describes your racial background? Please indicate all response options that apply.

- 1 White or Caucasian
- 2 White/non-Hispanic
- 3 White/ Hispanic
- 4 Black or African American
- 5 Black/ non-Hispanic
- 6 Black/ Hispanic
- 7 Asian
- 8 Native American
- 9 Pacific Islander
- 10 Other

Q58: What is your mother's highest level of education?

- 1 Some high school
- 2 High school degree
- 3 Some college
- 4 College degree
- 5 Graduate degree
- 6 Do not know

Q59: What is your father's highest level of education?

- 1 Some high school
- 2 High school degree
- 3 Some college
- 4 College degree
- 5 Graduate degree
- 6 Do not know

APPENDIX C

ATTITUDE, BELIEF AND BEHAVIOR SURVEY

The Purpose of this Survey

This research project is designed to gain a better understanding of both conventional and deviant behavior among young adults. The survey document asks questions about your sociodemographic and social characteristics, parental and peer relationships, education, involvement in extracurricular and religious activities, your goals and expectations for the future, your views on social issues, attitudes toward delinquency, and the delinquent activities of your peers and yourself. The total number of subjects involved in this study is approximately 300.

Procedures

You are being asked to complete this survey. You will be asked about your attitudes, beliefs, and relationships with others, your behavior and some demographic questions. The survey takes only about 20 minutes to complete.

Risks

The risks of participation in this research are minimal. The primary risk would be if you found one or more of the questions upsetting or objectionable. If you find a question objectionable you are free not to answer that question or to withdraw from the study at any time. While it is very unlikely that you will become so upset during the completion of this survey that you would require psychological counseling, the expenses of such counseling would not be covered by the principal investigator of this study or Virginia Tech.

Benefits

There will be no direct personal benefits from participation in this survey. However, the results of this survey will benefit the scientific community through the expansion of scientific knowledge concerning the causes of both conventional and deviant behavior among young adults. No promise of guarantees of benefits have been made to encourage you to participate.

Extent of Anonymity and Confidentiality

Data from this survey is being collected through the use of a questionnaire and a scantron sheet. Each Scantron sheet will be identified only with an identification number. Your name will not appear anywhere on the questionnaire or on the answer forms. You are guaranteed that all of

your answers will be confidential and that no one will be able to connect your answers to you. In the final project, only group data will be presented, no individual level data will be disclosed. The principal investigator will be the only individual to have access to these data, however it is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. After ten years this data will be destroyed.

Compensation

No monetary or other compensation is promised or provided for participation in this study.

Freedom to withdraw

You are free to withdraw from this study at any time. You are free to now answer any questions that make you feel uncomfortable or that you find objectionable.

Consent

If you have any questions or concerns about confidentiality or any other issues or questions related to this survey, feel free to contact me at vrothwel@vt.edu.

If you should have any questions concerning the protection of human research participants regarding this study, you may contact Dr. David Moore, Chair Virginia Tech Institutional Review Board for the Protection of Human Subjects, telephone: (540) 231-4991; e-mail: moored@vt.edu; address: Office of Research Compliance 2000 Kraft Drive, Suite 2000 (0497) Blacksburg VA 24060.

I have read the consent for and conditions of this project. I have had all my questions answered. I hereby acknowledge the above, certify that I am at least eighteen years of age and give my consent to participate in this study.

_____, signature of participant _____, date signed

Please sign both copies of this letter. Keep one for your records and return the other to the principal investigator who is administering the survey.