SELF CATEGORIZATION THEORY: PREDICTING ADOLESCENT HEALTH

BEHAVIOR

by

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(Under the direction of Jennifer L. Monahan)

ABSTRACT

In Part I of this dissertation, Self Categorization Theory (SCT) and the concept of prototype group health behavior were used to generate and test a model that examined the influence of in-group prototypes on adolescent risky health behavior. Participants (N = 325, mean age 14.92) were low income high school freshmen recruited from an urban and a rural school. The sample was approximately evenly split between male and female, and Black and White high school students. Independent measures included measures of group identity, perceived group behavior, perceived prototype group member behavior, race and gender. Dependent measures were self-reported behavior and behavior intent measures for four health risk behaviors (cigarettes, alcohol, marijuana & sex).

The hypothesized model significantly predicted all four risk behaviors, and three of the four risk behavioral intentions indicating that the model had good predictive power. Importantly, neither race nor gender interacted with any of the concepts in the model, suggesting that the model worked well across subgroups.

In Part II, a new way to assess identity accessibility was proposed. Attitude and social norm accessibility commonly are measured using reaction time tasks (valence of reaction, e.g., like/dislike, multiplied by how quickly one responds). This dissertation

applied that measurement to social group identity. Using the same sample noted above, independent measures included attitude, social norm and group identity reaction time measures as well as a typical group identity task (included for a validity test). Results were disappointing: The social identity measure showed poor validity and, in hypothesis testing, only predicted 1 of 4 risk behaviors for adolescents. Other findings concerning attitude, family, and social norm accessibility were complicated. Attitude toward the behavior (Like/dislike), and social/family norm valence predicted intent to engage in a behavior and self-reported behavior. However the proposed reaction time * valence interactions were not significant for 6 of 8 outcomes with the exceptions of intent to smoke marijuana and intent to have sex. Limitations and problems with measurement are discussed. The discussion describes the utility of the concept of prototypes and social categorization theory in studies of health communication and adolescent risky health behaviors.

INDEX WORDS: Self-categorization Theory, Adolescent health, Risky health behaviors, Health behaviors, Health communication, reaction time measures, structural equation modeling

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DEDICATION

This dissertation is dedicated to the memory of my father, William J. Beckham, Jr., who always stressed the importance of education, and fought tirelessly for underprivileged adolescents. I have no doubt that he has been with me through this process in spirit, and is proud of the result.

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CHAPTER 1

INTRODUCTION

The 2004 Paramount Pictures hit movie *Mean Girls* told the story of 15-year old Cady

Heron's introduction to American public high school. Within the movie's first 15 minutes, Cady

received a tour of the cafeteria and the school property known as "the jungle." Her personal tour

was directed by some of the stereotypically artistic Goth students, depicted complete with

multiple body piercings, jet black hair, and spiked bracelets. As they survey the environment,

Cady is introduced to the school's cliques including: freshmen, ROTC Guys, preps, J.V. jocks,

varsity jocks, Asian nerds, cool Asians, Unfriendly Black Hotties, Girls Who Eat Their Feelings

(Overweight), Girls Who Don't Eat Anything (Anorexic), Sexually Active Band Geeks,

Desperate Wannabes, Burnouts, The Art Freaks, and the A-list Plastics. *Mean Girls* comically

depicts what can be found today in many American high schools.

In addition to the bewildering number of social groups, if one were to walk into any

racially mixed high school, s/he would also see the adolescents clustering as a function of race or

ethnicity.   While scholars have sought to examine racial and social identity and other

explanations for these segregations (see Tatum, 1999; Terry & Hogg, 1996), there is little

research specifying communication's role in social identity construction and the development of

group norms in adolescents, especially concerning how these social influences affect adolescent

health behaviors. This dissertation will use Self Categorization Theory (SCT) to examine the

influence of in-group prototypes and the accessibility of social identity on adolescent risky health

behavior.

Self-Categorization Theory (SCT; Tajfel, 1981) explicates the social cognitive changes that individuals undergo during the process of group identification. This dissertation examines the implications that self-categorization theory has for risky health behaviors that adolescents engage in. Toward that goal, I examine how African-American (Black) and White male and female adolescents' identification with social groups are related to their engagement in risky health behaviors.

Recent health reports illustrate the importance of studying adolescent health behaviors in the context of group identification. For two examples of group differences, we can simply examine the most recent report of the Centers for Disease Control and Prevention's (CDC, 2005) Youth Risk Behavior Survey for differences based on ethnicity (Black vs. White for this comparison) and for gender. Respective to the Georgia sample, Black students were *more* likely than White students to have ever smoked marijuana (41% versus 36% of Whites), while Whites were more likely than Blacks to have engaged in heavy episodic drinking (29% versus 10% Blacks), and indicated frequent cigarette use (11% versus 4% of Blacks). Sexual behavior was not included in the Georgia survey, but national results indicate that Blacks were more likely than Whites to have had sexual intercourse (68% versus 43% of Whites), their first sexual encounter before the age of 13 years old (17% versus 4% of Whites), and have sexual intercourse with four or more persons during their life (28% versus 11% of Whites).

In addition to differences based on race/ethnicity, CDC data also find important gender differences such that females were *more* likely than male students to have attempted suicide (11%), used inhalants (14%), not used a condom during their last sexual intercourse (44%), and go without eating for more than 24 hours to lose weight (17 %). Males were *more* likely to have

driven while drinking alcohol (12%), currently used smokeless tobacco (14%), binge drink (28%), and used marijuana (41%). These data present significant implications for identity scholars, health communicators, and campaign designers. It is evident that both racial/ethnic and gender differences exist regarding risky health behaviors. However, these data do not examine the role of social group identification on health behaviors. Thus, this dissertation will use SCT to examine how social group identification affects adolescent health behavior.

A major contribution of this dissertation is to extend the study of Self-Categorization Theory to adolescent health behaviors. The current literature on SCT deals with in/out group comparisons, organizations, and adult populations more so than it does adolescent populations and it has not been applied specifically to health behaviors. In addition, while the theory discusses the importance of such concepts as identity accessibility and prototypes, most research studies testing SCT do not mention or measure these concepts. Thus, other important contributions of this work include putting prototypes back into SCT, proposing a methodology for examining the accessibility of adolescents' social identities and examining the influence of identity accessibility as a predictor of health risk behaviors.

The literature review and theoretical rationale for this dissertation will be presented in two parts. The first part presents Self-Categorization Theory. In this first section, the literature review describes the major theories and constructs used in this dissertation. Then I present a model proposing a series of predictions based on SCT and the health literature through a model describing how adolescent identity and health behavior is derived from the self-categorization, communication, and health literatures.

While the first part of the theoretical review and rationale presents a model of adolescent identity and health behaviors, the second part takes advantage of a unique opportunity. The dissertation data will be collected as part of a larger data collection utilizing reaction time measures to access how attitudes and norms regarding health behaviors affect engagement in those behaviors. Thus, I have the opportunity to link the SCT model to reaction time measures to assess how group identity accessibility might influence prototypical behavioral intentions and behavior. Finally, the hypothesized relationships posed in the model and the measurement and procedures are detailed.

CHAPTER 2

REVIEW OF LITERATURE

The Adolescent Context

Typically, adolescence is defined as beginning at puberty, a time period of biological and physiological transformation that turns boys and girls into adults and alters how they view themselves and others (Thiede, Call, Riedel, Hein, McLoyd, Petersen, & Kipke, 2002). Many "first" experiences occur during adolescence including such sexual experiences, drug and alcohol use, and being out of direct control of parents and guardians (Lerner & Galambos, 1998). While some individual differences do occur, within our culture the adolescent years are generally a time of increasing independence from parents and an increasing dependence on the influence of peers.

During this time, adolescents make decisions and develop habits that have implications for both their short and long-term health. Prior work finds that many of these health enhancing and compromising behaviors often are taken into adulthood (Maggs, Schulenberg, & Hurrelmann, 1997). For example, smoking initiation in adolescence significantly predicts continued cigarette use and tobacco addiction in adulthood (DHHS, 2003; Koval et al., 2000). As another example, consider a risky sexual decision such as not using a contraceptive that can result in an unplanned pregnancy. The literature suggests that poor decisions made in adolescence from a lack of knowledge and life experience often lead to significant long-term consequences.

As adolescents spend less time with family and more with peers, the daily contexts of their lives have vital influences that can support resiliency or increase risk. There are many ways in which the daily context of adolescence can accelerate risk. The new, more adult contexts can

be less nurturing and more stressful than in childhood (Beyth-Marom, Fischoff, & Jacobs-Quadrel, 1991). These new contexts can introduce novel threats such as exposure to violence, availability of alcohol and drugs, and exposure to sexually transmitted diseases (Boyer, Shafer, Wibbelsman, Seeberg, Teitle, & Lovell, 2000). For many adolescents, these threats to mental health and well-being are compounded by other environmental circumstances, such as when adolescents live in impoverished communities and/or suffer from race/ethnic or gender discrimination (Crockett, 1997). While many adolescents make the transition into adulthood with minimal difficulty, research demonstrates that for many, the rates of depressed mood, suicidal behavior, and other serious problems increase in adolescence (Allgood-Merten, Lewinsohn, & Hops, 1990). Although some adolescents develop health-enhancing behaviors during adolescence, far more develop health-compromising behaviors, such as substance use and abuse, unsafe sexual practices, unhealthy eating habits, and lack of exercise (WHO, 1998; Perry, Story, & Lytle, 1997), supporting the argument made above that adolescence is a key time for risky behavior initiation.

One reason for the increase in risky health behaviors during adolescence is that adolescents, as compared to children, spend an increasing amount of time with their peers with less parental supervision (Savin-Williams & Berndt, 1990). Bersamin, Walker, Fisher, and Grube (2006) note that this shift from parental to peer influence as well as from same-sex to cross-sex friendships intensifies the effects of the peer relationship and the level of influence that peers hold over one another for risky health behaviors. Peer influence, however, is moderated by *perceived* peer pressure and the adolescent level of susceptibility to that pressure (Brown, Clasen, & Eicher, 1986). Actual peer pressure appears to be greater for older adolescents, while susceptibility to peer pressure appears to be greater for younger adolescents (12-16 years of age,

Berndt, 1982; Komro, Stigler, & Perry, 2001). In terms of health behaviors, previous work (Bauman & Fisher, 1986; Krosnick & Judd, 1982) has found that peer pressure accounts for 10-40% of the variation in adolescents' drinking and smoking behavior. Glynn (1981) found that friends are the most influential predictor on marijuana use. In a study designed to examine different psychosocial factors' (parental communication, religiosity, bonding to school, heaving drinking, sex expectancies, normative beliefs) impact on adolescent sexual behaviors, Bersamin et al. (2006) found that peer attitudes and behaviors exhibited the second strongest relationship with oral sex behaviors. The studies cited above are a few examples of the many studies that underscore the need to examine the social networks that adolescents participate in and identify with as a means to understanding health behavior. This dissertation examines the influence of social networks via Self-Categorization Theory.

Self-Categorization Theory

At the same time teens are engaging in more risky behavior and spending an increasing amount of time with peers, adolescence is also a time of identity exploration during which they begin to practice and assume particular roles and identities as a reflection of self (Palmonari, 1990). This literature suggests that during the process of identity exploration, the influence of peers is critical in shaping perceptions of the self (Burke, 2003). Self-categorization theory begins with the assumption that individuals self-identify with a particular group (Turner, 1985). The adolescent development literature suggests this identification is highly influenced by peers, such that identifying peer group characteristics, activities, and behaviors are critical to understanding the individual adolescent (e.g. Coleman, 1974; Palmonari et al, 1990, 1992) and the adolescent's social development (Palmonari et al, 1990; Buhrmester, 1992; Heaven, 1994; Cotterell, 1996).

Social identity theory (SIT) is one of the most frequently used theories to explain and study group behavior (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The core tenet of SIT is that people gain a part of their self-concept from the categories and social groups to which they belong. SIT focuses on the collective self – the self defined by group norms and connected to other group members. SIT involves three central ideas: categorization, identification, and comparison (Tajfel & Turner, 1979). Categorization is a means to understand ourselves and others through group comparison. Identification expands upon categorization to state that individuals identify with groups they perceive themselves similar to. While SIT has significantly contributed to the literature regarding individual participation in groups, and subsequent group behavior, the theory does not explicitly deal with the social cognitive processes of identification.

Turner and colleagues developed self-categorization theory (SCT) which drew on cognitive research on categorization (Turner, 1985; Turner, Hogg, Oakes, Reicher & Wetherell, 1987). SCT postulates that people perceive themselves as unique individuals and as members of groups, and that these two selves are equally valid expressions of the self. Otherwise stated, social identities (derived from groups people perceive themselves to be members of) are as true to the self as personal identities (derived from views of the self as an individual). While the theory acknowledges the possibility of more than just personal and social identities, the cornerstone of SCT focuses on the study of social cognition and its effect on the development of social identity (Turner, 1982).

SCT argues that the perception an individual has of himself/herself is variable and that one can have multiple identities (Turner, Hogg, Oakes, Reicher & Wetherell, 1987). However, self-categorization theory places its emphasis on an individual's social identity. Social identity is

defined as the part of the individual's self-concept that is derived from their knowledge of their

membership in a social group, along with the value and significance they attach to that

membership (Tajfel, 1981). Thus, SCT deals with the perception of the self in respect to certain

social groups and other individuals. A critical aspect of SCT is that even if an individual

possesses various self-concepts (e.g. "male," "thug," "brother"), a given specific identity is more

salient at a given time, and that identity drives behavior. For example, if an adolescent is

hanging out with their group of friends after school, it is likely that his or her social group

identity will take precedence over other aspects of his or her identity and, hence, have the most

influence over behavior.

The cognitive representations of the self-concept take the form of categories that group

similar people together. The category that the individual identifies with is referred to as the self-

category or in-group while other categories are known as out-groups. SCT states that individuals

categorize themselves into groups with persons perceived as similar to themselves (Turner et al,

1987). SCT proposes two necessary conditions for the emergence of self-categorization and

group behaviors: identification and group category salience. When an individual can be

identified as being a member of a certain group, and the individual identifies with the category

(e.g. perceives the category as relevant to their self and identity, identification is said to have

occurred (Wagner, 1994). The change in perspective (from individual self to social self) is

driven by the fit between the groups being categorized and the accessibility of the category.

The extent to which a social categorization is applied and relevant to the self is known as

social categorization salience (Oakes, Turner, & Haslam, 1991). Salience is postulated to

increase if the category is specifically mentioned (Hogg & Turner, 1985), the category is set in a

context of other relevant categories (Turner et al, 1987), and if the category is set into conflict

with other categories (Wagner & Ward, 1993). If self-categorization takes place, the previously mentioned conditions will render social identity and group membership more salient and relevant than personal identities. When this shift occurs, individuals define themselves as members of a group and perceive themselves to be interchangeable with members of that group. As the group membership becomes salient, group influence is more likely (Turner et al, 1987). Overall, SCT is a theory that explains how collective behavior results from shared norms and perspectives.

SCT also presents the metacontrast principle that states that a given group of people will be more likely to be perceived as a category if the mean differences between this set of individuals and all others of the context are perceived as larger than the mean differences between individuals within the group. The metacontrast principle speaks to the commonly used in-group versus out-group comparison. SCT posits that in-group members will perceive their group as more favorable than the out-group, particularly if the in-group is deemed of higher social status than the out-group.

SCT also argues that the attitudes, opinions, and behaviors individuals adopt are chosen as a way to be typical of the in-group (Hogg & Abrams, 2006). To identify with a group is to try to resemble that which the individual views as prototypical of the group. According to the metacontrast principle, the prototypicality of an individual will increase to the extent to which the mean difference between the individual and members of the other groups is large compared to the mean difference between this individual and other members of his/her group. SCT predicts that the group opinion converges to the opinion that is most prototypical of the initial intergroup consensus.

One of the few studies examining the process of social categorization with adolescents was conducted by Kircher, Palmonari, and Pombeni (1994). They utilized a sample of Italian

adolescents (mean age 16 years old) to study the self-categorization theory argument that in-group judgments will be more favorable than out-group judgments. More specifically, this proposition depends upon the status of the in and out-groups such that members of superior groups will favor their own group and discriminate against the out-groups, while members of inferior or equal groups will not discriminate against the out-groups. Their results indicated that social categorization processes were observed in that adolescent's judgments of social identities revealed in-group favoritism and out-group discrimination. This study measured categorization by asking whether participants associated with a peer-group, how often they associated with it, and how much they identified with the group. No specification regarding what type of peer group the adolescent associated with, analysis of relevant group prototypes, or any health behaviors were examined. While this rare SCT study with an adolescent sample supported the theory, it did not contribute to literature regarding prototypes and health behaviors with adolescent groups.

Other studies testing self-categorization include the Hitlin, Brown, and Elder (2006) study on racial self-categorization in adolescence. Their results from a 5-year longitudinal study with 14-18 year olds indicated that youth who report being multiracial were four times more likely to report both racial group identities in an effort to report consistent multiracial identities. This study added components of racial identity as opposed to simple social group identity; however again, no work with prototypes or health behaviors was conducted.

Many SCT studies analyze intergroup behavior and in- and out-group discrimination (e.g. Billig & Tajfel, 1973; Doise & Sinclair, 1976; Eiser & Stroebe, 1972; Tajfel, 1974; Tajfel & Billig, 1971; Simons & Berkowitz, 1970; Tajfel & Billig, 1974; Tajfel, Billig, & Bundy, 1971; & Tajfel & Wilkes, 1963). Other social categorization work has included context effects of

stereotype ratings (Cinnirella, 1998); context effects on identity salience and self-schemas (Onorato & Turner, 2004); pictorial measures of self-categorization (Schubert & Otten, 2002); in-group and out-group norms (Marques, Abrams, & Paez, 1998); majority versus minority group size and members' self-categorization and perception (Simon, Hastedt, & Aufderheide, 1997); in-group status, in-group size, and group formation as it relates to self-categorization and commitment (Ellemers, Kortekaas, & Owerekerk, 1999); and self-categorization and stress (Haslam, Jetten, O'Brien, & Jacobs, 2004). Most of the research found support for self-categorization and its effect on group members' subsequent behavior. However, none of these studies were with adolescent populations nor predicted health behaviors. Furthermore, the role of the prototype was neither included nor emphasized.

In this dissertation, I return to the original version of SCT to return to prominence the importance of prototype and of identity salience. My purpose with the model proposed below is to study these additional aspects of self-categorization to increase the scope of the theory and use it to explain adolescent health behaviors. In summary, previous SCT scholars succeeded at examining specific isolated relationships between group processes (e.g. in-group and out-group discrimination and favoritism) that occur during the process of social categorization. However, they have not tested a more comprehensive model aimed at gaining a more thorough understanding of social categorization. Furthermore, particular aspects of the original theory, such as prototypes, have failed to be examined critically within the context of SCT research. As literature has demonstrated, identity development occurs during adolescence, yet the majority of self-categorization literature has not studied this population. This dissertation seeks to contribute to the SCT literature by addressing the issues provided above.

Explication of Two Additional Key SCT Constructs

   Prototypes. Prototypes embody the attributes that group members believe exemplify their group and distinguish them from other groups. These attributes may include beliefs, feelings, attitudes, and behaviors (Hogg & Turner, 1987). For example, if I am a member of the Jocks, my prototype for my group may be a sporty dressing person who likes video games and drinking beer. Prototypes are used to cognitively define the attributes of both in-groups (those groups we belong to) as well as to out-groups (groups we do not feel we belong with) (Hogg & Abrams, 2006). Group prototypes serve to specify how individuals think, feel, and behave. Thus, self categorization can result in an adolescent's feelings, perceptions, thoughts, and behaviors conforming to that of the in-group prototype (Hogg and Reid, 2006).   For example, if an adolescent is a member of a group in which the prototype perceived as cool, smokes cigarettes, likes to party, and drinks alcohol, the adolescents may see these characteristics and behaviors as representative how a member of that group should act.

   According to SCT, the adolescent will begin to shift their attitude and behavior to that of the prototype if the adolescent does not already engage in such thoughts or behaviors. This argument is consistent with the attitude-behavior relationship that Terry and her associates (Terry & Hogg, 1996; Terry, Hogg, & White, 2000) found showing that behavior is likely to correspond with attitudes that define group membership. For example, people are more likely to smoke marijuana if a pro-marijuana smoking attitude is important to the group to which they belong.

   While prototypes were not part of the original focus of social identity theory, they are critical to self-categorization theory. However, it is surprising that such a key construct is not reflected in much of the SCT literature. To study prototypes through a self-categorization lens requires researchers to measure the perception of the *typical* group member. While this is a shift

from other prototype research (see e.g., Gibbons & Gerrard, 1995 and discussion below), examining the prototype from an SCT perspective requires an assessment of what risk behaviors and characteristics are *typical* of the *group.* This will lead to understanding how the adolescent views the norms of the group.

Previous prototype research does *not* address group prototypes but rather it examines prototypes that represent risk behaviors (e.g. the prototypical smoker or drinker, e.g., Gibbons & Gerrard, 1995; Gerrard, Gibbons, Frederick, & Stock, 2005). While those studies have provided support for studying prototypes and adolescent health behavior, this study will provide a new contribution to adolescent health literature in that prior work did not examine the group's prototype. Instead, prototypes were examined as representatives of a specific risk behavior. For example, prototype researchers would examine the "typical pregnant teen," typical teens that smoke, or the "typical teen drinker" and the personality characteristics that may be associated with those prototypes (e.g. cool, popular, unfriendly, and snobbish). In those studies, the adolescent is asked to compare themselves to the typical person that engages in the risk behavior (see e.g. Thorton, Gibbons, & Gerrard, 2002; Gerrard, Gibbons, Zhao, Russell, & Reis-Bergan, 1999).

Thus, while previous prototype studies would ask a participant what traits are characteristic for the *typical* teenage drinker (the prototype being a teen drinker), studying prototypes from an SCT perspective would need to ask the participant what traits (e.g. like to party, watch music videos, are rebellious) and behaviors (e.g. drink, smoke, have sex) are characteristic for the *typical* person in their social or racial group. As a result, researchers able to gain a more comprehensive understanding of what risk behaviors and characteristics are viewed as normative for various adolescent social groups. Thus, studying prototypes within the context

of SCT allows for a broader understanding of how group norms are communicated via prototypes to influence adolescent health behavior.

In summary, the prototype construct is used throughout this dissertation because, as proposed below, its influence is critical for the health behaviors being predicted in the model. Thus both prototypical health behavior intentions and prototypical health behaviors are assessed in the model. Prototypical refers to the belief that particular behaviors are typical of the representative person in their social group. For example, participants will be asked to describe the typical person in their social group through a series of behaviors (e.g. smoking and drinking) and character traits (e.g. rebellious, studies hard). This reference person is considered the prototype. The health behaviors reported as being typical of the prototype will be referred to as "prototypical health behaviors."

Social Groups. A second important construct that requires substantive elaboration is that of social groups. The groups that adolescents and their peers categorize themselves with through the use of social labels, can be defined as social groups (Kinney, 1993). While the majority of social identity research focuses on racial/ethnic identity, there is also body of literature pertaining to the many other types of social groups adolescents may seek to identify with. Teens seek to identify with other "cliques" in school such as jocks, popular kids, etc. In recent focus group research with 14-16 year old Black and White rural and urban teens (Scales, Monahan, Roskos-Ewoldsen, Rhodes, & Johnson-Turbes, 2007), participants were asked to discuss what types of groups in their schools smoke. Groups such as jocks, popular kids, elites, cheerleaders, Goths, freaks, smart kids, and wanna be thuggish girls/guys were listed. These results indicated that teens are able to identify a significant number of social groups in their schools and believe that these groups engage in risky health behaviors.

One social group that has been linked to risky health behavior is athletes or "jocks," yet the literature is inconsistent. Some work finds that athletic participation can be a venue for reducing risk behaviors (Miller, Sabo, Farrell, & Melnick, 1998); however, other research found that male athletes are at greater risk for sexual activity and involvement in pregnancy (Miller, Farrell, Sabo, Barnes, & Melnick, 1999). These inconsistent results lea Miller, Farrell, Barnes, Melnick and Sabo (2005) to conduct a longitudinal study of 600 New York adolescents to examine gender and race relationships between jock identity and sexual risk taking. After controlling for age, race, SES, and number of sexual partners, male jocks reported more frequent dating than male non-jocks. In addition, jock identity was associated with higher levels of sexual risk taking, especially among Black adolescents. However, for both males and females, athletic activity aside from jock identity was associated with lower levels of risk taking. These results indicated that it is not athletic activity which promotes sexual risk taking behaviors but other factors related to the performance of jock identity which promoted these behaviors.

La Greca, Prinstein, and Fetter (2001) also found that jocks scored higher on sexual risk taking measures (unprotected sex, casual sex, and multiple partners) as compared to their peers. Burnouts and conformists had the highest levels of health-risk behaviors, low social acceptance from peers and the greatest amount of friends who also engaged in risky behaviors. Brains (and their friends) engaged in the lowest levels of risky behaviors. While jocks and populars displayed evidence of selected risky health behaviors (casual sex, other drugs, drinking), they were the most socially accepted groups. Miller, Hoffman, Barnes, Sabo and Melnick (2003) also studied jock identity and adolescent problem drinking. Their results indicated that self-identified adolescent "jocks" were more likely to engage in heavy drinking (versus their non-jock counterparts) even after controlling for age, gender, socioeconomic status, maturity, and athletic

activity. Jock identity was strongly associated with higher binge drinking among Black girls. Dolcini and Adler (1994) also found that those known as "elites" (defined as a crowd composed of popular and athletic teens) were significantly more likely to have had sexual intercourse than their peers.

The research above demonstrates that it is important to study the influence of adolescent social groups with regard to health behaviors. However, this study will not examine social groups in the same manner as previous research. It is not the purpose of this dissertation to simply compare the social groups and how they influence behavior, but rather the purpose is to examine the *overall model* of SCT and how social groups can be used to predict behavior. Thus it is not especially important if we find that jocks engage in more sex whereas stoners smoke more pot. The important finding would be that teens engage in behaviors that are prototypical for their group.

By examining the prototype and social group literature presented above, it is evident that both prototypes and social groups clearly have significant implications for adolescent health behavior. However, researchers have yet to study the influence of both constructs within the same study. This dissertation will examine the influence of both prototypes and social groups within the context of self-categorization theory.

A Model of Self-Categorization and Risky Health Behaviors

Hypotheses concerning SCT and risky health behaviors for adolescents are presented in this section. See Figure 2.1 for a pictorial representation of the hypothesized relationships among constructs.

Self-Categorization, Social Group Identity Accessibility and Social Group Identification. During adolescence, adolescents seek guidelines for behavior and stable interpersonal

relationships to lead them out of any confusion or uncertainty and social systems enable them to find solutions to problems (Kirchler, Palmonari, & Pombeni, 1994). The social entity used under circumstances of uncertainty is known as the 'reference group' that adolescents psychologically relate to and/or wish to belong to (Sherif, 1947). Kirchler, Palmonari, and Pombeni (1994) found that most adolescents belong to groups and that these groups serve as a reference point for companions who meet socially and are defined as "informal" because they exist on the basis of reciprocal interest of the members and are generally independent of adult leadership.
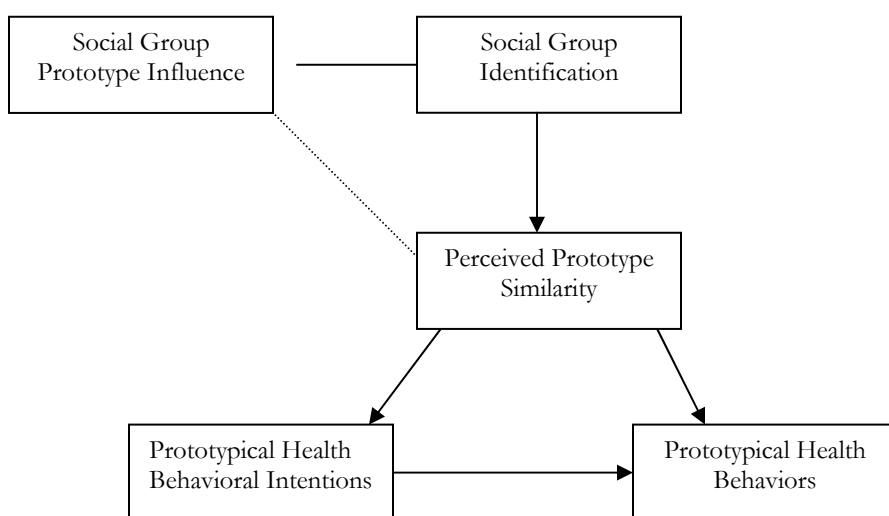
Figure 2.1 A Model of Self Categorization and Risky Health Behaviors

SCT focuses on social cognitive processes that cause people to identify with groups, view themselves in group terms, and manifest group behaviors (Hogg & Reid, 2006). During categorization, adolescents reconfigure their representation of themselves to conform to the prototype of the category. Once self-categorized, adolescents then view and measure themselves in terms of how well they represent the prototype. This process is known as *depersonalization* – where the self (and others) is not viewed as a unique adolescent but as an embodiment of the attributes of the group (Turner, 1985). Self categorization of oneself and others into in-groups

and out-groups provides more relevance for the in/out-group prototype (cognitive representations of the characteristics which describe the attributes of the group) for the adolescent. This transformation of the self is quite fundamental in that it brings the perception of the self and one's behavior in accordance with the relevant in-group prototype (Turner et al, 1987). Turner argues that depersonalization produces normative behavior, stereotyping, ethnocentrism, positive in-group attitudes, emotional empathy, collective behavior, shared norms, and mutual influence (Turner, 1985; Turner et al., 1987).

For self-categorization to produce normative group behavior the group must be psychologically salient. In other words, adolescents must identify with their in-group. Social identity salience rests on the notions of accessibility and fit (Oakes & Turner, 1980). Accessible categorizations are those that are important, valued, and frequently employed aspects of the self-concept. Thus, these categorizations are chronically accessible in memory because they are perceptually salient and self-evident. Gender and race tend to be social categorizations that are often chronically accessible (Mackie, Hamilton, Susskind, & Rosselli, 1996) due to the belief that they are the two most recognizable attributes of a person. People use accessible categories to make sense of themselves and their social context. They use these categories to account for similarities and differences among themselves and others (comparative fit) and how well the prototypes of the categorization account for why people and they behave as they do (normative fit). The categorization with an optimal fit becomes salient, creates group identification, and maintains prototype-based depersonalization. Thus it is proposed that social group identity accessibility will predict level of social group identification such that:

> H1: As social group identity accessibility increases, level of social group identification
> will increase.

Social Group Identification, Perceived Prototype Similarity and Prototypical Health

Behavior

Previously I argued that during the process of depersonalization, adolescents who identify as a "jock," for example, will conform to the shared in-group prototype of the "jock" which will systematically produce in-group normative behavior. Thus, when an adolescent identifies with a group, finding it salient and accessible to the self, the adolescent will learn to adopt the norms of the group. This cognitive shift within the adolescent suggests that social group identification will predict perceived prototype similarity, such that:

H2: Adolescents who identify with a particular social group will have more perceived prototype similarity with that group.

Hypothesis 2 examines the relationship between how an adolescent's identification with a group such as a "jock" will lead to perceived prototype similarity with a "jock" prototype. In this part of the model, it again becomes apparent that the group prototype is critical in influencing the norms of the group. Most social categories carry a recognized stereotype invested with shared meanings (Katz & Braly, 1933). Thus, society believes that members of particular groups will share certain characteristics. These shared beliefs about stereotypic content shape the nature of interactions between in-group and out-group members, and the behavior of in-group members. While it should now be evident that identities that are readily accessible are likely to produce higher levels of identification, it needs to be demonstrated that this increased identification will lead to the engagement in more prototypical behaviors.

From a social identity perspective, in-group prototypes prescribe behavior via prescriptive norms as well as describe behavior (Hogg & Abrams, 2006). Norms that define a salient in-group that adolescents highly identify with can significantly influence their behavior

(Terry & Hogg, 1996). Thus, the prescriptive force of a prototype is stronger when an adolescent identifies strongly with the in-group or desires to be accepted by the group (Christensen, Rothgerber, & Wood, 2004).

In-group prototypes have the potential to act as prescriptive norms because they define who we are. Communication plays a critical role in social influence and norms (Kincaid, 2004; Lapinski & Rimal, 2005). Information regarding norms, identity, and prototypicality is acquired, maintained, and/or changed via communication (Hogg & Scott, 2005). A common category membership provides the framework to develop meaning and allows members to construct a shared representation of their social world – a norm for their group (Clark & Brennan, 1991; Marques, Paez, & Abrams, 1998). Within groups, information regarding the prototype can be obtained by observing how people behave – what they do, how they speak and dress, etc. Adolescents may infer normative attitudes through the attitudes or behaviors of the prototype or other group members (Hogg & Scott, 2005).

Prototypes are an integral component of SCT through their distribution of group norms, and influence on adolescent behavior. Group prototypes tend to be grounded in consensual views that represent a social reality which is constantly reinforced (Moscovici, 1974). Thus, prototypes are shared – people in the same group will share the prototype of the relevant in- and out-groups. Otherwise stated, group prototypes are representations of group norms (Turner, 1992). During the process of depersonalization, adolescents conform to the shared in-group prototype which systematically produces in-group normative behavior. As the self categorization process initiates depersonalization, the adolescent will shifts his/her behavior so that it is consistent with the relevant group norm, such that they then perceive themselves as

being similar to the prototype. Although the result is behavioral compliance, the influence process in its entirety is representative of a cognitive shift within the adolescent.

Many studies on smoker images are consistent with social cognition literature which suggests that people in a particular group often compare themselves with the prototype in that group. Specifically, the closer the match between the self and the prototype, the greater interest in joining the group and remaining in the group (Burke & Reitzes, 1981; Moss & Frieze, 1993). Examples of the predictive validity of the prototype construct have been provided in various studies reviewed below. Gibbons, Gerrard, and Boney-McCoy (1995) studied adolescents' perceptions of their similarity to and favorability of the "typical" teen parent. Measured along with a series of items assessing intention to use birth control were regressed on willingness to engage in ineffective contraception in specific circumstances (e.g. at the request of their partner). Results indicated that perceived similarity to and favorability of the prototype predicted willingness to have sex without contraception. Gibbons, Helweg-Larsen, and Gerrard (1995) found that the prototype predicted sexual willingness and smoking behavior among American and Danish adolescents. In this study, prototype was entered in the regression along with behavioral intention and a series of social influence measures including perceived norms, motivation to comply with norms, and prevalence estimates of the behavior among peers. While all of the social influence measures were significant predictors of smoking and sexual willingness (in the U.S. sample), prototype perception also significantly predicted willingness and smoking behavior in both samples, even after all other variables had been entered. Thus, the prototype construct appears to be more than a proxy for social influence or intention.

Other studies examining the influence of prototypes and adolescents have provided additional support for the predictive utility of prototypes and behavior (Wills, Gibbons, Gerrard,

Murry, & Brody, 2003; Rivis, Sheeran, & Armitage, 2006; Spijkerman, van den Eijnden, Vitale, & Engels, 2004; Thornton, Gibbons, & Gerard, 2002; Ouellette, Hessling, Gibbons, Reis-Bergan, & Gerrard, 2005). Thus it is proposed that perceived prototype similarity will predict prototypical behavioral intentions and behavior such that:

H3: Adolescents who report prototype similarity for a group will exhibit more behavioral intention for behaviors similar to that of the prototype.

H4: Adolescents who report prototype similarity will report more prototypical health behaviors for behaviors similar to that of the prototype.

Lastly, because health communication research suggests that behavioral intention is the strongest predictor of behavior (see Theory of Reasoned Action, Ajzen & Fishbein, 1991), it is hypothesized that:

H5: Adolescents who reported intention to engage in the behavior will be more likely to report having engaged in the behavior:

Figure 2.2 offers a pictorial representation of the hypotheses presented above.

I will examine both gender and racial differences in prototype descriptions and subsequent health behaviors. However, if SCT is correct, there is no reason to believe that the process of the model will vary based on race or gender. Regardless of any between group social identification and behavioral differences, the process by which the behaviors are influenced by identification and prototypes should not differ.

In conclusion, the SCT model examines the relationships between: a) social group identity accessibility and self-categorization, b) accessibility and self-categorization's affect on social group identification, and c) prototype similarity on behavioral intentions and self-reported behavior. The model applies the original SCT to adolescents and health behaviors specifically,

while reinforcing the necessity of prototypes and contributing a new methodology for social group identity accessibility measurement.   Part 2 of Chapter 2 will further discuss the accessibility construct and its application to SCT, adolescent identity and adolescent health behavior.
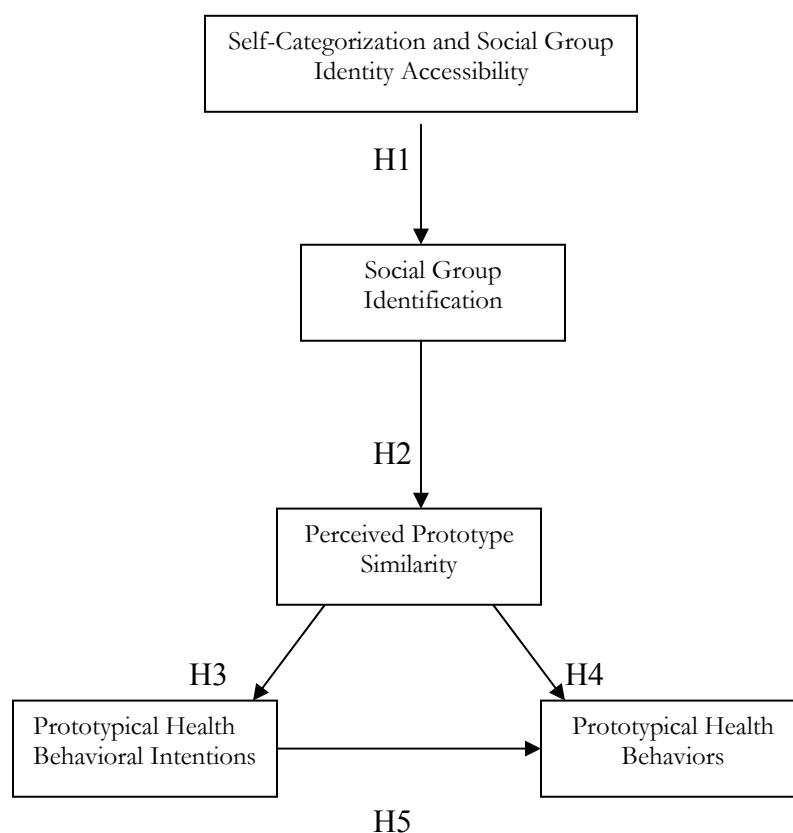
Figure 2.2 Self-Categorization Model

Identity Accessibility and Health Behaviors

Because this dissertation is part of a larger study involving adolescent message processing and risky health behaviors, hypotheses to investigate how social group identity accessibility may influence the SCT model and engagement in risky health behaviors are also proposed. The larger data collection effort examines how attitude and social norm accessibility, as well as two individual difference variables (e.g. need for cognition and preference for

intuition) serve to influence how Black and White adolescents process anti-smoking messages. My proposed addition is to examine how social group accessibility also might influence risky health behaviors.

Transactive Model of Attitude Accessibility

The larger study utilizes the Transactive Model of Attitude Accessibility (Roskos-Ewoldsen & Fazio, 2002) to examine how accessible attitudes and social norms toward a behavior (e.g., drinking or smoking) can result in biased processing of messages about the behavior. Attitude accessibility is reflected by the ease at which attitudes are activated from memory (Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Those attitudes that are activated from memory quickly in the presence of the attitude object are thought to be more accessible than those activated less quickly. In general, research finds that attitudes are more predictive of behavior when it is accessible to the person (see, e.g., Roskos-Ewoldsen, 1997). For example, if a pro-smoking attitude is highly accessible from memory to an adolescent, s/he will be more likely to smoke. Research has indicated that highly accessible attitudes are automatically activated from memory when the relevant concept is activated in the environment (Fazio, Sanbonmatu, Powell, & Kardes, 1986; Roskos-Ewoldsen & Fazio, 1992).

An easily accessible attitude plays a key part in how attitudes influence behavior (Fazio & Zanna, 1981,1986). Fazio (1990) proposed that highly accessible attitudes create a biasing effect on the perception of the behavior, making it more likely that the behavior and attitude will be consistent. Thus, the attitude-behavior relationship consistency increases with attitude accessibility. A number of studies find a moderating effect of attitude accessibility in the attitude-behavior relationship (Fazio & Zanna, 1981,1986).

The Transactive Model of Attitude Accessibility suggests that accessibility is the mechanism through which media campaigns could potentially have their strongest ability to influence behavior change (Berger & Mitchell, 1989). For example, if an adolescent's attitude to smoking is positive, the adolescent is likely to continue to act positively toward smoking (e.g. the adolescent is more likely to smoke). However, in any given social situation involving smoking, attitudes may vary (Roskos-Ewoldsen, 1997). Which attitude will influence action is determined by which attitude is activated from memory. Thus, the more accessible the attitude, the more likely it is to influence whether or not an adolescent avoids or proceeds with a given behavior, such as smoking (Roskos-Ewoldsen, Bichel, & Hoffman, 2002).

Rhodes and Roskos-Ewoldsen (2003) found that highly accessible pro-smoking attitudes were strongly related to smoking behavior whereas less accessible attitudes were not. In addition, people with highly accessible attitudes toward the topic of a message (e.g. smoking, drinking, and sex) were more likely to process a message systematically (Wu & Shaffer, 1987; Fabrigar, Priester, Petty, & Wegener, 1998). Attitude accessibility is also likely to increase the likelihood of central processing, which also increases the likelihood that processing will be biased because those with accessible attitudes are more susceptible to resist messages that contradict their attitudes (Chen, Schechter, & Chaiken, 1996; Fazio et al, 1994). For example, people with accessible anti-smoking attitudes will be more likely to resist pro-smoking ads they encounter from peers and media.

Prior work with adult populations demonstrates that norm accessibility can also affect message processing about health risks (Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2003). There has also been research demonstrating the importance of social norms in explaining social behavior (Miller, Monin, & Prentice, 2000; Terry & Hogg, 1996). This research has shown that

regardless of the accuracy of the information, beliefs regarding a behavior from members of an important peer group can influence behavior. More specifically, research has found a relationship between adolescent susceptibility to pro-smoking messages and normative pressures to smoke (Gunther, Borzekowski, Liebhart, & Weber, 2006) and a strong relationship between smoking initiation and social norms (Chassin, Presson, Sherman, & Edward, 1991; Jacobsen, Lantz, Warner, Wasserman, Pollack, & Ahlstrom, 2001).

Norm accessibility maintains the same predictions as attitude accessibility. Attitude accessibility measures improve the prediction of behavior more a simple measure of attitude strength (e.g. Fazio & Roskos-Ewoldsen, 1994; Roskos-Ewoldsen, 1997), and the accessibility of norm-related attitudes and beliefs also improve behavioral predictions over measures of norm-related attitude strength (Cialdini,1991; Cialdini, Reno & Kallgren, 1990; Kallgren, Reno & Cialdini, 2000).

Similar to attitude accessibility, the more accessible a normative belief, the more influence over message processing and behavior it should have. Normative beliefs are defined as the beliefs regarding the behaviors of others, generally referring to significant others (e.g. peers, family) (Ajzen, 1991). Rhodes and Roskos-Ewoldsen (2004) found that chronic accessibility of norms regarding smoking predict smoking behavior. Because research has demonstrated that attitude and norm accessibility can affect behaviors and behavioral intent, I propose that if social group identity was properly measured, social group identity should predict these same outcomes. Most SCT studies assume a category is accessible if a participant simply self-reports membership in a group (Tarrant 2001; 2002). For example, an adolescent would be asked select from a list of options, the group which they feel they most identify with. Thus, self-awareness of group membership is *assumed* to mean that the group is accessible. While this may be true, this

measurement is not aligned with research on accessibility as reported above. Because attitude and norm accessibility are traditionally measured using a reaction time procedure (Fazio, 1990; Roskos-Ewoldsen, 1997; Roskos-Ewoldsen & Fazio, 1992; Roskos-Ewoldsen, Yu, & Rhodes, 2004), I suggest that group identity accessibility should also be measured via reaction time in order to increase the predictive ability of the concept.

Social group identity accessibility will be examined by identifying how quickly adolescents respond when asked if they are a member of a given social group that appears on a computer screen; quicker response times will indicate more group accessibility. Rhodes and Roskos-Ewoldsen (manuscript in progress) tested norm accessibility and attitude accessibility on cigarette smoking behaviors. Regression analyses indicated that, consistent with earlier research on attitude accessibility, attitude accessibility measure significantly improved smoking behavior prediction above what was found with an attitude strength measure. When subjective norms were added to the regression model, the interaction between the valence of the subjective norm and the accessibility of the norm improved the fit of the model beyond that obtained with just attitude accessibility. The overall model accounted for 80% of the variability in college student smoking behavior. Thus, it can be proposed social identity accessibility measured via reaction time will predict more variance in health behaviors than that of traditional measures simply measuring whether an adolescent belongs to the group or not. Reflecting on attitude and norm accessibility literature in conjunction with the SCT literature, I posit that:

> H6: Adolescents will report more prototypical health behaviors for groups that are highly accessible.

For example, adolescents who identify with being a "popular/elite" will be more likely to respond quickly during reaction time measures to the "popular/elite" group than to other groups.

This reaction will correlate with self-categorization measures, and both will serve to predict health behaviors in that the adolescent will be more prone to engage in behaviors that they report the prototypical "popular/elite" would do. This relationship has clear implications for how adolescent group identity affects risky health behaviors. This approach adapts traditional SCT with the addition of reaction time measures to assess group identity.

I hypothesize that there is an association between accessibility of attitudes, norms and identity, prototypes, and the health risk behaviors of adolescents. For example, if a smoker maintains pro-smoking attitudes, feels that relevant significant others have pro-smoking attitudes, and the adolescent self-identifies in a group that has a prototype that smokes, the adolescent will be likely to process anti-smoking ads with bias. Self-categorization in a group that has a prototype that is likely to smoke may add to the predictive utility of attitude and norm accessibility in predicting anti-smoking ad processing, and subsequent behavioral intentions and behavior. First, I expect to replicate prior work that found attitude and norm accessibility are additive in their effects on behavioral intention and behavior:

H7: Attitude and norm accessibility will additively predict adolescent's behavioral intentions (H7a) and their behavior (H7b).

Second, controlling for attitude and norm accessibility, I predict that social group identity accessibility will also predict intent and behavior:

H8a: Adolescents whose highly accessible social groups favor a given health behavior will have stronger intent to engage in that behavior than will those whose highly accessible social groups do not favor smoking.

H8b: Adolescents whose highly accessible social groups favor a given health behavior will be more likely to report having tried that behavior that will those whose highly accessible social groups do not favor that behavior.

CHAPTER 3

METHODS

Overview

High school students individually worked with a computer to complete a variety of measures. Participants first completed reaction time measures for attitude, social norm, and social group identity accessibility. Second, they completed measures regarding their attitudes, norms, and behaviors regarding alcohol use, marijuana use, sexual activity, and smoking cigarettes. Third, they completed measures regarding their perceived social group membership, their attitudes toward that group, and perceived prototypes of the group. Finally, they provided demographic information concerning their age, race and gender. The study design was a 2 (race) x 2 (gender) between factor design.

Participants

Participants were 325 high school students recruited from urban (Macon- Central High School, 51%) and rural (Swainsboro – Swainsboro High School, 49%) areas of Georgia. The sample consisted of male (49%) and female (51%), and Black (49%) and White (51%) students. Students ranged from 14-17 years of age (mean age = 15.3). There were two selection criteria for the study. First, participants must have come from low-income homes (household income less than $30,000). The income requirement was assessed and met by ensuring that the participating child was eligible for the free lunch program. The criterion for low income adolescents was based on the larger study. The larger study focused on smoking behaviors and data has demonstrated that the risk of adolescent smoking increased by 28% with each step down in parental education and increased 30% for each step down in parental household income after

adjusting for age, sex, race, and adolescent disposable income (Soteriades & DiFranza, 2003).

Thus, the larger study was primarily interested in low income adolescents. Second, a minimum

of 25% of the participants must have experimented with smoking. This criteria was met by

asking the teacher/counselor for recommendations. Results indicated that almost 40% of the

sample had experimented with smoking.

Procedures

The adolescents were recruited by V & L Research from high schools in the targeted

counties. Data collection occurred in a media lab and the auditorium in the high schools. A

monetary donation was provided to the classroom teacher and the school for each student that

participated. The school was provided with $25 for each student recruited, while the teacher was

provided with $10 for each student that participated in the study. In addition, students received

a $10 gift card to a local fast food restaurant.

Recruitment procedures. Schools used to recruit participants for this study were selected

through a search of counties in the state of Georgia. Through each counties Department of

Education Web site and other government sites that provide county level statistics, we were able

to assess the demographic and economic breakdown of each school in the county. Target

schools were selected based on those which were comprised of the most equal distribution of

Black and White students with at least 65% of the students eligible for free lunch.

V&L Research had primary responsibility for initiating contact with the school principal

and health teachers to gain approval for data collection at each site. Once the schools are

targeted, students were selected by the teacher to participate to ensure they were: a) participating

in the free lunch program and, b) reading at atleast an 8th grade level. In addition, recruiters and

teachers ensured that an equal number of participants across the groups (e.g. White females).

V&L relied on the teacher to assist in ensuring at least 25% of the students were smokers. However, to validate the teacher's assumptions, the item "Have you tried or experimented with cigarettes, even one puff?" was used to verify that at least 25% are had experimented with smoking.

Experimental procedures. During data collection, participants were scheduled in sessions of 10 students at a time, every 50-60 minutes. Participants arrived at their regularly scheduled classroom, and were then sent to the room as a group for data collection. The day prior to data collection, teachers provided the school counselor with parental consent forms. During the day of data collection, the researchers were provided with the consent forms. Once at least 8 adolescents were present, they were seated at individual computers with headphones. A researcher read aloud the assent form and each participant signed a copy for the researcher. While all instructions were seen on the screen, all instructions were also read by two researchers (one male and one female).

Participants all began with reaction time tasks, followed by health behavior items. Third, they completed the social group scaled measures. Finally, participants complete demographic measures (age, gender, and race). Participants had a required 3 minute break, and took an average of 45-50 minutes to complete the program.

Measures

All measures can be found in Appendix A. The measures in Appendix A are in the order that adolescents read them during the study and I present them below in that same order.

Attitude Accessibility. Attitude accessibility was measured using a standard reaction time procedure that has been used in studies to reliably assess attitude activation (Roskos-Ewoldsen, 1997; Roskos-Ewoldsen & Fazio, 1992; Rhodes & Roskos-Ewoldsen, 2003). To establish

construct validity of accessibility tasks, researchers conducted a regression analysis using smoking related attitudes as predictors of attitude and social norm accessibility (Rhodes & Roskos-Ewoldsen, manuscript in progress). Results indicated that the pro-smoking (and tobacco) attitude items significantly predicted more accessible pro-smoking attitudes and norms. These items measured tobacco related attitudes found to relate strongly to smoking behavior, sample items included: "the legal smoking age should be raised to 21," and "I am concerned about the economic well being of people who work for the tobacco industry."

In the attitude accessibility task, participants pressed one of two keys to indicate whether they liked or disliked the word that appears on the computer screen. The keys were color-coded and lettered, "L" for like, and "D" for dislike. Participants were trained to press the appropriate key as quickly as possible, but not to go so quickly as to make mistakes. Participants completed 3 blocks of 24 items each. The first block was a practice trial where the participants are instructed to press either "like" or "dislike" key on the keypad. This block served to familiarize the participant with the key presses. The second block included a list of 24 objects or things (e.g. Red Sox) and behaviors (e.g. partying, watching MTV) to familiarize the participant with the judgment task. The final block of 24 items contained the critical items and dummy items. Critical items were chosen based on the risky health behaviors being measured in this study, smoking cigarettes, smoking weed (marijuana), having sex, and drinking alcohol., as well as a variety of "filler" items unrelated to health risks. These "filler" items were randomly selected by the researchers. See Appendix A for a total list of word items.

Social Norm Accessibility. The procedures for social norm accessibility were similar to that of attitude (Rhodes, Bradford, Roskos-Ewoldsen, & Edison, 2004). For social norm accessibility tasks, participants were instructed that they would see a person at the top of the

screen, then a behavior below the person. They were to respond "yes" or "no," by using color-coded keys labeled "Y" or "N" on the keypad. The tasks asked the participant to state whether or not the target person would want the participant to do the behavior stated. For example, if the target person was "friend" and the target behavior was "smoke cigarettes," the participant would indicated whether their friend would want the participant to smoke cigarettes. The target people included: good friends, parents, brothers/sisters, and boyfriend/girlfriend. The target behaviors were smoking cigarettes, smoking marijuana, having sex, and drinking alcohol, however, there were 12 behaviors in total. To establish construct validity of norm accessibility tasks, researchers conducted a regression analysis using smoking related attitudes as predictors of social norm accessibility (Rhodes & Roskos-Ewoldsen, manuscript in progress). Sample items included: "my friends encourage me to smoke," and "my parents would be very angry if they found out that I smoked." Results indicated that smoking norm items significantly predicted more accessible pro-smoking norms.

Social Group Identity Accessibility. Identity group accessibility was measured using a standard reaction time procedure that had been used in a number of accessibility studies (Fazio, 1990a; Roskos-Ewoldsen, 1997; Roskos-Ewoldsen & Fazio, 1992; Roskos-Ewoldsen, Yu, & Rhodes, 2004). Participants pressed one of two keys to indicate whether they did or did not feel that they were a part of the social or racial group that appears on the computer screen. The instructions emphasized that participants were to maximize both their speed and accuracy of responding.

Participants completed one block of 12 items. The block instructed participants to press either the "yes" or "no" key. Because the participants previously completed the attitude and norm accessibility tasks (described below), no practice blocks were needed. The block included

the following groups: jocks, nerds/geeks, gothics, loners/outsiders, thug guys/girls, nonconformists/rebels, burnouts/losers, preps, populars/elites, and divas. Two "dummy" groups (cool Asians, band geeks) were the first two groups to appear as a means to familiarize the participants with how the groups would appear before the critical item groups begin. The dummy groups were selected because they do not appear as commonly identified social groups from previous studies. Thus, it is unlikely that participants in this study would select them as their social group.

Prototypical Health Behaviors. Nine items assessing the adolescent's own risky health behaviors were taken from the CDC's 2005 Youth Risk Behavior Surveillance Survey. The CDC has conducted two test-retest reliability studies of the national questionnaire (1992 and 2000). Approximately three-fourths of the items were rated as having a substantial or higher reliability (kappa = 61% - 100%), and no statistically significant items were observed between the prevalence estimates between the times the questionnaire was administered. Results also indicated that the questionnaire is best suited for students in 8th grade or higher. No study has been conducted to assess the validity of the self-reported behaviors. However the CDC conducted a review of existing literature to assess situational and cognitive factors that may affect the validity of the behaviors. Results indicated that these factors do not threaten the validity of the self-reported behaviors. Each subset of items (e.g. marijuana items, smoking items) can be collapsed into an index to create a "marijuana use" index, for example. Sample items include: "During the past 30 days, on how many days did you have at least one drink of alcohol?," and "During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is in a couple of hours?"

Finally, three items were developed by myself to create items spanning the continuum of sexual activity "making out" or "hooking up" to sexual intercourse. I believe these items better capture activities that freshman in high school may be engaging in than the typical measures which capture only whether the participant is sexually active or not. The YRBS items measuring sexual activity range are similar to that of the smoking and alcohol items in that they measure frequency of use (e.g. ever used in lifetime to multiple times per day). I felt that for adolescents, a continuum of physical activity may capture a more realistic picture of 14-15 year old sexual engagement. Thus, the new items have the potential to capture more variance in adolescent sexual activity than existing items, because they will not eliminate the adolescents that have not engaged in sexual intercourse.

Self-Categorization. To measure self-categorization, the Peer Crowd Questionnaire (PCQ) was used. The PCQ was developed from prior research on adolescent's peer crowds (Mosbach & Leventhal, 1988), and from focus groups from local high schools (LaGreca, Prinstein, & Fetter, 2001). Consistent with previous studies (LaGreca et al, 2001, Scales et al, 2007, Tanti, 2005; Brown, 1989), the following peer crowds were identified: jocks (e.g. athletic, on a school team), nerds/geeks (e.g. do well in school, enjoy academics), gothics (e.g. dark, artistic), populars/elites (e.g. social, image obsessed), loners/outsiders (e.g. isolated, unsocial), nonconformists/rebels (e.g. don't conform to social ideals, rebel against the norm), thug guys/girls (e.g. hard exterior, hip-hop culture), burnouts/losers (e.g. skip school, get into trouble), preps (e.g. conservative, have money), and divas (e.g. have an attitude, concerned with style and looks). Prior studies (Brown et al, 1987) have demonstrated that adolescents are accurate in identifying their peer group in that they found good agreement between adolescents' and peers' reports of their social group affiliation (e.g. 75% of jocks correctly identified their social group).

In addition, Sussman (1990) obtained an inter-rater reliability of 93% for assigning adolescents

to peer crowds (for jocks, freaks/burnouts, and populars). Adolescents will select the group they

most identify with "when you are hanging out after school." They will be told to select only one

group, the group that they hang out with the most.

  Social Group Identification. Social group identification will be measured using 10 items

developed by Kirchler, Palmonari, & Pombeni, (1994; α= .79). Kirchler et al., (1994) created

this scale by taking 5 items from Brown's (1988) identification scale and adding five new items

to it. Kirchler et al., (1994) reported a factor analysis of the 10 items yielded one factor

explaining 37% of the variance. The identification scale used a 7-point Likert scale ranging from

1 for strongly disagree to 7 for strongly agree. Sample items include: a) My peer group is very

important to me, b) I identify with my peer group, and c) I feel close to my peer group.

  Two additional items from Marsiglia, Kulis, and Hecht (2001, α = .82) will also be used

to measure identification. The Marsiglia et al. (2001) ethnic identification scale was intended for

racial group identification and thus many items were not suitable for social group identification

(e.g. I know the history of my ethnic group). Thus, only two items were used. These items

captured aspects of identification that the Kirchler et al. (1994) scale did not. These two

remaining items were retained in the original form; however the word "ethnic" was changed to

"social" for measuring social group identification. Using a 7-point Likert scale ranging from "1"

strongly disagree to "7" strongly agree, the items are: "I think I look like people from my social

group," and "I prefer to do things that people from my social group do." I anticipate that these

items will load with the Kirchler et al., (1994) items in to one overall factor.

  Prototype Descriptions and Behaviors: Group Characteristics. To measure perceived

behaviors and characteristics of the prototypes, 8 items from Tarrant, North, Edridge, Kirk,

Smith, & Turner (2001; Tarrant, 2002) were selected. In two separate studies with 14-15 year old adolescents, Tarrant and colleagues examined adolescents' perceptions of prototype and group behavior. The measure contained approximately 40 items each to assess various character traits (e.g. cool, fun, unfriendly, snobbish) and normative group behaviors (e.g. play sport, enjoy video games, enjoy action movies). The statements were measured on a 10-point Likert scale. These statements were adapted from a pool of items derived from several sources regarding previous research on adolescents (e.g. Fitzgerald, Joseph, Hayes, & O'Regan, 1995; Garton & Pratt, 1987; Gavin & Furman, 1989). Consultation with a small sample of adolescents reduced the pool from 40 to 26 items (Tarrant, 2001).

To examine validity of the original items, Tarrant et al. (2001, Tarrant, 2002) asked participants to rate (on a 10-point scale ranging from "0" completely disagree, to "10" completely agree) whether or not they believed their in-group would agree with their prototype descriptions. Participants were confident that their in-group would also agree with their ratings: mean confidence rating = 7.14 (1.68). The final list utilized in this dissertation was further cut down due to space limitations in the larger study. In addition, to maintain consistency with other scales, the items will be measured on a 7-point Likert scale ranging from "1" poor description, to "7" good description. The final list of words participants respond to are: popular, listen to hip-hop music, like to party, play sports, listen to rock/alternative music, study hard, rebellious, and watch MTV/BET.

Prototype Descriptions and Behaviors: Risky Health Behaviors. Because general prototype studies (e.g. Tarrant 2001, 2002) do not measure risk behaviors of prototypes, I wrote items for four risk behaviors (smoking cigarettes, having sex, smoking marijuana (weed), and drinking alcohol). These four behaviors were selected to correspond with the four health

behaviors that participants will be asked to report their engagement in. To examine if

participants engage in health behaviors similar to that of the prototype, the health behaviors of

prototypes must be measured and they must be the same as those asked of the participant. The

prototype health items were: smoke cigarettes (regularly and sometimes), have sex (intercourse

or only oral sex), smoke weed (regularly and sometimes) and drink alcohol (regularly and

sometimes).   Because participants will be asked to report their health behaviors based on

frequency of use ranging from, ever used to multiple times a day (or from kissing to intercourse

for sexual behaviors), it is important to assess whether or not the prototype engages in the

behavior only occasionally or as a regular user.

Participants' instructions will read, "Next, you will see a list of words or behaviors. We

want to know how well the words and behaviors describe how the *typical* person in the

"_____" group acts (the computer will automatically fill in the name of the group the

adolescent self-categorized with previously). For each description, you will rate it on a scale

from "1" a poor description of a member of my group to "7" a good description of a member of

my group. Please select the number that best describes the typical person in your group." Then

the prototype characteristics and the prototype health behavior items will appear on the screen.

Perceived Prototype Similarity. Perceived prototype similarity will be assessed by three

items, "Did the judgments you make for people in your group also describe what you do?," "In

general, how similar are you to the typical person in your group," and "Did these judgments also

describe kids that you hang out with that are the same race or ethnic group that you are?"

(ranging from "1" not at all similar to "7" very similar) and "do the personality traits that

describe the type of person in your group also describe you?" (ranging from "1" definitely no to

"7" definitely yes). The items were taken from Rivis and Sheeran (2003, α = .75; 2006, α = .76).

Prototype literature demonstrates that perceived prototype similarity is measured in this manner (e.g. Rivis & Sheeran, 2003; 2006).

Prototypical Health Behavioral Intentions. Four items will assess participants' intentions to perform the four risky health behaviors used in this study (smoking weed, drinking alcohol, smoking cigarettes, and sexual activity). Thornton, Gibbons, and Gerrard (2002, $\alpha = .77$) used similar measures in a prototype study to predict risky sexual behaviors. Specifically, they were asked, "What is the likelihood that you will engage in the following behaviors in the next six months," ranging on a scale from "1" very unlikely to "7" very likely.

CHAPTER 4

RESULTS

Preliminary Analyses

Reliability. All scales were assessed for internal consistency using Cronbach's Alpha. The twelve items measuring social group identification formed a reliable measure ($\alpha = .86$). Removing any particular items would not significantly improve reliability. The three items used to measure perceived prototype similarity did not form a reliable measure, however, by removing the third item, "Did these judgments also describe kids that you hang out with that are the same race or ethnic group that you are," the remaining items were reliable ($\alpha = .76$). Thus, only those two remaining items were used in the perceived prototype similarity scale.

For risk behaviors, two of the three cigarette use items formed a reliable scale. The "have you ever tried or experimented with cigarette smoking, even one or two puffs," was deleted to increase the reliability of the cigarette use scale ($\alpha = .94$). All three items for alcohol behavior ($\alpha = .76$), marijuana use ($\alpha = .86$), and sexual behavior ($\alpha = .75$) formed reliable scales.

Only one item measured behavioral intention for each risk behavior. That item assessed the likelihood of performing the activity in the next 6 months. Due to a large number of "very unlikely" responses in the data, items were recoded from a 1-7 scale to a dichotomous measure ("0" = do not intend and "1" = do intend).

To measure prototype behaviors, two items per risk behavior were used and demonstrated adequate reliability (prototype alcohol use $\alpha = .88$; prototype cigarette use $\alpha = .68$; prototype marijuana use $\alpha = .72$) except for the sex measure**.** The item "the typical person in my group

only has oral sex, not intercourse" did not load with "the typical person in my group has sex regularly," thus, only the latter will be used for future analyses. Because the behavioral intention item only refers to sex (not oral sex), it was determined that the latter item should be used with regard to prototype sexual behavior.

Descriptive Analyses

Although the specific social group they hang out with after school that was identified by the participants is not critical for the tests of hypotheses, it provides background information. Unfortunately, while all answered the question, only half of the sample yielded forced-selection social group data due to a computer glitch during the first data collection. Thus, the data below are only for the urban sample ($N = 169$). As shown in Table 4.1, athletes and the popular/elites were the most often selected groups that adolescents report hanging out with after school and that almost no one selected rednecks, punks or goths.

Table 4.1

Percentage of Social Group Selection

	Percentage of Sample Who Selected
Athletes	19.5
Populars/elites	19.5
Thugs	13.6
Nerds/Geeks	8.3
Divas	7.1
Theatre Artsy Types	7
Nonconformists	6.5
Burnouts	4.7
Preps	4.7
Skaters	4.1
Loners	3
Stoners	3
Jocks	2.4
Goths	0.6
Punks	0.6
Rednecks	0

N = 169, data include only the urban sample due to a data collection glitch .

Test of the Theoretical Identity Model

This section reports the results of the prototype model presented in Figure 2.2 (from

theory section, see page 29). The hypotheses for the Self-Categorization Theory Model were

worded such that the appropriate data to analyze are those participants' whose social groups

engage in the risk behavior under examination. Thus, for each analysis, only participants whose

group (prototypical health behavior) response was above the mean are selected for these

analyses. For example, the mean response for alcohol consumption was 2.43 (SD =1.04). Thus,

to test the alcohol model, only those respondents with a score on prototypical drinking behavior

above 2.43 were selected. This procedure was done for each of the health behaviors (see Table

4.12 for means, range and standard deviations for each prototypical health behavior variable).

Table 4.12

Means, Ranges, and Standard Deviations for Risk Behaviors (Self and Prototype)

	Mean	Range	Std. Dev.
Self - Cigarettes	1.42	1-7	1.16
Self - Alcohol	1.70	1-7	1.04
Self - Sex	2.09	1-5	.98
Self - Marijuana	1.36	1-7	.96
Prototype – Cigarettes	2.19	1-7	1.40
Prototype – Alcohol	2.43	1-7	1.86
Prototype – Sex	3.39	1-7	2.24
Prototype – Marijuana	2.21	1-7	1.66

Structural equation models using LISREL Version 8.8 (Joreskog & Sorbom, 1993), with

a covariance matrix generated by PRELIS Version 2.5 (Joreskog & Sorbom, 1996) tested the

hypothesized models. The covariance matrices were based on composite scales for level of

social group identification level, perceived prototype behavior similarity, behavioral intention,

and behavior. Because all variables displayed relatively small levels of skewness and kurtosis,

and because the relative multivariate kurtosis estimate given by PRELIS indicated no serious

deviations from multivariate normality, maximum-likelihood estimation was used. The model

proposed in Chapter 2 was tested for each of the four risk behaviors.   The findings are presented

in Figures 1-4 (as discussed below). In these figures, standardized path coefficients are shown

for statistically significant paths; dashed lines indicate paths that were not significant.

Alcohol Model. The primary alcohol model is shown in Figure 4.2. The overall fit of the

model was good χ^2(4, N = 111) = 7.08, p = .13, root-mean-square error of approximation

(RMSEA) = .07, normative fit index (NFI) = .95, comparative fit index (CFI) = .98, goodness of

fit index (GFI) = .98. These values are satisfactory according to those recommended by Hu and

Bentler (1999) as indicative of a good model fit. All of the hypothesized paths were statistically

significant. Level of identification with the group predicted perceived prototype behavior

similarity. Perceived prototype behavior similarity significantly predicted both intention to drink

and actual drinking behavior. However, while perceived prototype similarity did predict both

behavioral intent and behavior as predicted, the path to behavioral intent was significantly

stronger than the path to behavior. As future results will indicate, this relationship is evident

only in this model. In addition, intention to drink significantly predicted drinking behavior. The

model accounted for 32% of the variance in drinking behavior, 20% of the variance in intention

to drink, and 21% of the variance in perceived prototype behavior similarity.

Figure 4.2. Primary alcohol model with standardized path coefficients shown. Dashed lines indicate hypothesized paths that were not significant.

Cigarette Model. The primary cigarette model is shown in Figure 4.3. The overall fit of the model was good, $\chi^2(4, N = 123) = 5.19$, p = .27, root-mean-square error of approximation (RMSEA) = .05, normative fit index (NFI) = .95, comparative fit index (CFI) = .99, goodness of fit index (GFI) = .99. All of the hypothesized paths except one were statistically significant. Level of identification with the group predicted perceived prototype behavior similarity. While perceived prototype behavior similarity significantly predicted actual cigarette smoking behavior, it did not predict intention to smoke cigarettes. As predicted, intention to smoke significantly predicted smoking behavior. The model accounted for 34% of the variance in smoking behavior, 18% of the variance in intention, and 25% of the variance in perceived prototype behavior similarity.

Figure 4.3. Primary cigarettes model with standardized path coefficients shown. Dashed lines indicate hypothesized paths that were not significant.

Sex Model. The primary model is shown in Figure 4.4. The overall fit of the model was good $\chi^2(4, N = 143) = 7.75$, p = .10, RMSEA = .07, NFI = .94, CFI = .97, GFI = .98. All hypothesized paths were statistically significant. Level of identification with the group predicted perceived prototype behavior similarity. Perceived prototype behavior similarity significantly predicted both intention to have sex and actual sexual behavior. In addition, intention to have sex significantly predicted sexual behavior. The model accounted for 32% of the variance in sexual behavior, 11% of the variance in intention to have sex, and 26% of the variance in perceived prototype behavior similarity.
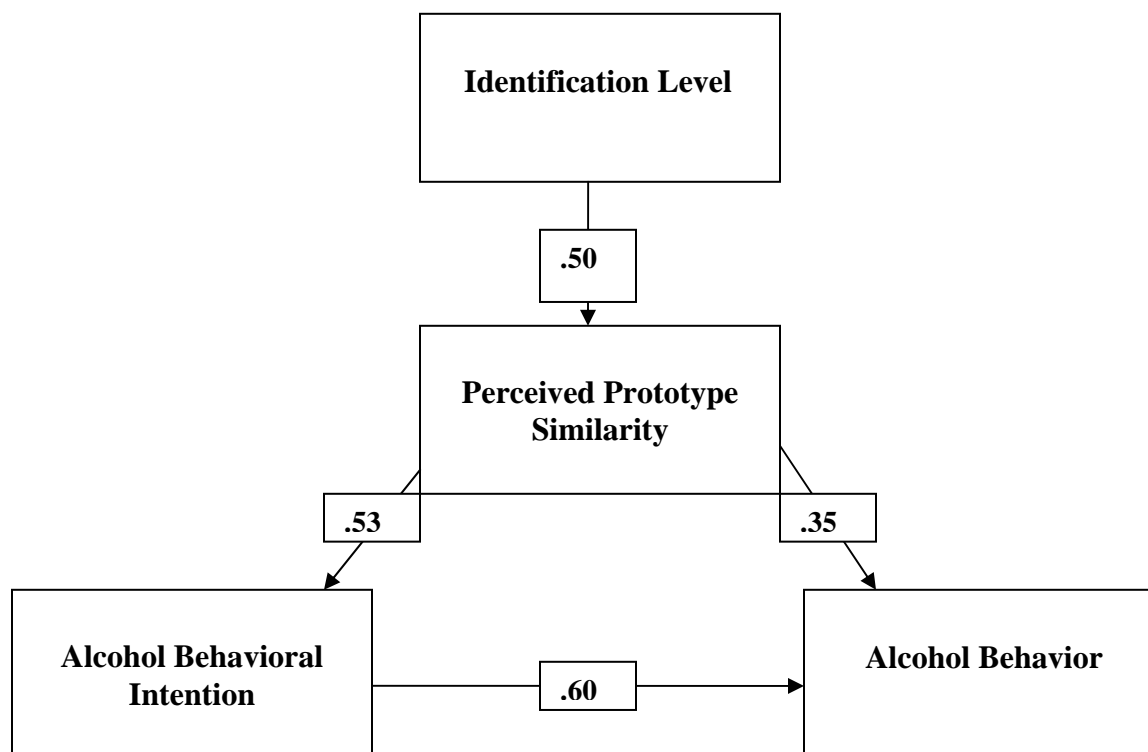
Figure 4.4. Primary sex model with standardized path coefficients shown. Dashed lines indicate hypothesized paths that were nonsignificant.

    Marijuana Model. The primary marijuana model is shown in Figure 4.5. The overall fit of the model was good $\chi^2(4, N = 104) = 5.91$, p = .21, RMSEA = .06, NFI = .94, CFI = .98, GFI = .98. All hypothesized paths were statistically significant. Level of identification with the group predicted perceived prototype behavior similarity. While perceived prototype behavior similarity significantly predicted both intention to have smoke marijuana and actual marijuana smoking behavior. In addition, intention to have smoke marijuana significantly predicted smoking behavior. The model accounted for 26% of the variance in smoking behavior, 22% of the variance in intention to smoke marijuana, and 23% of the variance in perceived prototype behavior similarity.
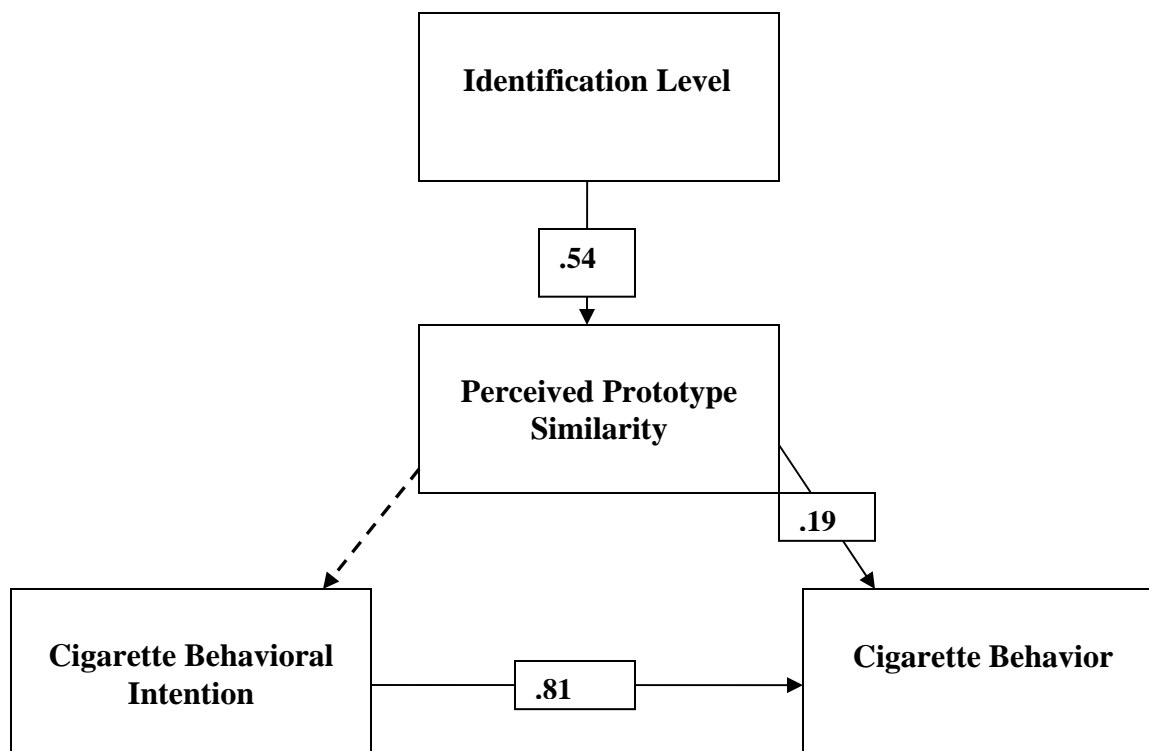
Figure 4.5. Primary marijuana model with standardized path coefficients shown. Dashed lines indicate hypothesized paths that were nonsignificant.

Summary for Test of Initial Predictions. As predicted the model tested provided a good fit for all four risk behaviors. All hypothesized relationships were significant with the exception of one relationship in one model. For cigarette smoking, perceived prototype behavior similarity did not predict intention to smoke cigarettes. These results indicate significant support for the model, particularly the inclusion of perceived prototype behavior similarity. [i]

Test of Secondary Model (Including Race and Gender)

I hypothesized that the theoretical relationships among predictors should not change as a function of race or gender, thus, those variables were not included in the tests of the primary model. However, in the theory section, I proposed assessing these data to see if and how gender and ethnicity affected either the theoretical model or the outcome variables. Thus, the models

was re-run including race and gender. Several models were run to assess where race and gender

either interacted with predictors or had a main effect on the outcome measures. The significant

relationships are presented below.

Alcohol Model   The secondary alcohol model is shown in Figure 4.6. The overall fit of

the model was good $\chi^2(4, N = 123) = 8.86$, $p = .06$, RMSEA = .08, NFI = .95, CFI CFI = .97,

GFI = .98. The previously significant relationships were retained, however, race also

significantly predicted intent to drink, such that White adolescents were more likely than Black

adolescents to intend to drink. The model accounted for 38% of the variance in drinking

behavior, 19% of the variance in intent to drink, and 26% of the variance in perceived prototype
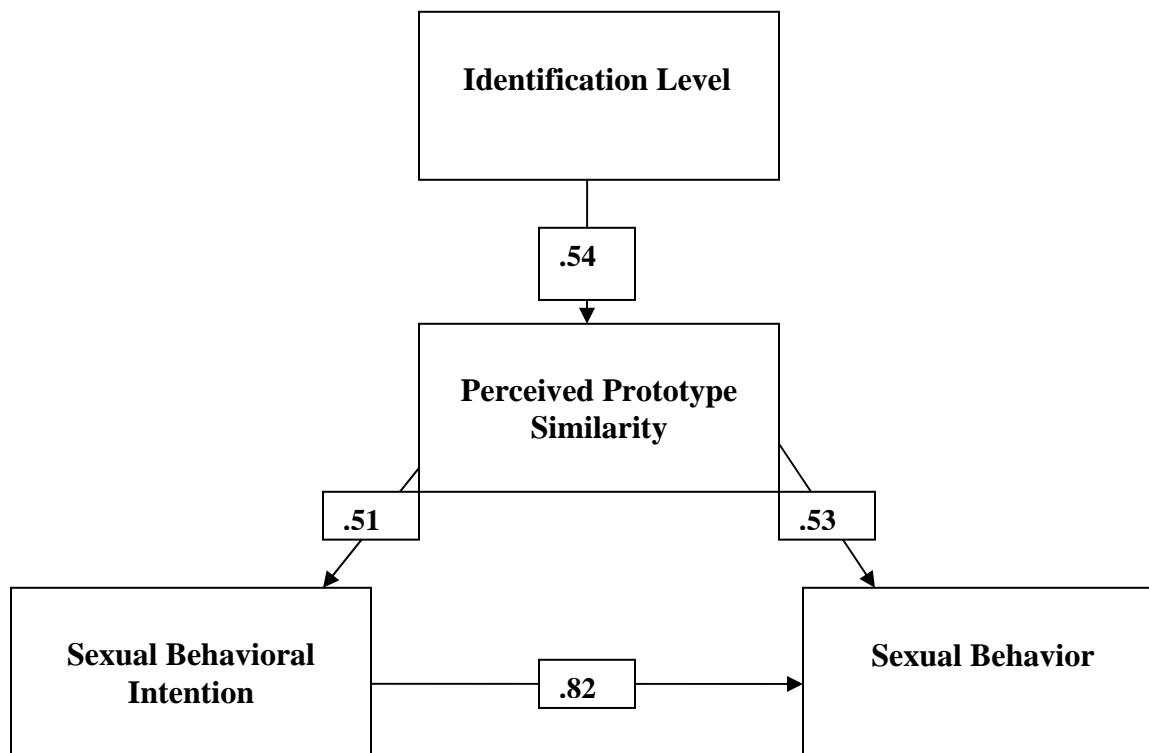
behavior similarity.

Figure 4.6. Secondary alcohol model with standardized path coefficients shown. Dashed lines

indicated hypothesized paths that were nonsignificant.

Cigarette Model. The secondary cigarette model is shown in Figure 4.7. The overall fit of the model was good χ^2(4, N = 123) = 6.35, p = .17, RMSEA = .06, NFI = .95, CFI = .98, GFI = .99. All previously reported significant paths remain significant. In addition, race also significantly predicted intention to smoke cigarettes such that Whites were more likely than Black adolescents to intend to smoke. The model accounted for 35% of the variance in drinking behavior, 20% of the variance in intention to drink, and 26% of the variance in perceived prototype behavior similarity.
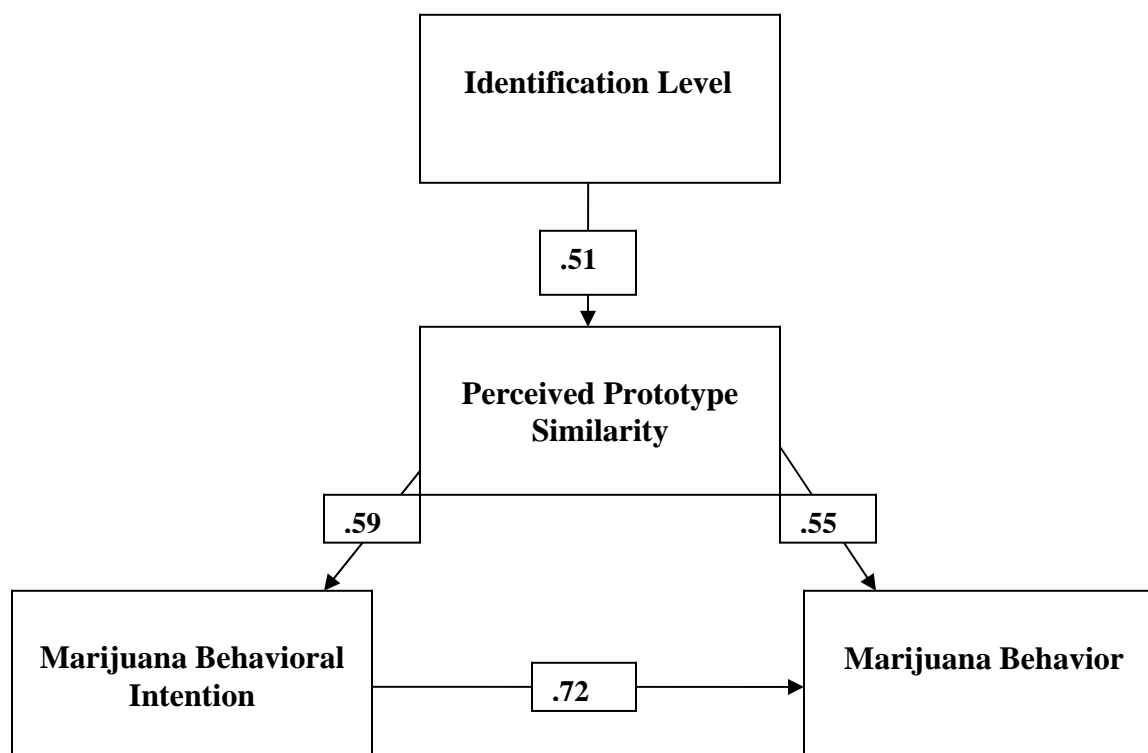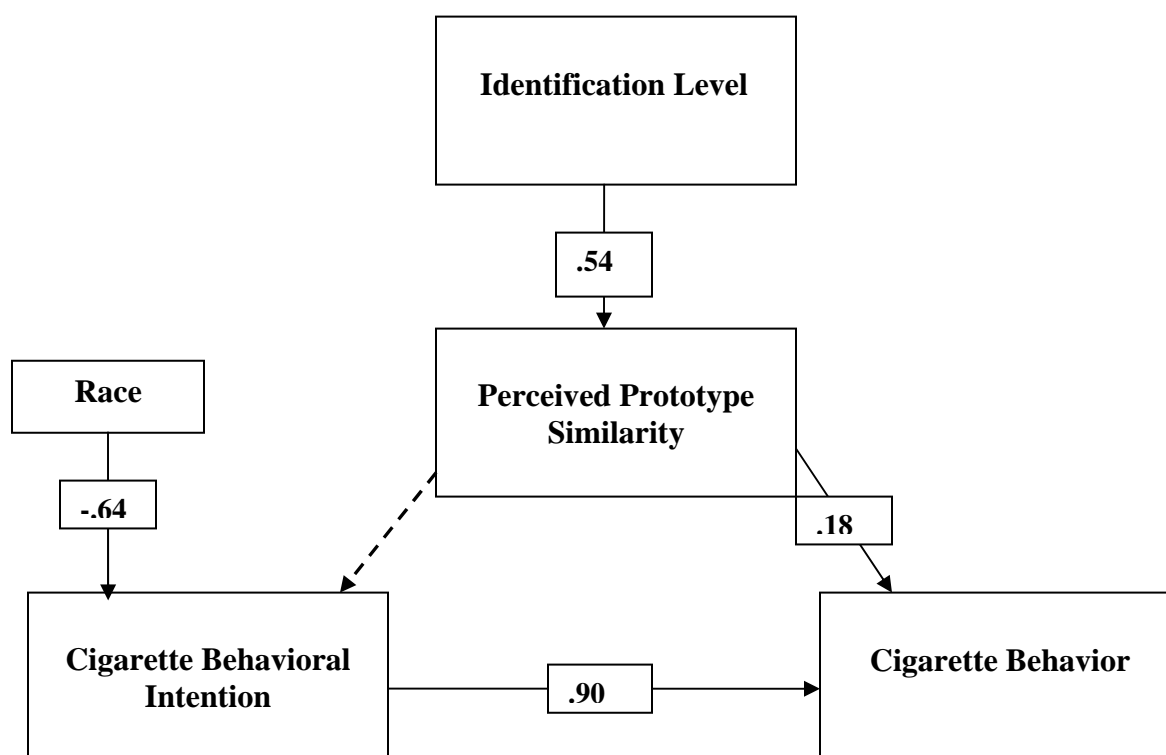

Figure 4.7. Secondary cigarette model with standardized path coefficients shows. Dashed lines indicated hypothesized paths that were nonsignificant.

Sex Model. The secondary sex model is shown in Figure 4.8. The overall fit of the model was good χ^2(4, N = 143) = 8.91, p = .09, RMSEA = .08, NFI = .95, CFI = .97, GFI = .98. All previously reported paths remained statistically significant. Gender also significantly predicted

reported sexual behavior, indicating that White adolescents were more likely than Black adolescents to engage in sex. The model accounted for 35% of the variance in sexual behavior, 10% of the variance in intention to have sex, and 29% of the variance in perceived prototype behavior similarity.
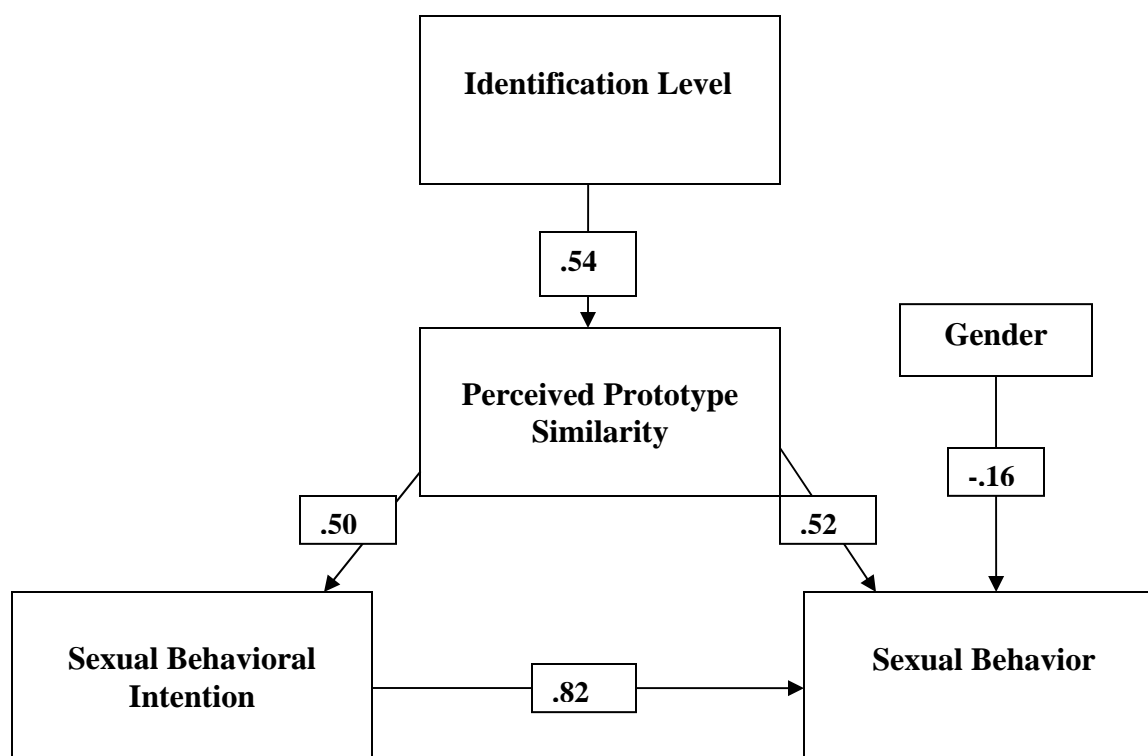
Figure 4.8. Secondary sex model with standardized path coefficients shown. Dashed lines indicate hypothesized paths that were nonsignificant.

Marijuana Model. The secondary marijuana model is shown in Figure 4.9. The overall fit of the model was good $\chi^2(4, N = 104) = 7.22$, p = .12, RMSEA = .08, NFI = .94, CFI = .97, GFI = .98. All previously significant paths remained. No significant gender or race effects were found. The model accounted for 26% of the variance in sexual behavior, 23% of the variance in intention to have sex, and 28% of the variance in perceived prototype behavior similarity.

In summary, Whites were more likely than Blacks to *intend* to drink and smoke cigarettes. The only significant gender finding was that males were more likely than females to report having sex.

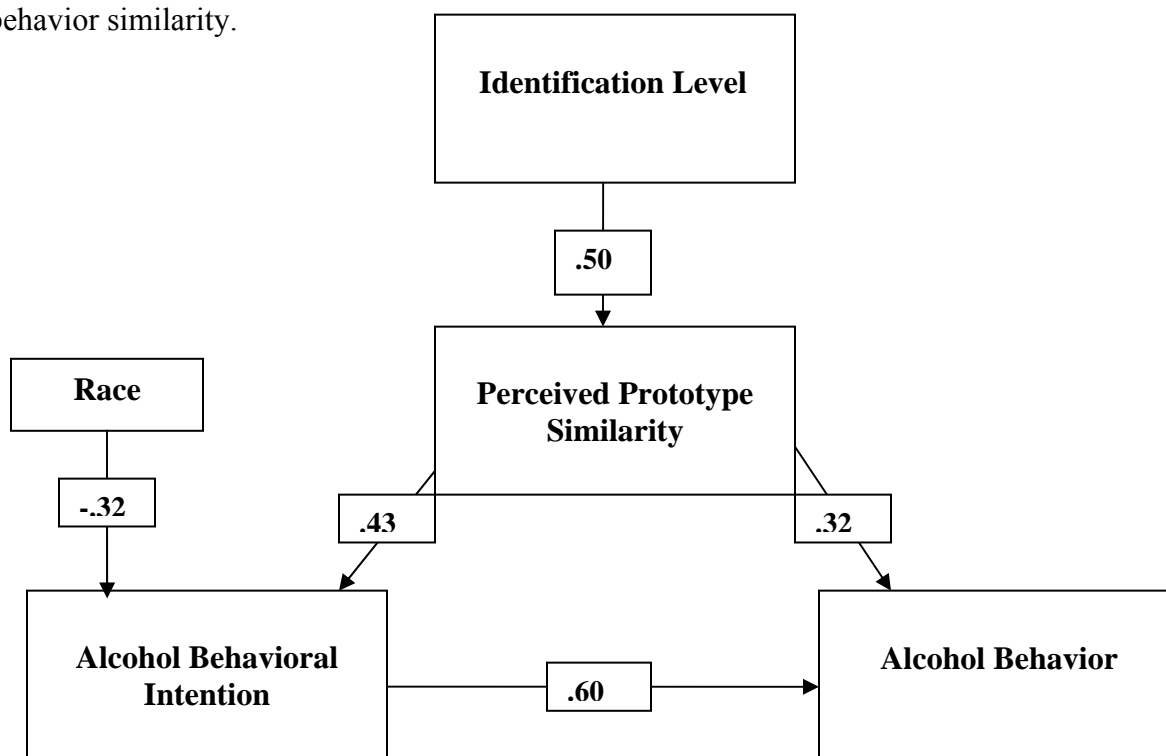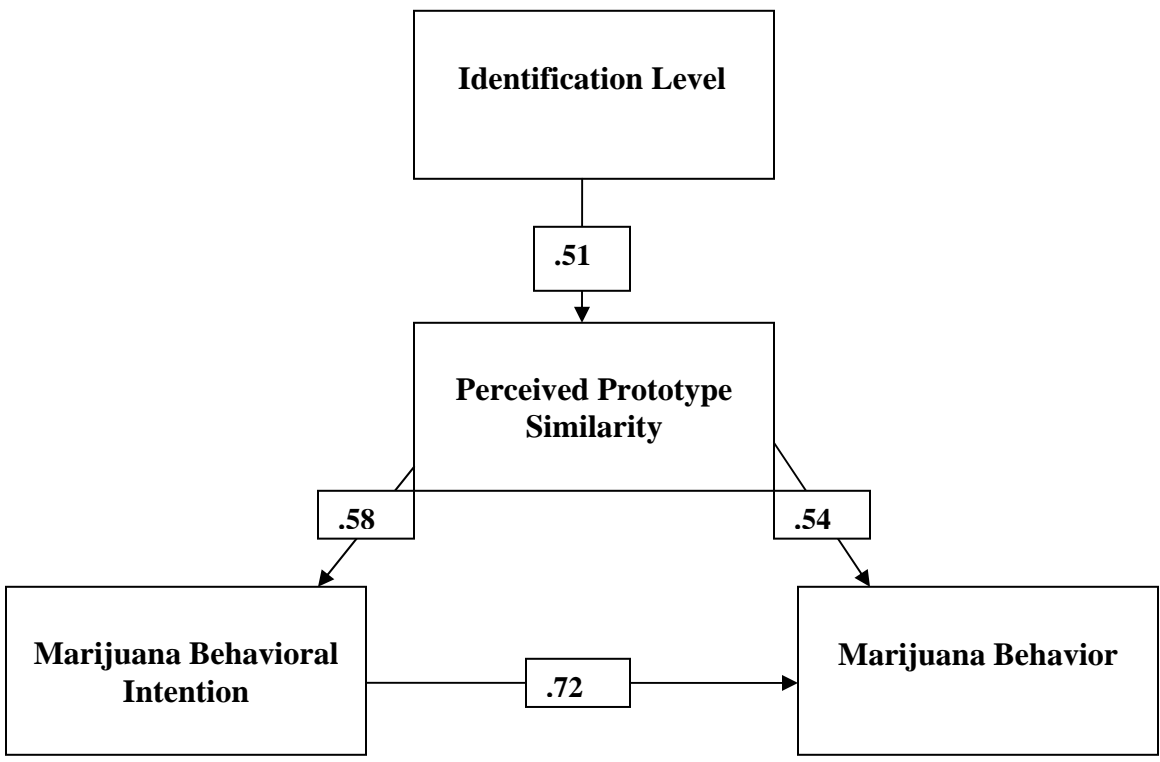
Figure 4.9. Secondary marijuana model with standardized path coefficients shows. Dashed lines indicated hypothesized paths that were nonsignificant.

Table 4.13 presents a comparison of model fit for the theoretical model and the model including race and gender for each risk behavior. As demonstrated in Table 4.31 adding in the two extra variables only minimally affected model fit indices.

Table 4.13

Primary versus Secondary Model Fit Statistics

	Primary Model	Secondary Model
Alcohol		
RMSEA	.07	.08
NFI	.95	.95
CFI	.98	.97
GFI	.98	.98
R^2 Behavior	.32	.38
R^2 Intention	.20	.19
R^2 Prototype Similarity	.21	.26
Cigarettes		
RMSEA	.05	.06
NFI	.95	.95
CFI	.99	.98
GFI	.99	.98
R^2 Behavior	.34	.35
R^2 Intention	.18	.20
R^2 Prototype Similarity	.25	.26
Sex		
RMSEA	.07	.08
NFI	.94	.95
CFI	.97	.97

GFI	.98	.98
R^2 Behavior	.32	.35
R^2 Intention	.11	.10
R^2 Prototype Similarity	.26	.29

Marijuana

RMSEA	.06	.08
NFI	.94	.94
CFI	.98	.97
GFI	.98	.98
R^2 Behavior	.26	.26
R^2 Intention	.22	.23
R^2 Prototype Similarity	.23	.28

RMSEA= Root Mean Squared Error of Approximation, GFI= Goodness of Fit, NFI= Normative Fit Index, CFI = Comparative Fit Index

Identity Accessibility

Preliminary Analyses. For identity accessibility, participants responded to seventeen social groups. For each group an adolescent said yes or no to being a member of the group and I also assessed how long it took them to make their response. Each participant responded "yes" to an average of 4 social groups. From these responses, I selected the one that *matched* the one group they elected to answer questions about later during the social group tasks, the group they said they spent the most time hanging out with after school. Their reaction times to that specific social group comprise the accessibility measure.

Recall that we have data for only half of the sample for the variable that measures which (one) group they hung out with after school due to the computer error during the rural data

collection. Thus, only the urban sample (N = 167) was used in these analyses. For the rural sample, only 59% said "yes" to the same group in the reaction time measure that they elected to answer questions about in the social group measure. This may have been due to directions. In the social group measure they were told to choose the *one* group they hang out with *most* after school whereas the accessibility measure simply asked if they were a member of each group presented to them. Only those respondents (N = 97) who answered yes during the accessibility task were retained.

Analyses for the identity accessibility hypotheses will differ from the attitude and social norm hypotheses in that testing for a main effect for response valence, reaction time, and interaction would be inappropriate. First, the only way one could chose the correct group in this task was to correspond a "yes" on identity accessibility with the group chosen later in the study. Since all remaining respondents, by definition, said yes, it makes the response valence (yes/no) and the reaction time * response valence inappropriate.

Because reaction time data tend to be skewed, the distributions of the reaction times (for identity, social norm and attitude accessibility) were first normalized. To normalize their distributions, the reaction times (in milliseconds) responding to the identity prompts were be subjected to a reciprocal transformation (one divided by the reaction time) and then multiplied by 1000 to avoid rounding problems associated with small numbers (see Fazio, 1990 for further discussion). The reciprocal transformation had the effect of transforming the reaction time data from a representation of time to respond, to a representation of response per unit of time – thus, the new, transformed variable represents response speed. Thus, in all of the accessibility analyses, higher numbers represent *faster* responding.

Test of Identity Accessibility Hypotheses. H1 states that adolescents will report higher levels of group identification for groups that are accessible. To test this hypothesis, level of group identification was regressed on identity accessibility. Regression analyses indicated that identity accessibility did not predict level of group identification, $F(1, 97) = .49$, *ns*. H1 is not supported.

H8a states that adolescents whose highly accessible social groups favor particular health behaviors will have stronger intent to engage in those behaviors. To test this hypothesis, each of the four health behavioral intentions was regressed on identity accessibility. Similar to the models presented above, only those participants who reported their prototype's behavior as greater than the mean were selected for analysis. Identity accessibility predicted cigarettes smoking intentions, $F(1, 30) = 8.99$, $p < .01$. It did not predict intention to drink alcohol, $F(1,23) = .62$, *ns;* have sex, $F(1, 36) = .19$, *ns*, or smoke marijuana, $F(1, 32) = 1.18$, *ns*. Since identity accessibility predicts behavioral intent for only one of the four behaviors, H8a is not supported.

H8b states that adolescents will report more prototypical health behaviors for groups that are highly accessible. To test this hypothesis, each of the four health behaviors was regressed on identity accessibility. Similar to the models presented above, only those participants who reported their prototype's behavior as greater than the mean were selected for analysis. Identity accessibility did not predict any of the four health behaviors: cigarette smoking $F(1, 30) = 2.61$, *ns*; alcohol, $F(1, 23) = .21$, *ns*; sex, $F(1, 36) = 1.83$, *ns*; and marijuana, $F(1, 32) = .25$, *ns*. Thus H8b was not supported.

In summary, identity accessibility predicted intention to smoke cigarettes. It did not predict any of the remaining three behavioral intentions or any of the four health behaviors.

Attitude and Norm Accessibility

   Preliminary Analyses. For the remained of the analyses, the full dataset (N=325) will be

used. For these analyses, the valence of the participants' response (positive or negative) and the

transformed reaction times were included to test for main effects of identity valence and speed to

respond (see Table M for percentages of valenced responses reaction time behaviors). Table R is

presented to demonstrate the caution that should be used when interpreting the forthcoming

results. Many of the valenced reactions to the attitude and norm prompts were highly skewed,

resulting in nonnormalized distributions. For example, only 7% of the sample responded "yes"

to their boy/girlfriend, good friend, or parents wanting them to smoke cigarettes (87-89%

responded "no"). The very high "no" rates and very low "yes" rates for many of the variables

does not necessarily effect the main effects for attitude and norms, but it they will likely effect

the interaction effects due to the non-normal distributions.   The skewness of the valence

variables in the interaction variables may serve to provide explanation as to why some of the

interactions may not provide significant results. For example, the valence variables for sex

attitudes and norms consistently have the most split distribution (e.g. 45% yes, 47% no for sex

attitudes; 32% yes, 62% no for siblings wanting them to have sex), and the sex behaviors have

the significant interaction effects.

   The interaction between valence and speed was calculated by multiplying the response

speed (transformed by reaction time) by the valence of the identity (or attitude or norm), that is,

the transformed reaction times were multiplied by 1 for a "Yes" response, and – 1 for a "No"

response. Therefore, in the interaction term, higher numbers (positive) indicate higher levels of

accessibility for identity, attitudes, or norms. Lower (negative numbers) indicate less accessible

identities, attitudes, or norms. Values close to zero represent relatively inaccessible identities, attitudes, or norms.

To examine how attitude and social norm accessibility predicted alcohol, cigarette, sex, and marijuana intention and behavior, hierarchical regression analyses were performed. These analyses used the same variable transformations for attitude and norm as discussed earlier for the identity variables. However, the norm variables were separated into social versus family norms. To create the social norm variables, the mean transformed reaction times for boyfriend/girlfriends and good friends were averaged and computed into one variable to create social norm reaction time. To create social norm valence, the means for boyfriend/girlfriend and good friends responses (yes/no) were averaged and computed into one variable. The social norm valence variables for each behavior ranged from -1 (no) to 1 (yes). The same methods were used to create the family norm variables only using the parents and siblings data to compute the variables. The interactions for the variables were computed by multiplying the social/family norm speed by the social/family valence.

H7 states that attitude and norm accessibility will additively affect the level of adolescent's behavioral intentions and actual behaviors for each of the risky behaviors.   In the first step of the regression analysis, the valence of the participants' attitudes toward the behavior (positive or negative) and the accessibility of the attitude were entered. In the second step, the interaction between the valence of the attitude and the response speed (the valenced attitude accessibility measure) were entered. In the third step, the valence of the participants' family norm toward the behavior was entered along with the family norm response speed. The interaction between the valence of the family norm and the accessibility of the family norm was entered in the fourth step. In the fifth step, the valence of participants' social norm toward

smoking was entered along with the social norm response speed. The interaction between the valence of the social norm and the accessibility of the social norm (the valenced measure of norm accessibility) was entered in the sixth step. For ease of reading, the data will be presented with attitude, social norm, and family norm separately. All results are presented in Table 4.32 (for behaviors) and Table 4.33 (for behavioral intent), in addition, significant findings are interpreted below.

Attitude Accessibility. As shown in Table 4.14 (behavior) and Table 4.15 (behavioral intent), the attitude towards a behavior (like/dislike) predicted all four behaviors, and three of the four risk behavioral intentions. The hypotheses predicted that those adolescents who responded "yes" to liking the behavior would be more likely to engage in the behaviors. Attitude reaction time was not a significant predictor of any of the behaviors. Finally, as shown in Table 4.14, the Attitude * reaction time interaction was a significant predictor for sexual behavior only; it was a non significant predictor of all other behaviors and behavioral intent. Only those adolescents with a highly accessible and positive attitude toward sex are more likely to engage in sexual activity. In summary, H7 was supported for attitude toward the behavior, it was not supported for attitude reaction time, and was not supported for attitude*reaction time interaction (with the exception of sexual behavior).

Social Norm Accessibility. As shown in Tables 4.14 and 4.15, social norm valence is a positive predictor of all four risky behavior and behavioral intent measures. The social norm reaction time is significant only for intention for sexual behavior. The social norm * reaction time interaction was also significant for marijuana use, and intent to have sex. These results indicate that those adolescents whose highly accessible and positive social norms toward marijuana use are more likely to intent to use marijuana. In summary, H7 was supported for

social norm valence toward the behavior, it was not supported for social norm reaction time (with the exception of sexual behavior), and was only partially supported for social norm valence*reaction time interaction (intention to smoke marijuana and have sex were significant).

Family Norm Accessibility. Similar to social norm accessibility valence, family norm valence was a significant predictor of all three of four behavioral intent measures, only intent to smoke was not significant. Family norm valence was also a significant predictor for all four behavioral measures of health risk. Family norm reaction time was a non-significant predictor for behavioral intent and behavior. Finally, the family norm * reaction time interaction was significant for intention to have sex and intention to smoke marijuana. In summary, H7 was supported for family norm valence (with the exception of intent to smoke cigarettes) toward the behavior, it was not supported for family norm reaction time, and was only partially supported for family norm valence*reaction time interaction (intention to smoke marijuana and have sex were significant).

Post Hoc Analyses. To investigate the negative betas presented for sexual behavioral intention, further analyses were run. By further examining the reaction time of the participants, results indicated that the adolescents who intend to have sex have a positive social norm (they believe their friends think the should have sex) and they take a longer time to respond to that prompt. The adolescents with highly accessible norms are, in fact, on the negative side of the behavioral intent (they do not intend to have sex) and respond much quicker to the prompt (see Figure 4.41 for a graph of this data).

Table 4.14

Accessibility measures as predictors of Risky Behavior

	Alcohol	Cigarettes	Sex	Marijuana
Attitude (Like/				
Dislike)	.25***	.28***	.10*	.28***
Attitude RT	.00	.209	-.02	.05
Attitude * RT	.17	.03	.30**	.14
Social Norm	.20***	.18***	.15**	.16***
Social Norm RT	-.05	.09	-.01	.18
Social Norm*RT	-.04	-.04	-.04	.39**
Family Norm	.21**	.27***	.22***	.14**
Family Norm RT	.08	-.05	-.03	.11
Family Norm * RT	.02	.08	-.22	.15
Model R^2	.12	.13	.08	.10

 RT stands for Reaction time. Asterisks indicate significant betas (standardized), * < .05, ** <

.01, *** < .001.

Table 4.15

Accessibility measures as predictors of Risky Behavioral Intent

	Alcohol	Cigarettes	Sex	Marijuana
Attitude (Like/ Dislike)	.19***	.16***	.07	.26***
Attitude RT	.01	.06	-.07	-.08
Attitude * RT	-.08	.14	.05	-.02
Social Norm	.15**	.17***	.54***	.20***
Social Norm RT	-.08	-.01	-.16**	.08
Social Norm *RT	-.13	-.08	-.48***	.06
Family Norm	.16***	.09	.32***	.12**
Family Norm RT	.07	-.03	.88	-.03
Family Norm * RT	.04	.07	-.27*	.19*
Model R^2	.08	.04	.11	.11

RT stands for Reaction time. Asterisks indicate significant betas (standardized), * < .05, ** < .01, *** < .001.

Table 4.16

Percentage of Valence Responses for Attitude and Norm

	Like	No Response	Dislike
Attitude Accessibility			
Drink Alcohol	18	4	73
Smoke Marijuana	16	3	78
Smoke Cigarettes	12	.9	84
Having Sex	45	5	47

Boy/Girlfriend	Yes	No Response	No
Drink Alcohol	14	2	81
Smoke Marijuana	8	2	87
Smoke Cigarettes	7	3	87
Have Sex	29	3	65
Good Friends			
Drink Alcohol	10	2	84
Smoke Marijuana	7	2	88
Smoke Cigarettes	6	2	89
Have Sex	26	4	80
Parents			
Drink Alcohol	15	2	80
Smoke Marijuana	9	.6	88
Smoke Cigarettes	7	1	89

Have Sex	30	3	65

Siblings

Drink Alcohol	12	2	83
Smoke Marijuana	7	2	88
Smoke Cigarettes	5	2	89
Have Sex	32	3	62

N = 325 Responses are in percentages of participants who selected the response option.

Figure 4.41

Chart Depicting Three-Way Interaction with Negative Beta
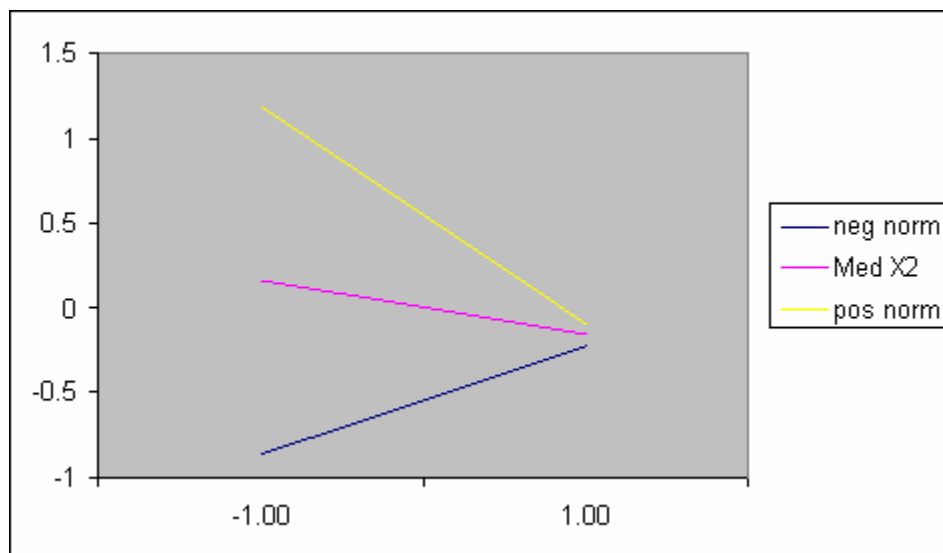
X-axis represents speed of responders. Y-axis represents intention to engage in sexual behavior.

CHAPTER 5

DISCUSSION

The primary goal of this dissertation was to test a version of social categorization theory (SCT) to examine how adolescent's perceptions of the typical behavior of their social group affects or correlates with their own risky health behaviors. The SCT model tested was a significant predictor of both behavior and behavioral intent for three of the four health behaviors examined. A secondary goal was to examine if methods commonly used to measure attitude accessibility and social norm accessibility could be applied to social group identity. As will be discussed below, results were disappointing. The discussion section begins by examining the results for the accessibility measures (group identity, attitude and social norms). Second, the results for the SCT model are examined and discussed in relation to the identity research and research in health communication. Third, limitations and future research ideas are discussed.

Accessibility

Identity Accessibility

As noted above, the purpose of using reaction time measures in this study was to test identity accessibility with the same methods used to test attitude and social norm accessibility in psychology and communication disciplines. Identity accessibility is traditionally measured by asking respondents to select the group with whom they most identify (Turner et al, 1989). However, attitude and social norm accessibility refers to how quickly one can access the relevant attitude or social norm from memory; usually measured with a reaction time task (Fazio, 1989; Roskos-Ewoldsen & Fazio, 2002). As noted in Chapter 2, attitudes that are activated from memory quickly in the presence of the attitude object are thought to be more accessible than

those activated less quickly. Moreover, attitudes that are activated more quickly have been shown to be more predictive of behavior than other forms of attitude measures (see, e.g., Roskos-Ewoldsen, 1997). This dissertation examined both the traditional forced selection (chose the group with whom you most identify) and reaction time measures as a means to determine whether reaction time tasks may be a valid method of measuring identity accessibility. The following section will present an overview of the findings for identity accessibility as well as a discussion of those findings.

Validity

Prior to discussing the identity accessibility results, the validity issues surrounding the data will be addressed. Recall from Chapter 4 that due to a computer error, analyses were run with half of the sample for the variable that measured which (one) group adolescents hung out with after school. Thus, only the urban sample (N = 167) was used in the identity accessibility analyses. For the urban sample, only 59% said "yes" to the same group in the reaction time measure that they chose in the forced selection social group measure. Only those respondents (N = 97) who answered yes *to that same group* during the accessibility task were retained. That less than 60% of the teens said "yes" they identified with the group that they then selected from the forced choice test to represent the group they hang out with most often after school suggests some serious issues with the validity of this measure. Given my concerns with the potential validity issue, the following results should be read with serious consideration.

Prediction of Health Behaviors and Limitations

It was hypothesized that adolescents would report more prototypical health behavioral intentions and behaviors for groups that were highly accessible. Results indicated that **i**dentity accessibility only predicted intention to smoke cigarettes. It did not predict any of the other three

behavioral intentions or behaviors. Overall, the data indicated that reaction time measures were not a valid measure of identity accessibility nor did the reaction time task predict health behavioral intent or behavior (with the one exception). These results certainly suggest that requiring adolescents to make split second decisions under pressure regarding their identity may not be an effective way to measure adolescent identity. Such a complex construct as identity indeed may need more thoughtful deliberation. I recommend that this measurement be tried again with this population under different circumstances as there were issues with this data collection that may have influenced the data. These are reviewed below.

First, the instructions during the reaction time task asked the respondents to think about social groups such as jocks, or punks. They were told that they would see a variety of social groups, and they were to respond yes or no as to whether or not they believed that they were part of the group they saw on the screen. Approximately 20-25 minutes later, they were asked to think about the social group they hung out with the most after school. Thinking about that group in particular, they were to select the group - from an exhaustive list seen all at once- that they most identified with. The reaction time instructions were more ambiguous, allowing for social group selection in any type of scenario. For example, one might see oneself as a member of the "Stoners" but not hang out with them after school because their parents may not allow them to. Whereas, the forced select option later in the study gave more specific parameters, specifying that they select the group they hang out with after school. While the groups may be the same, they may well differ. If the participants were adhering to the instructions, they may have selected different groups each time.

Second, while all reaction time tasks were conducted at the beginning of the study (attitude accessibility, social norm accessibility and then identity accessibility), the identity

accessibility measures were the last set of reaction time tasks. Respondents generally reached the identity accessibility items 15 minutes into the study, suggesting that fatigue should not have been an issue, however, it may be that the adolescents wearied of the task after so many repetitions.

Third, the nature of attitude/norm reaction time measures and that of the identity items were quite different. To ask a reaction time judgment regarding whether one likes or dislikes smoking or drinking may make more logical sense than asking for such a judgment for social group identity. For example, while there may be far fewer factors that influence whether or not an adolescent likes drinking, but many factors that influence what social group with whom they identify. As previously stated, participants generally stated that they were members of four social groups during the reaction time tasks. The possibility of multiple identities will be discussed later in this dissertation, but the consideration that adolescents may identify with more than one group may negate the validity of using reaction time measures to test identity accessibility. Fourth, while the names for the social groups were derived from previous studies (see page 42 for these studies), one cannot be sure that the list was exhaustive or that other that more applicable names could not have been used for the same group. In addition, it may take a participant which a few seconds to think about whether or not they belong to a particular social group. However, it may only take a fraction of a second to know that they do *not* belong to a different social group. Thus, while reaction time data might tell us the relative accessibility of a group, it does not necessarily reflect whether a group is accessible as a positive thing (e.g., I belong to this group) or a negative thing (I do not belong to this group and do not want to be associated with it). Obviously, multiplying reaction times x the "yes/no" response alleviates this issue but it does raise an issue in terms of taking care with accessibility data with *group* identity.

Future researchers might examine, for example, whether fear of being associated with a group (e.g., the geeks) might be a better predictor of behavior (e.g., not studying) than is actual group membership.

Attitude and Social Norm Accessibility

Along with identity accessibility, this dissertation also examined the relative influence of attitude accessibility and social norm accessibility on risky health behaviors and behavioral intent. Below attitude accessibility is discussed first, followed by social norm accessibility and suggestions for future research.

Attitudes. It was hypothesized that attitude and norm accessibility would additively affect the level of adolescent's behavioral intentions and actual behaviors for each of the risky behaviors. With regard to attitude accessibility, data indicated that attitude toward the behavior (valence) did predict intent to engage in the behavior and actual reported behavior, such that those people who said "yes" were more likely to engage in the behavior for all 4 behaviors. However, they hypothesized attitude reaction time and the attitude*reaction time interaction was not supported for any of the intentions or behaviors, other than sexual behavior.

That attitude toward the behavior predicted adolescent's behaviors and intentions was not surprising. The ability of attitudes to predict behavioral intentions and behavior has been a major focus of communication theory and research (Kim & Hunter, 1993). The premise of attitude literature (Fazio, 1982) states that one's attitude toward an object is a significant predictor in future behavior regarding that object. However, that reaction times and the valence*reaction time interaction hypotheses did not result in significant support was surprising given past research in this area. Attitude accessibility refers to extent to which an attitude can be easily activated from memory. An evaluation of an object that is strongly associated with the object

should be more accessible in memory than one with weak associations. Thus, an easily

accessible attitude is expected to play a key part in how attitudes influence behavior (Fazio et al,

1982, 1983, 1986). Fazio (1990) has proposed that highly accessible attitudes create a biasing

effect on the perception of the behavior, making it more likely that the behavior and attitude will

be consistent. Thus, the attitude-behavior relationship consistency should increase with attitude

accessibility. A number of findings have suggested that there is a moderating effect of attitude

accessibility in the attitude-behavior relationship (Fazio & Zanna, 1981; Fazio et al, 1982; Fazio

et al, 1983).

Peer and Family Norms. It was hypothesized that social norm valence toward a behavior

would predict behavior and behavioral intention, meaning that people who said that their

significant other (e.g. good friends or parents) wanted them to "have sex" would be more likely

to report intending to have sex or having had sex in the past. Data supported this hypothesis for

all behaviors and intentions. It was also hypothesized that social norm reaction time and reaction

time*valence interaction would predict behaviors and intentions. However, the reaction time

data was not supported for any of the behavioral intentions or behaviors other than sexual

behavior. The social norm valence*reaction time interaction was only supported for intention to

smoke marijuana and sexual behavior.

Very similar results were revealed for family norms. Family norm valence predicted

behavior, other than intention to smoke cigarettes. Family norm reaction time did not predict

behavior or intent, however, family norm valence*reaction time predicted intention to smoke

marijuana and engage in sexual behavior.

A subjective norm is a person's perception of relevant others desire to perform a specific

behavior. It is a product of expectations of relevant others along with motivation to comply to

those perceived expectations. Ajzen and Fishbein (1974) have found that subjective norms and attitude toward the behavior are the only two direct predictors of behavioral intention. However, Trafimow and Finlay (1996) assert that some behaviors are more influenced by subjective norms than other behaviors. In addition, they claimed that subjective norms may influence some individuals more than others. Ybarra and Trafimow (1998) revealed that 20% of individuals who participated in their study based behavioral intentions on subjective norms more than their own attitudes toward the behavior. The researchers asserted that those individuals view themselves in relation to others. Recent work by Trafimow and associates (2000) remains consistent with normative theories of social influence (Aronson, 1999; Deutsch & Gerard, 1955). These theories generally state the effects of social norms on group conformity and behavior. Specifically, people may perform behaviors in order to conform to the perceived expectations of the group and to avoid conflict. In addition, norms are used to interpret unfamiliar situations. In cases such as these, subjective norms may have substantial influence on behaviors, and may be stronger than the influence of individual attitudes alone. This literature provides some explanation as to why more of the norm accessibility findings were significant while many of the attitude accessibility findings were not.

Data from this dissertation revealed that intention to smoke cigarettes was not predicted by family norm valence. In this instance, it may be that cigarette smoking behavior is more influence by social norms than by family norms. In addition, intent to smoke marijuana and have sexual activity were the only behaviors predicted by normative interactions (reaction time*valence).

While there is little supporting past literature to make a substantial prediction as to specifically why marijuana and sex were predicted by the normative interactions, it may simply

be that those behaviors held stronger normative influence than cigarettes and alcohol. While all the behaviors were predicted by the valenced (yes/no) variables, the interaction with speed of response was only significant for intent to smoke marijuana and have sex. This would imply that there were more easily accessible norms regarding those particular behaviors. It may be, however, that certain risk behaviors simply do not elicit such accessible attitudes under the age of 15 or 16.

Another study which studied attitude and norm accessibility in 5th and 8th graders (Roskos-Ewoldsen & Rhodes, *unpublished* manuscript) found that attitude and norm valence predicted behavior, while reaction time did not. Thus, the few studies that have used reaction time on age groups less than 16 years of age have found that while valenced reactions do predict behavior (e.g., a typical attitude measure), the more nuanced measure using reaction times are less consistent. These finding, in combination with the results of this dissertation, suggest that it is not necessarily that adolescents in these age groups are unable to make a judgment regarding the behaviors, but to measure *how* accessible these attitudes or social norms are might require a new measurement strategy.   There are other factors, however, that may have also influenced the unusual results of the attitude and norm accessibility data which will be discussed below.

Accessibility Data Limitations. One concern about the results reported is that few participants actually report engaging in the risk behaviors. For three of the four risk behaviors, only 12-18% of participants self-reported engaging in the behavior. For example, the ratio of Attitude toward smoking is 87% dislike, 13 like smoking, thus, it is not surprising that the attitude*RT interaction independent variable did not show any effects on the outcome measures given that the valence part of the interaction is denormalizing the variable. The variable with the best distribution was sex with (45% yes/ 55% no). This distribution may help to explain why

sexual behavior was the only behavior to be predicted by attitude, family and social norm valence and reaction time*valence interactions.

In addition, other limitations regarding the environment and the sample may have affected the reaction time data. Data collection occurred during regular school hours at school. The disruption of their general school day may have led to a lack of attention to the tasks. Furthermore, many of their peers were participating in the task at the same time. Students were placed as far apart as possible and partitions were placed between each of the laptops in an effort to reduce the desire to look at the person next to them. However, many students were observed looking away from the laptop during the reaction time tasks. In addition to waning attention to the tasks, the nature of risky behaviors elicited giggles from many of the students when particular prompts appeared on the screen (e.g. smoking weed and having sex). The giggles and distraction when the risk behaviors appeared displayed an obvious discomfort with the topics, and may have influenced responses as well as the reaction times.

In sum, these limitations suggest that the reaction time tasks should be replicated with this age group in a quieter environment, perhaps with less "risqué" topics as marijuana and sex to test the validity of using reaction times with younger teens to assess accessibility.

Self Categorization Theory

The primary purpose of this study was to examine social categorization theory as it applies to adolescents and risky health behaviors. While Turner and colleagues (Turner, 1985; Turner et al., 1987) indicated the importance of prototypes in the process of social categorization, most subsequent tests of the theory failed to include the prototype concept. Results from this dissertation demonstrate the power of the prototype concept in predicting adolescent risk behavior and should serve to reiterate Turner and colleagues original claim of the

importance of the prototype construct in social categorization theory. This section will first address the primary models testing self-categorization theory, followed by limitations of the study and suggestions for future research. Second will be a discussion of the secondary models which included race and gender variables, as well as the implications of race and gender with regard to social group identity and SCT. The section will conclude with a presentation of the implications of self-categorization theory for health communication research as a discipline.

Model Derived from Self-Categorization Theory

Based on the version of Self-Categorization Theory originally proposed by Turner and colleagues (SCT: Turner, 1985; Turner et al., 1987)**,** it was hypothesized that if an adolescent identified with a social group, they would be more likely to behavior or intend to behave similarly to what they viewed as the prototypical behavior of that groups' members. The model shown in Figure 1.2 was tested with four different health behaviors (and intentions) that put adolescents at risk: Drinking alcohol, smoking cigarettes, smoking marijuana and sex. Results supported the hypothesized model for all four risk behaviors, and three of the four behavioral intentions, indicating that the model had good predictive power with this sample.

The one risky health behavioral intention that the model did not prove a good fit for the data was intention to smoke cigarettes (p = .21). One potential explication for why the model did not predict intention to smoking behavior is the low rate of smoking with this population. The mean responses (responses were on a "1" strongly disagree to "5" strongly agree scale) for having smoked cigarettes (1.42) and the mean average for believing that their group prototype smoked cigarettes (2.19) were quite low. The mean for their prototype smoking cigarettes was the lowest reported mean of each of the four health behaviors. Thus, not many of the participants in the study believed that their group prototype engaged in cigarette smoking to

begin with—even those groups who had some smokers. Furthermore, very few of the participants stated that they themselves engaged in smoking. Thus it may be that this set of items was not relevant for this population if they are not smokers, or on the same line of thinking, it may be the low number of smokers led to low power.

Data in this study may appear to reveal relatively low rates of participation in engaging in all risky behaviors. When comparing the data in this study to that of the 2005 Georgia Youth Behavior Risk Survey (YBRS, CDC 2006), the rate of participation in any of the risky health behaviors were relatively lower than reported by the YRBS (CDC, 2005).[ii] The most comparable rates were those regarding cigarette smoking, in that, the Georgia average for ever trying smoking was 56% and this sample reported 44%. In addition 15% of adolescents reported having smoked cigarettes in the past 30 days, while the Georgia average was 17%. However, rates were less comparable for drinking alcohol in the past 30 days (25% versus Georgia average of 40%), and marijuana use in the past 30 days (11% versus Georgia average of 19%). The Georgia survey did not collect sexual behavior data, however, the national Youth Risk Behavior Survey reported that 14% of participants had had sex in their lifetime, which was not too different from this sample (11%).

It is not surprising that sex and cigarette smoking were more comparable to Georgia and national averages. Obtaining cigarettes, particularly in the South, is not as much of an obstacle to purchase or get from family members. In addition, because this population was low-income, other studies have found results indicating that for each step down in socioeconomic status, the smoking rates increase 30% (Soteriades & DiFranza, 2003). Thus, it makes sense that smoking rates were similar to that of the Georgia average for this age group. Unlike cigarettes, however, obtaining marijuana and alcohol would be much more difficult to purchase as a minor, as well as

significantly more expensive. Dealing with a low-income population may also contribute to lack of adolescents having discretionary income to purchase marijuana and alcohol. These data may have shown increased percentages of participation in risky health behaviors given a wider range of income levels. Lastly, sexual behavior does not require any assistance or money to engage in, which could also contribute as to why the rates reported in this study were more comparable to the national average. Regardless, it should be stated that while the percentage of students engaging in risky behaviors may be low, it did not affect the test of the model.

We examined a low-income population because they are frequently underrepresented in adolescent health research. However, since we did not compare low and high-income adolescents, I cannot say with any certainty whether the findings reported would generalize to a more general population or to a higher income population.   In terms of the findings for the SCT model, I would suggest that income would most likely not affect the basic cognitive model. Recall from the results that model fit did not differ as a function of race, geographic location, or gender. Thus, there is no reason to suggest that the SCT model would operate differently as a function of income. It may be, however, that higher income adolescents engage in different risky behaviors that did this sample. We compared our percentage of sample engaging in these four behaviors to statewide data and the data were, in many ways, quite comparable to the Georgia YRBS data. This suggests that these percentages are comparable to that reported by Georgia adolescents.

Overall, the perceived prototype behavior similarity construct was a critical component when testing the model. These data should serve as a note to future researchers to include the prototype construct when testing social categorization theory. Importantly, neither race nor gender interacted with any of the concepts in the SCT Model. While race and gender do predict

risk behaviors (as discussed in detail below), that these two variables did not affect the findings for the SCT theory, this supports my contention that given that the SCT is a theory that describes the social cognitive process of social group identity formation, such cognitive processing should not differ as a function of one's race or gender.

Limitations and Future Research Suggestions

While the model presented in this dissertation was supported, the test of SCT is not without limitations. The measurement of the prototype construct, the potential for multiple identities, the acknowledgment of the aspiration to be a member of a different group, and not measuring status of identity development are all limitations of this study that should be examined in future research. These limitations and suggestions will be discussed below.

In this study, the prototype was measured by asking adolescents to think about the *typical* person in their social group that they hang out with most after school. Using the terminology *typical,* as opposed to having the participant specify a particular person in mind has the potential to affect the responses provided. Prototypical can be synonymous for typical or ideal, which in and of itself leads to ambiguity regarding measurement. Because previous studies cited in the literature review have measured the prototype construct using the word *typical,* this study did not seek to deviate from the norm. However, responses for a *typical* person in the social group can differ significantly from the *ideal* or *exemplary* person in the social group. For example, the typical person in the group may simply be a peer, while the ideal representative of the group may be a media figure. The differences in these prototype representatives have implications for the characteristics and behaviors depicted. Future studies should examine the prototype construct measuring both the typical and the ideal representative to assess for differences in responses. In

addition to measuring the prototype construct differently, researchers should also examine multiple identities.

Identity theory (Stryker, 1968, 1980; Stryker and Serpe, 1982) seeks to explain individuals' role-related behaviors. Identity theory argues that there are multiple components of the self (termed role identities). Role identities are unique components of the self, one for each role in society we occupy (Stryker, 1968, 1990). For example, a young person's role identities may be a friend, a student, a daughter, a brother, or a baseball player. Role identities are self-conceptions that people apply to themselves as a consequence of the roles they play in life, and through the process of labeling as a member of a social category (Burke, 1980). Identity theory link role identities to affective and behavioral outcomes, while acknowledging that some identities have more relevance than others. Role-identities are hierarchically organized in the self-concept. Those at the top are more likely invoked in a particular situation and are more self-defining (McCall & Simmons, 1978; Stryker, 1968).

Some participants in this study utilized the option to write in additional social group identities beyond the groups provided to them. Some examples were role oriented such as, "friend" or "girl friend." This demonstrates the significance of role identities when studying social group identity or any identity variable. In an effort to encourage the participants to focus on only one particular identity, their instructions specified that the adolescents were to think specifically about the group they hang out with after school. However, future researchers should allow participants to account for their multiple identities.

Recall that when participants in this study responded to the identity accessibility measures, the average response was four social groups. Meaning, the average adolescent said "yes" to belonging to four social groups. These results may suggest that adolescents do, in fact,

identify with more than one social group. Future studies should examine the implications for multiple identities. For example, participants could be asked to provide a thought listing of their identities/roles, then they could be asked to elaborate on how they view themselves differently based on each of the top three roles they listed. In addition, they could respond to how they view the prototypical people for each of the top three roles they listed.

Not only should multiple identities be considered in future research, but aspired or ideal identities should be as well. It is possible that while an adolescent may be a member of the Nerds group, they may aspire to be a Popular. While many discussions of the identity focus on the actual self, other researchers (Markus, 1983; Markus & Nurius, 1986; Markus & Wurf, 1987) suggest that identity and self-schema studies must also incorporate the variety of possible selves, including the ideal self. Although some have suggested that the ideal self is not distinctive from the actual self (Wylie, 1979), others view them as independent processes of the self (Deutsch et al., 1988).

The ideal self has been described as what an individual believes that s/he should be like, or would want to be like (Brogan, 1977; Lazzari, Fiorvanti, & Gough, 1978; Rogers & Dymond, 1954; Wylie, 1979). The ideal self is used as a standard for performance evaluation with regard to processing information related to aspirations or ideal for oneself (Azzor & Tzelgov, 1987; Higgins, 1987; Markus & Wurf, 1987). This aspiration may influence how they respond to the issues regarding the behaviors and characteristics of their social group, as well as themselves. Thus, they may respond to items in a study based upon how they wish to be seen as opposed to how they actually are.

In this study, 40% of the participants stated that they belonged to either Populars/Elites or Athletes. It is unlikely that almost half of the sample are actually athletes and "popular" kids. It

is more likely that many participants *aspire* to be an athlete or popular, and thus, responded to

the group they ideally would like to be a part of. To account for the possibility that participants

are responding to aspired as opposed to actual identities, future studies may inquire about

whether or not the participant is happy to be a part of their social group, and if they are not, what

other group would they wish to be a part of. In addition, future studies could ask participants

whether or not they believe that *others* would also view them in the same group they put

themselves in. Furthermore, examining social groups from a social network perspective could

allow researchers to ask other participants to place their peers in social groups. Researchers

could then assess whether or not peers placed participants in the same groups they placed

themselves. By examining the attitudes and perceived prototypes of both actual and ideal

groups, researchers will be able to account for the differences in groups they aspire to be a part

of as well as those which they are a part of.

Lastly, this study did not examine the identity *style* of the adolescents. This information

could have had an impact on level of identification with the group, and how adolescents may

respond to risky situations they may experience with their social group. Berzonsky's (1997)

view of identity and identity processes distinguishes between three identity processing

orientations: informational, normative, and diffuse/avoidant. Information-oriented individuals

deal with identity issues by actively seeking, processing, and utilizing identity-relevant

information in the transition into adulthood. An informational identity style is utilized by

individuals who are in the moratorium phase of self-exploration or who have personally achieved

an identity according to Marcia's identity model (Berzonsky, 1989; Streimatter, 1993). Research

indicates that information identity orientation is associated with a personally-defined self-identity

(Berzonsky, 1994), independence of judgment (Berzonsky, 1994), deliberate self-exploration

(Grovetant, 1989), openness to experiences (Berzonsky and Sullivan, 1992; Clancy Dollinger, 1995), and a high need for cognition (Berzonsky and Sullivan, 1992).

A normative identity orientation is utilized by youth who internalize and conform to the values and expectations of significant others and authority figures. Research has indicated a normative identity status is associated with a high need for structure and cognitive closure (Berzonsky and Kinney, 1995), a collective self-definition (Berzonsky, 1994), a tendency to be closed to information that poses a threat to personal beliefs (Berzonsky and Sullivan, 1992), and the use of defense mechanisms that distort reality (Berzonsky and Kinney, 1994). Diffuse/avoidant individuals tend to display an unwillingness to confront and deal with identity issues. If one delays this long enough, consequences may dictate behavioral reactions. A diffuse/avoidance identity style is positively associated with a diffuse identity status (Berzonsky and Neimeyer, 1994; Steitmatter, 1993) and a socially defined identity (Berzonsky, 1994). Research has indicated that diffuse/avoidant identity styles are associated with a number of issues including: early onset of illegal drug use (White and Jones, 1996); alcohol and work-related problems (Jones, Ross, & Hartmann, 1992); and low self-esteem and heightened depressive reactions (Berzonsky and Kinney, 1994).   Future research should also examine identity style when testing the social categorization model to explore how various styles may impact risky health behaviors.

Race and Gender

As noted above, neither race nor gender interacted with any of the concepts in the model, suggesting that the SCT model worked well across subgroups.   However, as one would anticipate from the literature, race and gender did predict behavior and behavioral intent. Whites were more likely than Blacks to intend to drink and smoke cigarettes. In addition, both males

and Blacks were more likely than females and Whites to report having sex. Data from this dissertation are similar to that found in youth risk behavior surveys. For example, the most recent data collection (2005) of the Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Survey reported that Black students were more likely than White students to have had sexual intercourse, while White students were more likely than Black students to have engaged current cigarette use, and episodic heavy drinking. Lastly, males were more likely to self-report to have engaged binge drinking and in sexual intercourse. Thus, the findings for gender and race reported in this dissertation are quite comparable to data from larger national wide studies. Unfortunately, however, we still do not understand how norms regarding the behaviors for each of the racial groups develop and are maintained to further understand why these differences persist.

In this dissertation race was operationalized as a category such that one is White or Black. Yet, a literature on racialized identity suggests that while social group identity proved an important predictor of adolescent health behavior, measuring racial identity might also prove useful. For example, many studies do not account for the possibility that adolescents may identify with a racial group *more* than a social group. Research has frequently posited a relationship between ethnic identity and psychological and health outcomes (Marsiglia, Kulis, & Hecht, 2001). However, there remains a need to understand the components of ethnicity and their impact on physical health and the mechanism by which the affect these outcomes (Phinney, 1993; Williams, Lavizzo-Mourey, & Warren, 1994).

Marsiglia, Kulis, & Hecht (2001) sought to examine the differences in self-reported drug use and exposure to drugs in 408 seventh grade students. The findings revealed that African American, Mexican American, and mixed-ethnicity students with a strong sense of ethnic pride

reported less drug use and exposure to drugs, while ethnically proud White students reported more. In addition, Marsiglia et al. found that minority students who perceived their speech, behavior, and looks as similar with their racial group reported more exposure to drugs and drug use than their White counterparts who reported less. Such an outward similarity with one's ethnic group may be an indirect indicator of the peer pressures toward desire for affiliation and conformity in early adolescence. In addition, internalization of the negative images projected in the media from the majority culture may be reflected in behavior. This research demonstrates the importance of not ignoring racial group identification and its affect on adolescent risky health behaviors.

It is clear that ethnic identity has important implications for adolescent health behavior. Future studies should include racial identity as well as social identity when examining adolescent health behaviors. Depending upon an adolescent's stage of ethnic identity development (Phinney, 1992), ethnicity may not be realized or may play a salient role in one's identity, such as reported with White adolescents. In these instances, social group identity may play a more central role in prototype influence and behavior. However, measures of racial group identity and perceived similarity of racial and social groups should be examined in the future. In addition, research should examine if the perceived prototype for social and racial groups differ among adolescents, and if the participant's behavior is more aligned with the racial or social group prototype.

Implications of Self-Categorization for Health Communication Research

Self-categorization theory has significant implications for the study of adolescent risky health behaviors. In a broader context, SCT also has the ability to influence many commonly used health communication theories such as the Theory of Planned Behavior and Social

Cognitive Theory. Furthermore, SCT can also serve to aid health communication practitioners in

message tailoring toward adolescents and using media as a tool to shift prototype norms.

To briefly recap, self-categorization theory is based on the premise that social groups

provide people with an identity and the social cognitive process of becoming a group member is

that of self-categorization. When this categorization occurs, people are no longer individuals but

rather representations of the relevant prototype. Prototypes embody the attributes that group

members believe represent the group. Changes in the prototype and subsequently the self-

concept can arise and the member will shift their behavior so that it is consistent with the

relevant group prototype. Results from this dissertation provide good support for the SCT

process model for all four risky health behaviors and three out of four risky behavioral intentions

for adolescents. Thus, this social cognitive process has the potential to impact how health

communication research is conducted and health communication practice is performed.

Theories designed to predict behavior change aid in providing a framework to identify

the variables which influence behaviors, as well as aiding in the development of successful

behavior change interventions and campaigns. The more one knows regarding the determinant

of a behavior, the more likely a practitioner is able to develop an effective campaign to tackle the

problem or protective behavior. However, few health communication theories investigate social

identity as a potential determinant of health behaviors. There are many commonly used theories

to predict health behaviors such at the Theory of Planned Behavior (Ajzen, 1985; 1991), and the

Health Belief Model (Becker, 1974, 1988); Social Cognitive Theory (Bandura, 1977, 1986).

Close evaluation of the theories would lead one to indicate that there are only a few particular

variables which need be considered in understanding and predicting behaviors (Fishbein, 2000;

Fishbein et al., 2001). If one were to further scrutinize these variables, one can see how the

social identity constructs presented in social categorization theory can have a significant influence on each one, and subsequently influence behavior change.

According to most behavioral change theories, individuals are likely to execute a behavior if they have a strong intention to perform the behavior, have the skills and abilities necessary to perform the behavior, and no constraints prevent the performance. There appear to be three primary variables contributing to behavioral intention: attitude toward the behavior (and performing the behavior), perceived norms regarding the behavior, and self-efficacy. These psychosocial variables of behavioral intentions are of relative importance depending upon the population in question in relation to the behavior. For example, while one behavior may maintain a positive social norm for one group, it may carry a negative perception for another group. For example, it is clear from this study as well as past studies that the factors influencing intentions to engage in risky sex behaviors for Black adolescents are different from the factors influencing intentions to smoke cigarettes. However, why these differences exist are not understood. By studying adolescents' social identity, researchers can better understand the norms associated with health behaviors for each group.

Due to space limitations, this study was unable to further delve into attitudes of the adolescents' social group regarding the health behaviors in question and the prototype of their group, however, by doing so researchers would be better suited to understand the social norms surrounding the behaviors. By understanding these factors, different communication strategies can be developed to accurately reach the population for the given behavior. Essentially, attitudes, perceived norms, and self-efficacy are all a function of the underlying beliefs regarding the outcomes of performing the behavior in discussion, the normative behaviors of the referents, and the barriers to performance. Thus, the more a White teen believes that drinking alcohol will

lead to a desired outcome, the more favorable their attitudes should be toward the behavior. In addition, the more this teen feels that their group prototype is engaging in the same behavior, or that their peers think that they should perform the behavior, the more likely the adolescent engage in the behavior. Lastly, the more this teen feels that they have the resources and ability to engage in the behavior, the stronger their efficacy toward the behavior will be and thus, the more likely they are to perform the behavior. The prototype in social categorization theory serves to provide the adolescent with the resources necessary to model the behavior, thus increasing the likelihood of engaging in the behavior.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is a model based on the assumption that attitudes have a causal impact on behaviors through the mediation of behavioral intention (Ajzen, 1988, 1991, 1996; Ajzen & Madde, 1986), which in turn, is determined by attitudes toward the behavior, perceived behavioral control, and subjective norms. While TPB has received considerable empirical support, studies using TPB have supported the notion that including identity variables can enhance the theory. A recent expansion of the TPB was conducted by Pierro, Mannetti, and Livi (2003) who sought to compare the predictive power of self-identity in adolescents in addition to the classic TPB variables. Structural equation modeling indicated that identity variables contributed significantly and independently to the explanation of TRB variables. This two study confirmed that while the original TPB variables explained a substantial proportion of the variance (41%) in behavioral intention, the expanded model fared even better (48%).

Social Cognitive Theory

Social cognitive theory (Bandura, 1986, 1990) deals with emotional, cognitive, and behavioral aspects of behavior change. According to social cognitive theory, health risk and protective behaviors may result from a process of cognitive appraisal by which people evaluate the social and physical environment (e.g. peers, family, media) and the situation to provide a framework for understanding a behavior. The environment provides models for behavior which influence observational learning. The model will present outcomes of the behavior providing expectations for the target. Upon knowing the behavior to be performed and the skills to perform it (behavioral capability), the person must possess a particular level of self-efficacy in order to re-enact the behavior themselves. The model in social cognitive theory is analogous to the prototype in self- categorization theory. As opposed to social cognitive theory examining a hypothetical model used for observational learning, the prototype in self-categorization theory is a more tangible model that is able to be studied in depth. By studying the prototype in self-categorization theory, researchers will be able to more thoroughly understand the model that the adolescent is using to learn health behaviors.

Theories such as TPB and social cognitive theory have been successfully used with adolescents to explain a wide variety of health risk and protective behaviors. Such theories are substantial and should continue to be used in health communication research (Weinstein, 1993). However, the identity variables in social categorization theory could be used in lieu of, and in conjunction with all of these commonly used health communication theories to expand the variance accounted for when studying adolescent populations. Understanding the groups adolescents identify with and how they view that group will impact their attitudes toward health behaviors and performance of protective behaviors. For example, if multiple sex partners is part

of a thug identity, or their prototype engages in sex regularly, an adolescent who identifies with being a thug will maintain negative attitudes toward monogamy or one sex partner at a time. Thus, communicating to this group regarding safer sex behaviors will be more challenging. If a campaign was designed to reach all high school students without taking into account their personal or social identities, many messages may be lost. Thus, message tailoring should be employed when reaching adolescents.

Tailoring of Messages

While the results from this study were unable to provide more descriptive information on the specific characteristics of each social group due to a small sample size, the goal of behavioral message tailoring is to identify the unique set of psychosocial and behavioral factors relevant to a group of individuals for promoting behavior change and to specifically address those factors (Strecher et al, 1994). However, without taking into account the cultural or contextual factors that may influence the way a person responds to or processes health messages, and his/her ability or motivation to make the changes recommended. Thus, all message recipients should not receive the same message in the same manner (Campbell et al., 1994; Brug, et al., 1996).

Health education materials and messages designed for adolescents may be perceived by particular subgroups as irrelevant, lacking meaning, or unattractive (Kreuter & Strecher, 1996; Bull, Kreuter, & Scharff, 1996). This is especially the case when careful planning has not been executed. Effectiveness of tailored communication campaigns should be enhanced by using messages customized based on sociocultural factors as well as behavioral constructs. A goal of public health officials should be to examine the culturally specific norms which may provide cultural enactments of particular social groups. After this assessment, a cultural norm campaign should be developed to increase awareness of the actual occurrence of rates behaviors among the

specific population. While this has generally not been done for adolescents and social groups, it may prove very effective. To use race as an example, a campaign could be developed to increase awareness in Black youth that there are lower rates of substance abuse among their cultural group. This campaign should seek to alter the normative messages that Black youth do more drugs than other racial groups. As Helms (1990) suggests, it is not what is real, but the perceptions of one's ethnic group that influence interpersonal and intrapersonal functioning. It is evident that the normative messages being presented to youth are shaping their decisions to engage in risky health behaviors.

Cultural tailoring and targeting, however, should be done with sensitivity. Cultural sensitivity as conceptualized by Reniscow et al. (1999) has two primary dimensions: surface structure and deep structure. Surface structure refers to simply matching intervention messages and materials to obvious social and behavioral characteristics of the target group. Surface structure may involve the use of people, places, language, music, brand names, locations, and familiar clothing preferred by the target audience for audiovisual materials. This may also include identifying particular media (e.g. TV channels) and settings (e.g. after school programs) for the most appropriate dissemination of messages.

Deep structure reflects the cultural, social, environmental, historical, and psychological factors which influence health behaviors differently based on race/ethnicity and/or social group membership (Marin et al, 1995; Morris, 1993; Airhihenbuwa et al, 1992; Sabogal et al, 1996). This includes a thorough understanding of how the target population perceives the perception of participation in particular health behaviors. Deep structure requires an understanding for how media, family, peers, religion, and society both in reality and perception, influence the target group's behavior. For example, as discussed prior, many teens believe that peers are engaged in

risky behaviors more than they are in reality. Ignorance of these cultural group beliefs, or dismissing them when creating messages and interventions will likely decrease program effectiveness. While surface structure will generally increase message comprehension or acceptance (Simons-Morton, Donohew, & Crump, 1997), deep structure conveys relevance and salience.

With regard to message tailoring to adolescent populations, one suggestion would include the use of Internet Web sites. For example, many subgroups, such as skaters, have Web sites particularly for their age group and interests. Sites such as these allow an opportunity for health communication practitioners to reach their target population in a far-reaching, cost-effective manner. Once researchers are aware of what health risks are relevant to the skater population, relevant ads, links to other sites, etc. can be strategically placed on these sites. In addition, trained health specialists could participate in chat rooms as a way to moderate discussions with site participants and allow a safe, private, place for skater adolescents to ask personal health questions relevant to them. In addition, practitioners could test messages with the site users to see if upcoming campaign messages are well-received by the target populations.

By using the model presented in this study, and segmenting the population by social groups, health communication practitioners are then able to target specific groups as well as individuals. This model may be particularly effective with adolescents because social groups may be more influential earlier in life than racial groups. Many health communication campaigns segment the population by the health behavior or demographic variables. By using the social categorization model, practitioners are then able to focus more specifically on the ever-important social groups during adolescents. Practitioners can seek to shift the social norms of the group, as well as potentially highlighting the benefits of other social groups that an

adolescent may identify with (see the discussion of multiple identities later). Due to the impact that the media have on adolescents, the use of mass media may have a significant influence of shifting social group norms.

Media and Social Identity

The potential for televised and mediated images to influence group norms is quite possible, and even probable. As a result, norms and beliefs regarding the groups can be defined through the media. Television maintains the power to create norms which may or nay not reflect existing distinctions, thus false stereotypes are perpetuated. On an individual level, media effects and health communication researchers emphasize the cognitive mechanisms by which people interpret information about risk, and how this influences their behavior (Sloviv, Fischoff, & Lichenstein, 1981; Weinstein, 1984). Mass media can support, promote, and play a role in health behavior.

Social cognitive theory states that people learn not only from direct experience, but also from observing others. This observation may take place in real life, but can also occur vicariously through watching television or a movie. Thus, from this perspective, the media can impact viewer's attitudes, beliefs, and behaviors by modeling activities from which viewers can learn (Bandura, 1986, 1989, 1994, 2001). As stated earlier, the model in social cognitive theory could – in some instances – also be the prototype in self-categorization theory. Bandura (1994, 2001) states that viewers are most likely to pay attention to models/prototypes they view as similar to themselves and can identify with. Consequently, a media model/prototype who is the same race, age, or gender as the viewer is likely to be influential (Harwood, 1997, 1999; Hicks, 1965; Hoffner & Cantor, 1991). Furthermore, models/prototypes who are attractive, financially well-off, or powerful are also likely to be influential.

By viewing what happens to a media prototype when behaviors are performed on screen, adolescents are able to develop expectations regarding what may happen to them if they hold particular attitudes, beliefs, behaviors. As mentioned earlier, information regarding the prototype can be obtained by observing how people behave – what they do, how they speak and dress, etc. While the interpersonal aspect of this phenomenon has been discussed in the literature review, prior research has demonstrated that media have a strong influence over adolescents' attitudes and behaviors (Botta, 2000; Brown, 2000; Brown & Witherspoon, 2002; Hazel-Ford & Sarvela, 1992). Prior work demonstrated that entertainment programming is perhaps the most important source of socialization and information for adolescents (Comstock & Scharrer, 1999; Hazel-Ford Tell & Sarvela, 1992). Norms and beliefs regarding groups are often defined as a product of media consumption. Shared beliefs as discussed by SIT are quite salient to TV messages regarding racial/ethnic minority characters (Fischoff, Crowell, & Kipke, 1999). Younger teenagers spend up to seven hours a day watching television, and older teenagers may spend more than that listening to music or viewing music videos (Fischoff, Crowell, & Kipke, 1999). Ward (1995) found that 29% of interactions between characters on television are sexual in nature. In addition, 70% of prime time networks portray at least one instance of alcohol consumption.

If adolescents feel that particular characters depicted on television or movies are representative prototypes of their in-group or represent a group they seek to identify with, these characters can significantly influence adolescent behaviors. For example, hip-hop culture, which has systematically become popular culture, encompasses cultural expressions such as language usage (Smitherman, 1997), clothing styles (Kim, 2001), value systems (Rose, 1992), racial/ ethnic identity (Ro, 1996), and behavioral expectations (Henderson, 1996). Thus, if an

adolescent feels that someone in hip-hop culture (e.g. 50 Cent) represents their group, they will pay attention to how that representative acts as a means to gain more insight into their own identity. In summary, the media can have a significant impact on adolescents be providing prototypes to identify with and model after.

Limitations and Summary

The final limitation of this study was not further delving into the source of the prototype for each participant's group. For example, respondents were asked to think of the typical person in their group when responding to the characteristic and behaviors of the prototype for their social group. However, this study did not inquire about who the respondent thought was the prototype for their group, e.g. a peer, sibling, media personality, etc. Further insight into who the prototype was should be collected in future studies measuring the influence of the prototype. This information will serve to help health communication practitioners target social groups with more depth.

This dissertation set out to examine how adolescent's social group identification may predict their engagement in risky health behaviors. Toward that goal, self-categorization theory was used to develop and test a model predicting adolescent health behaviors. The model presented in this paper supported the theory, thus indicating that self-categorization theory is a significant predictor of both behavior and behavioral intent for three of the four health behaviors examined. In addition to applying self-categorization theory to health communication and adolescent research, a secondary goal sough to examine if methods commonly used to measure attitude accessibility and social norm accessibility could be applied to social group identity. While these results were disappointing, the discussion of the remaining accessibility data points to the need for further reaction time research on adolescent populations. Overall, this

dissertation has significant implications for health communication researchers and practitioners. Self-categorization theory has the potential to enhance current health communication theory and influence how campaigns designed to influence adolescents are developed.

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[i] A reader noted that level identification could possibly directly predict behavior, regression analyses were utilized to assess this relationship. Again, these analyses were run separately for each risk behavior by first selecting for only those participants who believed their prototype engaged in that behavior (see test of models for more explanation). Across the four behaviors, there were two significant relationships, sex (β= .20, p = .01) and alcohol (β= .26, p = .006). The higher the level of group identification, the more likely participants were to engage in these behaviors. Smoking marijuana and cigarettes were not significant. While level of identification does predict two of the behaviors, it is important to note that once the relationship between prototype similarity and behavior is controlled for, the relationship between identity level and behavior is no longer significant. Thus, the perceived similarity to the prototype is a critical component for the social categorization process.

[ii] I had wanted to report county level data to report the most valid comparison. However, an extensive search did not yield specific county level measures for these four health behaviors for high school students. Several searches were conducted. First, the search began with the CDC Youth Behavior Risk Survey (YBRS), which unfortunately only provided state level data. In some instances, particular states will also conduct and report county level data. For 2005, the selected county in Georgia was DeKalb County. Data for Emanuel and Bibb counties were not available. Second, www.georgia.gov was searched for county level health data. Again, many links provided information from the YBRS, and did not provide any county level data for adolescents. Third, a search of the Carl Vinson Institute of Research Web site was conducted.

While Carl Vinson did allow viewers to select county level health data, the options were: reported AIDS cases, reported TB, reported syphilis, reported gonorrhea, and reported Chlamydia. No data specific to adolescents or the risky health behaviors used in this study were available. Last, a search of the Emanuel and Bibb county Web sites was conducted. These sites did not provide local health data for adolescents; only links to the YRBS data were provided.

REFERENCES

Ajzen I, Fishbein M. 1980. *Understanding Attitudes and Predicting Social Behavior.*
Englewood- Cliffs, NJ: Prentice-Hall

Ajzen I, Fishbein M. 2000. Attitudes and the attitude-behavior relation: reasoned and
Automatic processes. In *European Review of Social Psychology*, ed. W Stroebe,
M Hewstone. Chichester, England: Wiley. In press

Ajzen I, Sexton J. 1999. *Depth of processing, belief congruence, and attitude-behavior
correspondence.* In *Dual-Process Theories in Social Psychology*, ed. S Chaiken,
Y Trope, pp. 117–38. New York: Guilford

Ajzen I. 1991. The theory of planned behavior. Org. Behav. Hum. Decis. Process. 50:179–211.

Airhihenbuwa, C.O., DiClemente, R.J., Wingood, G.M., & Lowe, A. (1992). HIV/AIDS education
and prevention among African-Americans: a focus on culture. *AIDS Education & Prevention,
4(3),* 267–276.

Allgood-Merten, B., Lewinsohn, P., & Hops, H. (1990). Sex differences and adolescent
depression. *Journal of Abnormal Psychology*, *99*(1), 55-63.

Azzor, A., & Tzelgov, J. (1987). Self-ideal discrepancy as indicators of self-derogation
and enhancement: Formalization of theoretical claims and a method for
assessment. *Journal of Personality Assessment*, *51*, 532–544.

Bailey, S.L., & Hubbard, R.L. (1990). Developmental variation in the context of marijuana
initiation among adolescents. *Journal of Health and Social Behavior, 31*, 58-70.

Bandura, A. (2001). Social Cognitive Theory of Mass Communication. *Media Psychology 3(3),*

265-299.

Beadnell, B., Steilstra, S., Baker, S., Morrison, D.M., Knox, K., Gutierrez, L., & Doyle,
A.

 (2003).   Ethnic identity and sexual risk-taking among African-American women

 enrolled in an HIV/STD prevention intervention. *Psychology, Health &*

 Medicine, 8(2), 187-198.

Berndt, T. (1982). The features and effects of friendship in early adolescence. *Child*

 Development, *53*(6), 1447-1460.

Berger, I. E., & Mitchell, A. A. (1989). The effect of advertising on attitude

 accessibility, attitude confidence, and the attitude-behavior relationship. *Journal of*

 Consumer Research, 16, 269-279.

Bersamin, M., Walker, S., Fisher, D., & Grube, J. (2006). Correlates of Oral Sex and

 Vaginal Intercourse in Early and Middle Adolescence. *Journal of Research on*

 Adolescence, 16(1), 59-68.

Berzonsky, M. D. (1990). `Self-construction over the life-span: a process perspective on identity

 formation'. In: Neimeyer, G.J. and Neimeyer, R.A. (Eds), *Advances in Personal Construct*

 Psychology, Vol. 1, pp. 155-186, JAI, Greenwich, CT.

Berzonsky, M. D. and Ferrari, J. R. (1996). Identity orientation and decisional strategies. *Personality*

 and Individual Differences, 20, 597-606.

Berzonsky, M. D. and Kinney, A. (1994). *Identity negotiation styles and defense mechanisms*.

 Paper presented at the biennial meetings of the Society for Research on Adolescence, San Diego,

 CA, February, 1994.

Beyth-Marom, R., L. Austin, B. Fischhoff, C. Palmgren, & Jacobs-Quadrel, M. (1993).

    Perceived consequences of risky behaviors: Adults and adolescents.

    Developmental Psychology, 29(3), 549-563.

Beyth-Marom, R., Fischhoff, B., Quadrel, M., & Furby, L. (1991). Teaching decision

    making to adolescents: A critical review. *Teaching decision making to*

    adolescents (pp. 19-59).

Billig, M., & Tajfel, H. (1973). Social categorization and similarity in intergroup

behaviour.

    European Journal of Social Psychology, *Vol. 3*(1), 27-52.

Blanton, H., F. X. Gibbons, Gerrard, Conger, & Smith. (1997). Role of Family and Peers

    in the Development of Prototypes Associated With Substance Use. *Journal of*

    Family Psychology 11(3), 271-288.

Botta, R.A. (2000). The Mirror of Television: A Comparison of Black and White

    Adolescents; body image. *Journal of Communication, 50(3),* 144-162.

Boyer, C. B., Shafer, M. A., Wibbelsman, C. J., Seeberg, D., Teitle, E., & Lovell, N.

(2000).

    Associations of sociodemographic, psychosocial, and behavioral factors with sexual

    risk and sexually transmitted diseases in teen clinic patients. *Journal of Adolescent*

    Health, 27, 102-111.

Brogan, J. (1977). Relation of ego to id, superego, and reality. *The American Journal of*

    Psychoanalysis, *37*, 229–234.

Brown, B., Clasen, D., & Eicher, S. (1986). Perceptions of peer pressure, peer conformity,

      dispositions, and self-reported behavior among adolescents. *Developmental*

      Psychology, 22, 521-530.

Brown, J.D. (2000). Adolescents' Sexual Diets. *Journal of Adolescent Health, 27*, 35-40.

Brown, B., & Lohr, M. (1987). Peer-group affiliation and adolescent self-esteem: An

      integration of ego-identity and symbolic-interaction theories. *Journal of*

Personality

     and Social Psychology, *52*(1), 47-55.

Brown, J. D. and E. M. Witherspoon (2002). The mass media and American adolescents'

      health. *Journal of Adolescent Health (31),*153-170.

Burke, P. J., & Owens, T. J. (2003). *Advances in identity theory and research.* Kluwer

      Academic/Plenum Publishers.

Burke, P. J. & Reitzes, D.C. (1981). The Link between Identity and Role Performance.

      Social Psychology Quarterly 44(2), 83-92.

Call, K., Riedel, A., Hein, K., McLoyd, V., Petersen, A., & Kipke, M. (2002). Adolescent

      Health and Well-Being in the Twenty-First Century: A Global Perspective.

      Journal of Research on Adolescence (Blackwell Publishing Limited), *12*(1), 69.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of

     source versus message cues in persuasion. *Journal of Personality and Social*

     Psychology, 39, 752-766.

Chassin, L. A., Presson, C. C., Sherman, S. J., & Edwards, D. A. (1991). Four pathways to young-adult smoking status: Adolescent social-psychological antecedents in a Midwestern community sample. *Health Psychology, 10,* 409-418.

Chassin, L., Presson, C., & Sherman, S. (1984). Cognitive and social influence factors in adolescent smoking cessation. *Addictive Behaviors*, *9*(4), 383-390.

Chassin, L., Tetzloff, C., & Hershey, M. (1985). Self-image and social-image factors in adolescent alcohol use. *Journal of Studies on Alcohol*, *46*(1), 39-47.

Chen, S., Schechter, D., & Chaiken, S. (1996). Getting at the Truth or Getting Along: Accuracy- Versus Impression-Motivated Heuristic Systematic Processing. *Journal of Personality & Social Psychology*, *71*(2), 262-275.

Chilcoat, H.D., & Anthony, J.C. (1996). Impact of parent monitoring on initiation of drug use through late childhood. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 91-100.

Christensen, P., Rothgerber, H., Wood, W., & Matz, D. (2004). Social Norms and Identity Relevance: A Motivational Approach to Normative Behavior. *Personality and Social Psychology Bulletin*, *30*(10), 1295-1309.

Cialdini, R., Reno, R., & Kallgren, C. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*(6), 1015-1026.

Cialdini, R. (1991). Altruism or Egoism? That Is (Still) the Question. *Psychological Inquiry*, *2*(2), 124.

Cinnirella, M. (1998). Exploring temporal aspects of social identity: the concept of possible social identities. *European Journal of Social Psychology*, *28*(2), 227-248.

Clark, H., & Brennan, S. (1991). Grounding in communication. *Perspectives on socially shared cognition* (pp. 127-149). American Psychological Association.

Cleveland, M., Gibbons, F., Gerrard, M., Pomery, E., & Brody, G. ([YEAR]). The Impact of Parenting on Risk Cognitions and Risk Behavior: A Study of Mediation and Moderation in a Panel of African American Adolescents. *Child Development*, *76*(4), 900-916.

Coleman, J.C. (1974). *Relationships in Adolescence*. London: Routledge and Kegan Paul.

Comstock, G., & Scharrer, E. (1999). *Television: What's on, Who's watching and What it means*. New York, NY: Academic Press.

Crockett, L. J., & Petersen, T. J. (1993). *Adolescent development: Health risks and opportunities for health promotion. Promoting the health of adolescents: New directions for the twenty-first century* (pp. 13-37). Oxford University Press.

Crockett, L. (1997). Cultural, historical, and subcultural contexts of adolescence: Implications for health and development. *Health risks and developmental transitions during adolescence* (pp. 23-53). Cambridge University Press.

Deaux, K., & Ethier, K.A. (1998). Negotiating social identity. In J.K. Swimand C. Stangor

    (Eds.), *Prejudice: The Target's Perspective* (pp. 301-323). San Diego, CA:

    Academic Press.

Doise, W., Sinclair, A., & Bourhis, R. (1976). Evaluation of accent convergence and divergence

    in cooperative and competitive intergroup situations. *British Journal of Social &*

    Clinical Psychology, *15*(3), 247-252.

Dolcini, M. M., and Adler, N. E. (1994). Perceived competencies, peer group affiliation, and

    risk behavior among early adolescents. *Health Psychology, 13*, 496–506.

Duncan, S.C., Duncan, T.E., Biglan, A., & Ary, D. (1998). Contributions of the social

    context to the development of adolescent substance use: A multivariate latent

    growth modeling approach. *Drug & Alcohol Dependency, 50(1),* 57-71.

Eiser, J., & Stroebe, W. (1972). *Categorization and social judgment*. Academic Press.

Eiser, J. (1985). Smoking: The social learning of an addiction. *Journal of Social & Clinical*

    Psychology, *3*(4), 446-457.

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. (1999). Self-categorisation, commitment to

    the group and group self-esteem as related but distinct aspects of social identity.

    European Journal of Social Psychology, *29*(2/3), 371-389.

Ethier, K.A., & Deaux, K. (1990). Hispanics in ivy: assessing identity and perceived
threat. *Sex Roles, 22*, 427-440.

Ethier, K.A., & Deaux, K. (1994). Negotiating social identity when contexts change:
maintaining identification and responding to threat. *Journal of Personality and
Social Psychology, 67*, 243-251.

Fabrigar, L. R., Priester, J. R., Petty, R. E., & Wegener, D. T. (1998). The impact of
attitude accessibility on elaboration of persuasive messages. *Personality and
Social Psychology Bulletin, 24,* 339-352.

Farrelly, M, Niederdeppe, J., & Yarsevich, J. (2003). Youth Tobacco Prevention Mass
Media
Campaigns: past, present, and future directions. *Tobacco Control, 12(35s),* 35-47.

Fazio, R.H., Sanbonmatsu, D.M., Powell, M.C., & Kardes, F.R. (1986). On the automatic
activation of attitudes. *Journal of Personality & Social Psychology, 50,* 229–38.

Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The MODE
model as an integrative framework. In M. Zanna (Ed.), *Advances in experimental
social psychology* (Vol. 23; pp. 75-109). Orlando, FL: Academic Press.

Fazio, R. H. & Zanna, M. P. (1981). Direct experience and attitude–behavior consistency.
In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 14, pp.
161–202). San Diego, CA: Academic Press.

Fazio, R. H., Roskos-Ewoldsen, D. R., & Powell, M. C. (1994). Attitudes, perception,
and
attention. In P. M. Niedenthal & S. Kitayama (Eds.), *The heart's eye: Emotional*

influences in perception and attention (pp. 197-216). Orlando, FL: Academic

Press.

Fishbein, M. (1990). AIDS and behavior change: An analysis based on the theory of

reasoned action. *Interamerican Journal of Psychology, 24,* 37-56.

Fischoff, B., Crowell, N. Kipke, E. (Eds.) (1999). *Adolescent Decision Making:*

Implications

for Prevention Programs, Summary of a Workshop. Commission on Behavioral

and

Social Sciences and Education, National Research Council. Institute of Medicine.

National Academies Press, Washington, DC.

Gerrard, M., Gibbons, F.X., Reis-Bergan, M., Trudeau, L., Vande-Lume, L.S., Bunnk, B.

(2002). Inhibitory Effects of Drinker and Nondrinker Prototypes on Adolescent

Alcohol Consumption. *Health Psychology 21(6),* 601-609.

Gerrard, M., Gibbons, F., Lane, D., & Stock, M. (2005). Smoking cessation: Social

comparison level predicts success for adult smokers. *Health Psychology*, *24*(6),

623-629.

Gerrard, M., Gibbons, F., Stock, M., Vande Lune, L., & Cleveland, M. (2005). Images of

Smokers and Willingness to Smoke Among African American Pre-adolescents:

An Application of the Prototype/Willingness Model of Adolescent Health Risk

Behavior to Smoking Initiation. *Journal of Pediatric Psychology*, *30*(4), 305-318.

Gerrard, M., Gibbons, F., Zhao, L., Russell, D., & Reis-Bergan, M. (1999). The effect of

peers' alcohol consumption on parental influence: A cognitive mediational model.

Journal of Studies on Alcohol, Retrieved Tuesday, February 06, 2007 from the

PsycINFO database.

Gibbons, F. X. and M. Gerrard, & Booney-McCoy (1995). Predicting Young Adults'

Health Risk Behavior. *Journal of Personality and Social Psychology 69(3),* 505-

517.

Gibbons, F. X., Gerrard, M., Stock, M.L., Vande Lume, L.S., & Cleveland, M. (2003). A

social reaction model of adolescent health risk. *Social psychological foundations*

of health and illness, Blackwell Publishing, 107-136.

Gibbons, F. X., M. Helweg-Larsen, & Gerrard. (1995). Prevalence Estimates and

Adolescent Risk Behavior : Cross-Cultural Differences in Social Influence.

Journal of Applied Psychology 80(1), 107-121.

Glynn, T.J. (1981). From family to peer: A review of transitions of influence among

drug-

using youth. *Journal of Youth and Adolescence, 10,* 363-383.

Gunther, A., Bolt, D., Borzekowski, D., Liebhart, J., & Dillard, J. (2006). Presumed

Influence

on Peer Norms: How Mass Media Indirectly Affect Adolescent Smoking. *Journal*

of

Communication, *56*(1), 52-68.

Grube, J., Weir, I., Getzlaf, S., & Rokeach, M. (1984). Own value system, value images,

and cigarette smoking. *Personality and Social Psychology Bulletin*, *10*(2), 306-

313.

Haslam, S., Jetten, J., O'Brien, A., & Jacobs, E. (2004). Social identity, social influence

    and reactions to potentially stressful tasks: support for the self-categorization

    model of stress. *Stress & Health: Journal of the International Society for the*

    Investigation of Stress, *20*(1), 3-9.

Hazel-Ford, T.D., Tess, D., & Sarvela, P.D. (1992). Sources of rural pregnant adolescent
drug

    abuse information. *Wellness Perspectives, 9(1),* 53-59.

Helms, J. E. (1995). An update of Helm's White and people of color racial identity models. In J. G.,

    Ponterotto, Casas, J. M., L. A. Suzuki, & C. M. Alexander, (Eds.), *Handbook of multicultural*

    counseling (pp. 181-198). Thousand Oaks, CA: Sage.

Helms, J. E., & Parham, T. A. (1990). Black Racial Identity Attitudes Scale (Form RIAS-B). In J. E.

    Helms (Ed.). *Black and White racial identity: Theory, research, and practice* (pp. 245-248).

    Westport, CT: Praeger.

Henderson, E.L. (1996). Black Nationalism and Rap Music. *Journal of Black Studies,*
26(3),

    308-340.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological*

    Review, *94*, 319–340.

Hitlin, S., Brown, J., & Elder (2006). Racial Self-Categorization in Adolescence:

    Multiracial Development and Social Pathways. *Child Development 77(5), 1298-*

    1308.

Hogg, M. (2005). Social Identity. In M. Leary & J.P. Tangey (Eds.), *the Handbook of Self*

and Identity (pp. 462-492). New York: The Guilford Press.

Hogg, M. A. and S. A. Reid (2006). Social Identity, Self-Categorization, and the

Communication of Group Norms. *Communication Theory, 16(1),* 7-30.

Hogg, M., & Turner, J. (1985). When liking begets solidarity: An experiment on the role

of interpersonal attraction in psychological group formation. *British Journal of*

Social Psychology, *24*(4), 267-281.

Hogg, M. A., J. C. Turner (1987). Social identity and conformity: A theory of referent

information influence. *Current issues in European social psychology, (2),*

Cambridge University Press.

Hogg, M., & Tindale, R. (2005). Social Identity, Influence, and Communication in Small

Groups. *Intergroup communication: Multiple perspectives* (pp. 141-164). Peter

Lang Publishing.

Jacobson, P. D., Lantz, P. M., Warner, K. E., Wasserman, J., Pollack, H. A., & Ahlstrom,

A. K. (2001). *Combating teen smoking: Research and policy strategies*. Ann

Arbor, MI: University of Michigan Press.

Jagers, R. J. and Mock, L. O. (1993). Culture and social outcomes among inner city African

American children: an Afrographic exploration. Special Issue: emotional

development of African American children. *Journal of Black Psychology, 19*,

391-405.

Jessor, R., Donovan, J., & Costa, F. (1990). Personality, perceived life chances, and adolescent

      health behavior. *Health hazards in adolescence* (pp. 25-41). Walter De Gruyter.

Kaetner, E., Rosen, L., & Appel, P. (1977). Patterns of drug abuse: Relationships with

      ethnicity, sensation-seeking and anxiety. *Journal of Consulting and Clinical*

      Psychology, 45(3), 462-468.

Kallgren, C., Reno, R., & Cialdini, R. (2000). A focus theory of normative conduct: When norms

      do and do not affect behavior. *Personality and Social Psychology Bulletin*, *26*(8),

      1002-1012.

Katz, D. & Braly, K.W. (1933). Racial stereotypes of 100 college students. *Journal of*

      Abnormal and Social Psychology, 28, 280-290.

Kim, S. (2001). Style Council. *Vibe* (September): 206-210.

Kincaid, D. (2004). From Innovation to Social Norm: Bounded Normative Influence.

      Journal of Health Communication, *9*, 37-57.

Kirchler, E., Palmonari, A., & Pombeni. (1994). Social categorization processes as

      dependent on status differences between groups: A step into adolescents' peer-

      groups. *European Journal of Social Psychology 24(5)*, 541-563.

Komro, K., Stigler, M., & Perry, C. (2006). Comprehensive Approaches to Prevent

      Adolescent Drinking and Related Problems. *Alcohol problems in adolescents and*

      young adults: Epidemiology, neurobiology, prevention, and treatment (pp. 207-

      224). Springer Science & Business Media.

Koval, J. J., Pederson, L. L., Mills, C. A., McGrady, G. A., & Carvajal, S. C. (2000). Models of the relationship of stress, depression, and other psychosocial factors to smoking behavior: A comparison of a cohort of students in Grades 6 and 8. *Preventive Medicine: An International Journal Devoted to Practice and Theory, 30*(6), 463-477.

Kreuter, M.W., Skinner, C.S., Steger-May, K., Holt, C.L., Bucholtz, D.C., Clark, E.M., & Haire- Joshu. (2004). Responses to Behaviorally vs Culturally Tailored Cancer Communication Among African American Women. *American Journal of Health Behavior, 28(3)*, 195-207.

Krosnick, J.A., & Judd, C.M.. (1982). Transitions in social influence at adolescence: Who induces cigarette smoking? *Developmental Psychology, 18*, 359-368.

La Greca, A., Prinstein, M., & Fetter, M. (2001). Adolescent peer crowd affiliation: Linkages with health-risk behaviors and close friendships. *Journal of Pediatric Psychology*, *26*(3), 131-143.

Lapinski, M., & Rimal, R. (2005). An Explication of Social Norms. *Communication Theory*, *15*(2), 127-147.

Lazzari, R., Fiorvanti, M., & Gough, H. G. (1978). A new scale for the adjective check list based on self vs. ideal-self discrepancies. *Journal of Clinical Psychology*, *34*,

361–365.

Lerner, R., & Galambos, N. (1998). Adolescent development: Challenges and

opportunities for

      research, programs, and policies. *Annual Review of Psychology*, *49*(1), 413.

Leventhal, H., & Cleary, P. (1980). The smoking problem: A review of the research and

theory

      in behavioral risk modification. *Psychological Bulletin*, *88*(2), 370-405.

Maggs, J., Schulenberg, J., & Hurrelmann, K. (1997). Developmental transitions during

      adolescence: Health promotion implications. *Health risks and developmental*

      transitions during adolescence (pp. 522-546). Cambridge University Press.

Marin, G., Burhansstipanov, L., Connell, C.M., Gielen, A.C., Helitzer-Allen, D., Lorig,

      K., Morisky, D.E., Tenney, M., & Thomas, S. (1995). A research agenda for health

      education among underserved populations. *Health Education Quarterly, 22(3),* 346–

      363.

Markus, H. (1983). Self-knowledge: An expanded view. *Journal of Personality*, *51*, 543–

      565.

Markus, H., & Kunda, Z. (1986). Stability and malleability of the self-concept. *Journal of*

      Personality and Social Psychology, *51*, 858–866.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954–969.

Markus, H., & Wurf, E. (1987). The dynamic self-concept: A social psychological

perspective. *Annual Review of Psychology*, *38*, 299–337.

Marsiglia, F. F., S. Kulis, & Hecht. (2001). Ethnicity and Ethnic Identity as Predictors of

Drug Norms and Drug Use Among Preadolescents in the US Southwest.

Substance Use & Misuse 39(7), 1061-1094.

Marques, J., Páez, D., & Abrams, D. (1998). Social identity and intragroup differentiation

as subjective social control. *Social identity: International perspectives* (pp. 124-

141). Sage Publications, Inc.

McKennell, A., & Bynner, J. (1969). Self images and smoking behaviour among school

boys. *British Journal of Educational Psychology*, *39*(1), 27-39.

McMahon, S., & Watts, R. (2002). Ethnic Identity in Urban African American Youth:

Exploring Links with Self-Worth, Aggression, and Other Psychological

Variables. *Journal of Community Psychology, 30(4),* 411-431.

Mermelstein, R., and The Tobacco Control Network Writing Group (1999).

Explanations of ethnic and gender differences in youth smoking: a multi-site,

qualitative investigation. *Nicotine and Tobacco Research*, *1*, S91-S98.

Miller, D., Monin, B., & Prentice, D. (2000). Pluralistic ignorance and inconsistency

between private attitudes and public behaviors. *Attitudes, behavior, and social

context: The role of norms and group membership* (pp. 95-113). Lawrence Erlbaum

Associates Publishers.

Miller, K. E., M. P. Farrell, Barnes, G.O., Melnick, M., & Sabo, D.. (2005).

Gender/Racial Differences in Jock Identity, Dating, and Adolescent Sexual Risk. *Journal of Youth & Adolescence 34(2),* 123-136.

Miller, K. E., J. H. Hoffman, Barnes, G., Farrell, M., Sabo, D., & Melnick, M.. (2003). Jocks, Gneder, Race, and Adolescent Problem Drinking. *Journal of Drug Education 33(4),* 445-462.

Miller, K. E., M. J. Melnick, Farrell, M., Sabo, D., & Barnes, G. (2006). Jocks, Gender, Binge Drinking, and Adolescent Violence. *Journal of Interpersonal Violence 21(1),* 105-120.

Miller, K., Sabo, D., Farrell, M., Barnes, G., & Melnick, M. (1998). Athletic Participation and Sexual Behavior in Adolescents: The Different Worlds of Boys and Girls. *Journal of Health & Social Behavior*, *39*(2), 108-123.

Miller, K., Farrell, M., Sabo, D., Barnes, G., & Melnick, M. (1999). Sports, Sexual Behavior, Contraceptive Use, and Pregnancy Among Female and Male High School Students: Testing Cultural Resource Theory. *Sociology of Sport Journal*, *16*(4), 366-387.

Morris, M. (1993). *The complex nature of prevention in the African American community: The problem of conceptualization* (SMA 93-2015). Rockville: United States Department of Health and Human Services, SAMHSA.

Mosbach, P., & Leventhal, H. (1988). Peer group identification and smoking: Implications for intervention. *Journal of Abnormal Psychology*, *97*(2), 238-245.

Moscovici, S. (1974). Social influence: I. Coformity and social control. *Social psychology: Classic and contemporary integrations,* Rand Mcnally.

Newcomb, M.D., Bentler, P.M. (1986). Substance use and ethnicity: Differential impact of

      peer and adult modes. *The Journal of Psychology, 120(1),* 83-95.

Oakes, P., Turner, J., & Haslam, S. (1991). Perceiving people as group members: The role of fit

      in the salience of social categorizations. *British Journal of Social Psychology*,

      30(2), 125-144.

Oakes, P., & Turner, J. (1980). Social categorization and intergroup behaviour: does minimal

      intergroup discrimination make social identity more positive?. *European Journal*

      of Social Psychology, *10*(3), 295-301.

Ogilvie, D. M. (1987). The undesired self: A neglected variable in personality research.

      Journal of Personality and Social Psychology, *52*, 379–385.

Onorato, R., & Turner, J. (2004). Fluidity in the self-concept: the shift from personal to social

      identity. *European Journal of Social Psychology*, *34*(3), 257-278.

Ouellette, J. A., R. Hessling, Gibbons, Reis-Bergan, & Gerrard. (2005). Using Images to

      Increase Exercise Behavior: Prototypes Versus Possible Selves. *Personality and*

      Social Psychology Bulletin 31(5), 610-620.

Palmonari, A., Pombeni, M.L., & Kirchler, E., (1990). Adolescents and their peer groups: a

study on the significance of peers, social categorization processes and coping with developmental tasks. *Social Behavior, 5*, 33-48.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change.* New York: Springer-Verlag.

Palmonari, A., M. L. Pombeni, et al. (1992). Evolution of the self concept in adolescence and social categorization processes (pp. 285-308). *European review of social psychology, (3),* John Wiley & Sons.

Phinney, J. (1990). Ethnic Identity in Adolescents and Adults: Review of Research. *Psychological Bulletin, 108(3)*, 499-514.

Phinney, J. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and youth adults from diverse groups. *Journal of Adolescent Research*, *7*, 156-176.

Phinney, J. (1993). A three-stage model of ethnic identity development. In M. Bernal & G.
Knight (Eds.), *Ethnic identity: Formation and transmission among Hispanics and other minorities* (pp. 61-79). Albany, NY: State University of New York Press.

Phinney, J., Cantu, C., & Kurtz, D. (1997). Ethnic and American identity as predictors of self-esteem among African American, Latino, and White adolescents. *Journal of Youth and Adolescence*, *26*, 165-185.

Pierro, A., Mannetti, L., & Livi, S. (2003). Self-Identity and the Theory of Planned Behavior in the Prediction of Health Behavior and Leisure Activity. *Self and Identity, 2(1),* 47-60.

Reniscow, K., Soler, R., & Braithwaite, R. (2000). Cultural Senstivity in Substance Use Prevention. *Journal of Community Psychology, 28(3),* 271-290.

Resnicow, K., & Ross, D. (1997). Development of a racial identity questionnaire for African American adults. Journal of Black Studies, 23(2), 239–254.

Resnicow, K., Braithwaite, R., Ahluwalia, J., & Baranowski, T. (1999). Cultural sensitivity in public health: Defined and demystified. Ethnicity and Disease, 9, 10–21.

Rivis, A. and P. Sheeran (2003). Social Influences and the Theory of Planned Behaviour: Evidence for a Direct Relationship Between Prototypes and Young People's Exercise Behaviour. *Psychology & Health 18(5),* 567-583.

Rivis, A., P. Sheeran, & Armitage. (2006). Augmenting the theory of planned behaviour with the prototype/willingness model: Predictive validity of actor versus abstainer prototypes for adolescents' health-protective and health-risk intentions. *British Journal of Health Psychology 11(3),* 483-500.

Ro, R. (1996). *Gangsta: Merchandising the rhymes of Violence*. New York, NY: St. Martin's Press.

Rose, T. (1992). Black Texts/Black Contexts. In G. Dent (Ed.). *Black Popular Culture*. (pp. 132-128). Seattle, WA: Bay Press.

Roskos-Ewoldsen, D. R., & Fazio, R. H. (1992). On the orienting value of attitudes: Attitude accessibility as a determinant of an object's attraction of visual attention. *Journal of Personality and Social Psychology, 63,* 198-211.

Roskos-Ewoldsen, D. R. (1997). Attitude accessibility and persuasion: Review and a transactive model. In B. Burleson's (Ed.), Communication Yearbook 20 (pp.185-225). Beverly Hills, CA: Sage.

Roskos-Ewoldsen, D. R., Bichsel, J., & Hoffman, K. (2002). How does the accessibility of source likability influence persuasion? *Journal of Experimental Social*

Psychology, 38, 137-143.

Roskos-Ewoldsen, D., Yu, H. J., & Rhodes, N.   (2004). Fear appeal messages effect

accessibility of attitudes toward the threat and adaptive behaviors. *Communication*

Monographs, 71, 49-69.

Sabogal, F., Otero-Sabogal, R., Pasick, R., Jenkins, C., & Perez-Stable, E. (1996). Printed health

education materials for diverse communities: Suggestions learned from the field.
Health

Education Quarterly, 23 (Supplement), S123–S141.

Savin-Williams, R.C., & Berdt, T.J. (1990). Friendship and peer relations. In S.S. Feldman

& G.R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 277-307).

Cambridge, MA: Harvard University Press.

Scales, M., Monahan, J., Roskos-Ewoldsen, D., Rhodes, N., & Johnson-Turbes, A. (under

review). *Health Education & Behavior.*

Schubert, T., & Otten, S. (2002). Overlap of Self, Ingroup, and Outgroup: Pictorial
Measures of

Self-Categorization. *Self & Identity*, *1*(4), 353-376.

Slovic, P. (2001). *Cigarette smokers: Rational actors or rational fools*. In P. Slovic (Ed.),

Smoking: Risk, perception, & Policy (pp. 97-124). Thousand Oaks, CA: Sage.

Slovic, P., Fischhoff, B. & Lichtenstein, S. (1981) Informing the public about the risks

from ionizing radiation. *Health Physics* , *41,* 589–598.

Simon, B., Hastedt, C., & Aufderheide, B. (1997). When Self-Categorization Makes Sense: The

   Role of Meaningful Social Categorization in Minority and Majority Members' Self-Perception. *Journal of Personality & Social Psychology*, *73*(2), 310-320.

Simons-Morton, B.G., Donohew, L., & Crump, A.D. (1997). Health communication in

   the prevention of alcohol, tobacco, and drug use. *Health Education & Behavior, 24(5),* 544–554.

Smith, E., Walker, K., Fields, L., Brookins, C., & Seay, R. (1999). Ethnic Identity and its

   relationship to self-esteem, perceived efficacy and prosocial attitudes in early

   adolescence. *Journal of Adolescence, 22(6),* 867-880.

Smith, E. P. and K. Walker (1999). "Ethnic identity and its relationship to self-esteem,

   perceived efficacy and prosocial attitudes." Journal of Adolescence 22(6): 867.

Smitherman, G. (1977). *Talkin and Testifyin;: The Language of Black America*. Detroit,

   MI: Wayne State University Press.

Soteriades , E. S., & DiFranza J. R. (2003). Parent's socioeconomic status, adolescents'

   disposable income and adolescents' smoking status in Massachusetts. *American Journal*

   of Public Health, 93, 1155-1160.

Spijkerman, R., van den Eijnden, R., Vitale, S., & Engels, R. (2004). Explaining adolescents'

   smoking and drinking behavior: The concept of smoker and drinker prototypes in relation

   to variables of the theory of planned behavior. *Addictive Behaviors*, *29*(8), 1615-

1622.

Spence, J. (1984). Gender identity and its implications for the concepts of masculinity and

femininity. *Nebraska Symposium on Motivation*, *32*, 59-95.

Stryker, S. (1968). Identity Salience and Role Performance: The Importance of Symbolic

Interaction Theory for Family Research. *Journal of Health and Social Behavior, 33*,

25-35.

Stryker, S. (1980). *Symbolic Interactionism: A Social Structural Version*. Palo Alto:

Benjamin/Cummings.

Stryker, S. (1987). Identity Theory: Developments and extensions. In K. Yardley & T. Honess

(Eds.), *Self and society: Psychosocial perspectives.* Chichester, UK: Wiley.

Stryker, S., & Serpe, R. (1982). Commitment, Identity Salience, and Role Behavior. W. Ickes

and E.S. Knowles (Eds.) in *Personality, Roles, and Social Behavior* (pp. 199-218). New

York: Springer-Verlag.

Sussman, S., Dent, C., Flay, B., & Burton, D. (1989). Media manipulation of adolescents'

personal level judgments regarding consequences of smokeless tobacco use. *Journal of

Drug Education*, *19*(1), 43-57.

Tajfel, H. (1972). Social categorization. In S. Moscovici (Ed.), *Introduction a la psychologie

socials* (Vol. 1, pp. 272-302). Paris: Larousse.

Tajfel, H. (1978). *The social psychology of minorities*. New York: Minority Rights Group.

Tajfel, H., & Turner, J.C. (1979). An intergrative theory of intergroup conflict. In W.G.

Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp.

33-47).

Monterey, CA: Brooks/Cole.

Tajfel, H. (1981). *Human groups and social categories*. Cambridge, UK: Cambridge

University Press.

Tajfel, H., & Turner, J.C.. (2004). *The Social Identity Theory of Intergroup Behavior.*

Political psychology: Key readings. (pp. 276-293), Psychology Press.

Tajfel, H., Billig, M., Bundy, R., & Flament, C. (1971). Social categorization and

intergroup behaviour. *European Journal of Social Psychology*, *Vol. 1*(2), 149-178.

Tajfel, H. (1974). Social identity and intergroup behaviour. *Social Science*

Information/sur les sciences sociales, *13*(2), 65-93.

Tajfel, H., & Wilkes, A. (1963). Classification and quantitative judgement. *British*

Journal of Psychology, *54*(2), 101-114.

Tatum, A. (1999). Reading and the African American male: Identity, equity, and power.

Journal of Adolescent & Adult Literacy, *43*(1), 62.

Taylor, R. D., Casten, R., Flickinger, S. M., Roberts, D. and Fulmore, C. D. (1994).

Explaining the school performance of African American adolescents. *Journal of*

Research on Adolescence, 4, 21-44.

Terry, D., & Hogg, M. (1996). Group norms and the attitude-behavior relationship: A
role for

group identification. *Personality and Social Psychology Bulletin*, *22*(8), 776-793.

Terry, D.J., Hogg, M.A., & White, K.M. (2000). Attitude-behaivor relations: Social

identity group membership. In D.J. Terry & M.A. Hogg (Eds.), *Attitudes,*

behavior, and social context: The role of norms and group membership (pp. 67-

93). Mahwah, NJ: Erlbaum.

Thornton, B., Gibbons, F., & Gerrard, M. (2002). Risk perception and prototype

perception:

Independent processes predicting risk behavior. *Personality and Social*

Psychology Bulletin, *28*(7), 986-999.

Turner, J.C. (1985). Social categorization and the self-concept: A social cognitive

theory of

group behavior. In E.J. Lawler (Ed.), *Advances in group processes: Vol. 2.*

Theory and Research (pp. 77-122). Greenwich, CT: JAI Press.

Turner, J.C. (1982). Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.),

Social identity and intergroup relations (pp. 15-40). Cambridge, UK: Cambridge

University Press.

Turner, J.C., Hogg, M.A., Oakes, P.J., Reicher, S.D., & Wetherell, M.S. (1987). *Rediscovering the*

social group: A self-categorization theory. Oxford, UK: Blackwell.

Turner, J. (1992). The production and reproduction of social solidarity: A synthesis of

two

rational choice theories. *Journal for the Theory of Social Behaviour*, *22*(3), 311-

328.

Turner, J. C., P. J. Oakes, (1989). *Self-categorization theory and social influence*.

Psychology of group influence (2nd ed.) (pp. 233-275). Lawrence Erlbaum

Associates, Inc.

Vega, W.A., Zimmerman, R.S., Warheit, G.J., Apospori, E., & Gil, A.G. (1993). Risk

factors for early adolescent drug use in four ethnic and racial groups. *American*

Journal of Public Health, 83, 185-189.

Wagner, U., & Ward, P. (1993). Variation of out-group presence and evaluation of the in-

group.

British Journal of Social Psychology, *32*(3), 241-251.

Wallace, J.M., & Bachman, J.G. (1993). Validity of self-reports in student based studies

on

minority populations: Issues and concerns. In M.R. De la Rosa & J.R. Adrados

(Eds.), *Drug abuse among minority youth: Advances in research and*

methodology (NIDA Research Monograph No. 130, pp. 167-200). Rockville,

MD: National Institute on Drug Abuse.

Ward, J.V. (1995). Cultivating a morality of care in African American adolescents: A culture-based

model of violence prevention. Special Issue: Violence and youth. *Harvard Educational Review,*

65(2), 175–188.

Ward, L.M. (1995). Talking about sex: Common themes about sexuality in prime-time television

programs children and adolescents view most. *Journal of Youth and Adolescence, 24*,

595-615.

Wu, C., & Shaffer, D. R. (1987). Susceptibility to persuasive appeals as a function of source

credibility and prior experience with the attitude object. *Journal of Personality and Social*

Psychology, 52, 677-688.

Williams, D.R., Lavizzo-Mourney, R., & Warren, R.C. (1994). The concept of race and

health-status in America. *Public Health Reports, 109(1),* 26-41.

Wills, T. A., F. X. Gibbons, Gerrard, Murry, & Brody. (2003). Family Communication and Religiosity Related to Substance Use and Sexual Behavior in Early Adolescence : A Test for Pathways Through Self-Control and Prototype Perceptions. *Psychology of Addictive Behaviors 17(4)*, 312-323.

Witte, K., Berkowitz, J. M., Cameron, K. A. & McKeon, J. K. (1998). Preventing the spread of genital warts: Using fear appeals to promote self-protective behaviors. *Health Education & Behavior, 25,* 571-585.

APPENDIX A- Measures

Attitude Accessibility Items:

Items for Block 3
College
Ferrari
Coke
Large dogs
Hip-hop music
Gas prices
Atlanta Falcons
Hurricane
Peanut butter
Marlboro
Smoking Weed
President Bush
Spiders
Rock music
Jazz music
Shopping
Football
History
Having sex
Parties
Friends
Studying
Miller Lite
Movies

Items for Block 4
Disney World
NASCAR racing
Music
Atlanta
Recycling
Britney Spears
Church
Credit cards
Laundry
Chew/dip
Cell phone

Clothes shopping
Walmart
Beer
Candy
Pickles
Tunafish
Videogames
MTV
Red Sox
Using condoms
Getting Drunk
Cigarettes
Smoking cigarettes
Fast cars

Social Norm Accessibility

Behaviors:
Smoking cigarettes
Studying
Having sex
Drinking alcohol
Attending church
Smoking marijuana
Exercising
Doing drugs
Eating vegetables
Using chew/dip
Driving fast
Voting

Target people:
Parents
Good Friends
Brothers/sisters
Boyfriend/girlfriend

Social Group Identity Accessibility

I feel I am a member of:

Filler items: Cool Asians, Band Geeks

Jocks
Nerds/Geeks
Gothics
Populars/Elites
Loners/Outsiders
Thug Girls/Guys
Nonconformists/Rebels
Burnouts/Losers
Preps
Divas
Stoners/Junkies
Punks

Health Behaviors

1. Have you ever tried or experimented with cigarette smoking, even one or two puffs?
 a. Yes   b. No

2. During the past 30 days (one month), on how many days did you smoke cigarettes?
        a. 0 days
        b. 1 or 2 days
        c. 3 to 5 days
        d. 6 to 9 days
        e. 10 to 19 days
        f. 20 to 29 days
        g. All 30 days

 3. During the past 30 days (one month), on the days you smoked, how many cigarettes did you usually smoke?
        a. I did not smoke cigarettes during the past 30 days
        b. Less than 1 cigarette per day
        c. 1 cigarette per day
        d. 2 to 5 cigarettes per day
        e. 6 to 10 cigarettes per day
        f. 11 to 20 cigarettes per day
        g. More than 20 cigarettes per day

4. During your lifetime, how many days have you had at least one drink of alcohol?

  a. 0 days
  b. 1 or 2 days
  c. 3 to 9 days
  d. 10 to 19 days
  e. 20 to 39 days
  f. 40 to 99 days
  g. 100 or more days

5. During the past 30 days, on how many days did you have at least one drink of alcohol?
  a. 0 days
  b. 1 or 2 days
  c. 3 to 5 days
  d. 6 to 9 days
  e. 10 to 19 days
  f. 20 to 29 days
  g. All 30 days

6. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row or within a couple of hours?
  a. 0 days
  b. 1 day
  c. 2 days
  d. 3 to 5 days
  e. 6 to 9 days
  f. 10 to 19 days
  g. 20 or more days

7. During your life, how many times have you used marijuana (also called weed or pot)?
  a. 0 times
  b. 1 or 2 times
  c. 3 to 9 times
  d. 10 to 19 times
  e. 20 to 39 times
  f. 40 to 99 times
  g. 100 or more times

8. During the past 30 days, how many times did you use marijuana (also called weed or pot)?
  a. 0 times
  b. 1 or 2 times
  c. 3 to 9 times
  d. 10 to 19 times
  e. 20 to 39 times
  f. 40 or more times

9. During the past 30 days, on how many days did you use marijuana (also called weed or pot) more than once in the same day?
   a. 0 days
   b. 1 day
   c. 2 days
   d. 3 to 5 days
   e. 6 to 9 days
   f. 10 to 19 days
   g. 20 or more days

10. How often have you "made out," (or hooked up) with another person?
   a. never
   b. rarely
   c. sometimes
   d. a lot of the time

11. How often do you ever have oral sex with another person?
   a. Never
   b. Rarely
   c. Sometimes
   d. A lot of the time

12. How many people have you had sexual intercourse with?
   a. I have never had sexual intercourse
   b. 1 person
   c. 2 people
   d. 3 people
   e. 4 people
   f. 5 or more people

Self-Categorization
We want you to pick the crowd you feel you *most* identify with when you are hanging out after school. We want you to choose the group you most often hang out with socially. You may only select one group.

1) Jocks
2) Nerds/Geeks
3) Gothics
4) Populars/Elites
5) Loners/Outsiders
6) Thug Guys/Girls
7) Nonconformists/Rebels
8) Burnouts/Losers
9) Preps
10) Divas
11) Stoners/Junkies
12) Punks

Social Group Identification

"Thinking about the group you said you hang out with the most, please tell us how much you agree with the following statements.

The scale will range from "1" strongly disagree to "7" strongly agree. You can use any number between 1 and 7 to tell us how strongly you feel about each question.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

My social group is very important to me

I identify with my social group

I feel close to my social group

I am happy to have my social group

I consider myself a member of my social group

My social group has the same interests as I have

My life values correspond to the values of my social group

I consider myself to be similar to my social group

My problems are also the problems of my social group

My social group accepts me as I am

I think I look like people from my group

I usually do what people from my group do

Social Group Prototype Description

"Next, you will see a list of words or behaviors. We want to know how well the words and behaviors describe how the *typical* person in the **Stoners/Junkies** group acts.

For each description we give you, you will rate it on a scale from "1" a poor description of a member of my group to "7" a good description of a member of my group.

Please select the number that best describes the typical person in your group."

Poor description   Good description
1   2   3   4   5   6   7

The typical person in my group smokes cigarettes regularly

The typical person in my group listens to hip-hop music

The typical person in my group is popular

The typical person in my group has sex regularly

The typical person in my group plays sports

The typical person in my group smokes weed regularly

The typical person in my group likes to party

The typical person in my group drinks alcohol regularly

The typical person in my group listens to rock/alternative music

The typical person in my group gets drunk often

The typical person in my group studies hard

The typical person in my group only smokes weed sometimes

The typical person in my group is rebellious

The typical person in my group only has oral sex, not intercourse

The typical person in my group watches MTV/BET

The typical person in my group only smokes cigarettes sometimes

Perceived Prototype Similarity

You just rated people in your group on a bunch of behaviors. Did the judgments you make for people in your group also describe what you do?"

Definitely no   Definitely yes
 1   2   3   4   5   6   7

In general, how similar are you to the typical person in your group?

Not at all similar   Very similar
    1   2   3   4   5   6   7

Did these judgments also describe kids that you hang out with that are the same race or ethnic group that you are?

Definitely no   Definitely yes
 1   2   3   4   5   6   7

Behavioral Intention

For the next task, the scale goes from 1 for *very unlikely* to 7 for *highly likely*.

What is the likelihood that you will do the following things in the next 6 months:

Very unlikely   Very Likely
    1   2   3   4   5   6   7

        Have any sexual activity

        Smoke cigarettes

        Smoke weed

        Drink alcohol

APPENDIX B

Covariance Matrix for Primary Alcohol Model (N=111)

	1	2	3	4
1. Salco	1.82			
2. BIalco	0.32	0.24		
3. Pprotosi	0.99	0.32	3.19	
4. Identlvl	0.41	0.14	0.86	1.09

Note: Salco = self alcohol use; BIcigs = intent to drink alcohol; Pprotosi = perceived prototype

similarity; Identlvl = level of identification with social group

Covariance Matrix for Primary Cigarette Model (N=123)

	1	2	3	4
5. Scigs	2.33			
6. BIcigs	0.42	0.24		
7. Pprotosi	0.72	0.14	3.44	
8. Identlvl	0.04	0.07	1.00	1.15

Note: Scigs = self cigarette use; BIcigs = intent to smoke cigarettes; Pprotosi = perceived

prototype similarity; Identlvl = level of identification with social group

Covariance Matrix for Primary Sex Model (N=143)

	1	2	3	4
1. Ssex	1.09			
2. BIsex	0.19	0.13		
3. Pprotosi	0.70	0.21	3.20	
4. Identlvl	0.26	0.08	1.11	1.48

Note: Ssex = self sexual activity; BIcigs = intent to have sex; Pprotosi = perceived prototype similarity; Identlvl = level of identification with social group

Covariance Matrix for Primary Marijuana Model (N=104)

	1	2	3	4
1. Sweed	2.06			
2. BIweed	0.34	0.25		
3. Pprotosi	0.95	0.43	3.24	
4. Identlvl	0.04	0.13	0.94	1.18

Note: Sweed = self marijuana use; BIcigs = intent to smoke marijuana; Pprotosi = perceived prototype similarity; Identlvl = level of identification with social group.

Covariance Matrix for Secondary Alcohol Model (N=123)

	1	2	3	4	5	6
1. Salco	1.82					
2. Pprotosi	0.99	3.19				
3. BIalco	0.32	0.36	0.24			
4. gender	-0.08	0.07	0.00	0.25		
5. Race	-0.19	-0.21	-0.07	0.01	0.22	
6. Identlvl	0.41	0.86	0.14	-0.07	-0.11	1.09

Note: Salco = self alcohol use; BIcigs = intent to drink alcohol; Pprotosi = perceived prototype similarity; Identlvl = level of identification with social group; Race = race of participant; Gender = gender of participant

Covariance Matrix for Secondary Cigarette Model (N=123)

	1	2	3	4	5	6
1. Scigs	2.33					
2. Pprotosi	0.82	3.44				
3. BIcigs	0.42	0.14	0.24			
4. gender	-0.01	0.07	-0.01	0.25		
5. Race	-0.20	-0.10	-0.09	0.01	0.22	
6. Identlvl	0.07	1.00	0.07	-0.01	-0.06	1.15

Note: Scigs = self cigarette use; BIcigs = intent to smoke cigarettes; Pprotosi = perceived

prototype similarity; Identlvl = level of identification with social group; Race = race of

participant; Gender = gender of participant

Covariance Matrix for Secondary Sex Model (N=143)

	1	2	3	4	5	6
1. Ssex	1.08					
2. Pprotosi	0.69	3.20				
3. BIsex	0.19	0.21	0.13			
4. gender	-0.09	-0.02	-0.01	0.25		
5. Race	0.01	-0.06	-0.01	0.01	0.25	
6. Identlvl	0.19	0.38	0.02	0.02	0.05	0.22

Note: Ssex = self sexual activity; BIsex = intent to have sex; Pprotosi = perceived prototype similarity; Identlvl = level of identification with social group; Race = race of participant; Gender = gender of participant

Covariance Matrix for Secondary Marijuana Model (N=104)

	1	2	3	4	5	6
1. Sweed	2.06					
2. Pprotosi	0.95	3.24				
3. BIweed	0.34	0.43	0.25			
4. gender	-0.03	0.02	0.00	0.25		
5. Race	-0.04	-0.13	-0.03	-0.01	0.25	
6. Identlvl	0.04	0.94	0.13	-0.05	-0.08	1.18

Note: Sweed = self marijuana use; BIweed = intent to smoke marijuana; Pprotosi = perceived prototype similarity; Identlvl = level of identification with social group; Race = race of participant; Gender = gender of participant