SOCIAL NETWORKING SITES AND ADOLESCENT ALCOHOL USE: THE ROLE OF SOCIAL IMAGES, SOCIAL NORMS, AND SOCIAL COMPARISON

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Abstract

Social Networking Sites and Adolescent Alcohol Use: The Role of Social Images, Social Norms, and Social Comparison

The present study examined the role that descriptive norms play on the constructs of behavioral willingness, drinker prototype favorability, attitudes toward alcohol use, and perceived vulnerability for alcohol-related consequences, within the Prototype Willingness model. The primary objectives were to determine whether manipulated descriptive norms have an impact on these risk cognitions and whether this impact is stronger among adolescents with greater tendencies to engage in social comparison. Descriptive norms were manipulated by having 200 adolescents view older peers drinking or abstaining from alcohol via profiles from the social networking site, Facebook. The results indicate that viewing alcohol use among older peers is associated with greater willingness to use, more positive attitudes toward use, and lower perceived vulnerability. These results were not moderated by individual differences in the tendency to socially compare. Mediation analyses indicated that attitudes, perceived vulnerability, and perceptions of alcohol use among high school students mediate the relationship between viewing peer users and willingness to use. These results indicate that adolescents who perceive that alcohol use is normative in slightly older peers, as evidenced by Facebook profiles, are at higher risk for cognitions that have been shown to predict alcohol use, compared to adolescents who do not see alcohol use portrayed as frequently on Facebook.

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Chapter 1: Introduction

Alcoholic beverages are the most widely used substances by American adolescents (Monitoring the Future, 2009). In 2009, approximately 35% of adolescents ages 13-15 admitted drinking an alcoholic beverage in the last year (Monitoring the Future, 2009). Adolescents who have reported drinking alcohol by age 13 are more likely to report academic problems, substance use, and delinquent behavior in both middle and high school (Eaton, Kann, Kinchen, Shanklin, Ross, Hawkins, et al. 2007). Potential consequences of adolescent alcohol use include: a) school problems, such as higher absence and poor/failing grades, b) social problems, such as lack of participation in youth activities, c) health problems, such as disruption of normal physical and sexual development, illness and potential death from alcohol poisoning and d) later issues in adulthood such as employment problems, other substance abuse, and criminal behavior (U.S. Department of Health and Human Services, 2007; Youth Risk Behavior Surveillance System, 2007). In addition, adolescents who begin drinking before age 15 are four times more likely to develop alcoholism than those who begin drinking at 21 (Grant & Dawson, 1998; Hingson & Winter, 2006). Adolescents ages 13 to 15 are the age group that is most at risk to start drinking (NIAAA, 2007). In addition, this age group has been discussed as a primary group for interventions as during these early adolescent years, when they are entering high school, they are both exposed to greater levels of peer risk behaviors and also must start making important decisions on their own (Jessor, 1992; Lerner & Galambos, 2003; Steinberg & Morris, 2001). As such, they should be a

primary population to target in studies and interventions. These statistics highlight the importance of studying the social-cognitive antecedents of adolescent alcohol use.

The notion that adolescents' risky health behavior is influenced by their social environment is widely accepted in both the general population as well as the scientific one. When asked, most lay people will mention peer influence as a primary reason why adolescents engage in risky behaviors, such as drinking alcohol (Lloyd & Anthony, 2003). These assertions by the general public are supported by research indicating that peer influence is associated with risky health behaviors, such as alcohol and other substance use (e.g., Maxwell, 2002; Santor, Messevey, & Kusumakar, 2000). Research has demonstrated that much of this peer influence is socially based. For example, adolescents' perceptions about other peers' risk behavior, or descriptive norms, has been shown to predict adolescent alcohol use such that if they believe that most of their peers drink alcohol, they are more likely to drink alcohol as well (Borsari & Carey, 2003; Elek, Miller-Day, & Hecht, 2006; Schroeder & Prentice, 1998). In addition, research has shown that the way in which an adolescent views the social image of a typical drinker, or prototype, influences their own decisions to use alcohol (Gerrard, Gibbons, Houlihan, Pomery, & Stock, 2008; Gibbons & Gerrard, 1997). The importance of norm perceptions and prototypes indicate that individual's cognitions about others play a significant role in determining risk behavior. In addition, the idea that people are examining risk images when making decisions about their own behavior implies that people are engaging in social comparison. Research has indicated that peer norms and prototypes have a stronger impact on individuals who engage in the social comparison process more frequently

(Crawford & Novak, 2001). Therefore, it is also important to further examine the role that social comparison orientation plays in relation to peer norms and prototypes.

Chapter 2: Background

Social Networking Sites

One way adolescents gain information about how normative and acceptable certain risk behaviors are, is by using social networking sites, such as Facebook. Currently, there are more than 400 million active users worldwide (Facebook Inc., 2010). The fastest growing segment of Facebook users are adolescents ages 12-17, with 149% increase in new members among this age group over the last two years (Corbett, 2010; Facebook Inc., 2010). Communication on Facebook is facilitated through information posted in the profile (i.e., the user's personal page), which often includes photographs of the member and information describing their interests. Members can view one another's profiles and can communicate through email or online message boards. The most common information that adolescents report viewing about friends in their online network are photos and comments from other users (Pempek, Yevdokiva, & Calvert, 2008). Based on the content of the photos and comments, the adolescents are likely to develop an idea of how normative and acceptable certain behaviors are. In addition, there may be individual differences in how likely one is to compare themselves to the images they see on Facebook. It is therefore likely that an adolescent can learn a great deal by simply viewing Facebook profiles, such as whether or not peers engage in substance use.

Another aspect of Facebook is that users can add friends of varying ages, including older peers. Given that having older friends is associated with substance use among adolescents (e.g., Jacobs & Leonard, 1994; Leatherdale, Cameron, Brown, Jolin, & Kroeker, 2006), it is important to determine how viewing profiles of older peers who

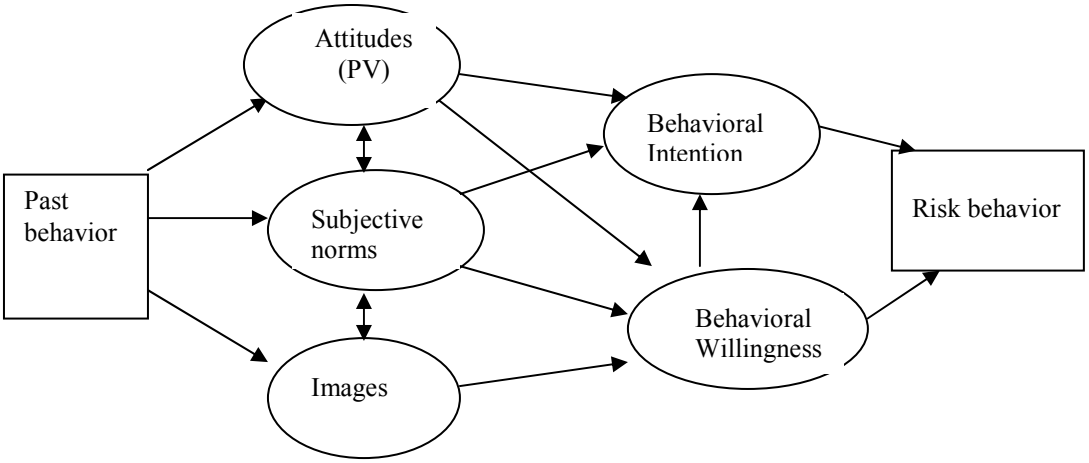
use or abstain from alcohol use influences the alcohol-related cognitions of adolescents. The present study utilized simulations of the Facebook online social networking site in order to examine how viewing Facebook pages of older peers, who either drink or abstain from alcohol, influences cognitions about alcohol use among adolescents.

Prototype Willingness Model

The Prototype Willingness model (PW; see Figure 1; Gibbons & Gerrard, 1995) is a modified dual-processing model designed to improve the predictive value of existing health behavior theories for health risk behaviors. This model combines elements of existing health behavior theories, such as the Theory of Reasoned Action (Fishbein & Azjen, 1975), with a more heuristic approach to decision making (Gibbons, Gerrard, & Lane, 2003). The PW model is similar to other dual processing models of decision making, such as the Cognitive Experiential Self Theory (Epstein, 1973; 1994) and Fuzzy Trace Theory (Reyna, Lloyd, & Brainard, 2003) that have become prevalent in social cognition research (Gibbons et al., 2003). Most dual processing models distinguish between a less effortful, and heuristic-based decision making process and a more reasoned and effortful process (Smith & Decoster, 2000). Like these dual processing models, the PW model assumes that there are two pathways to adolescent health risk: a reasoned path that is mediated by behavioral intention and a social reaction path that is mediated by behavioral willingness. Within the PW model, the reasoned pathway is conceptualized as being analogous to the central or cognitive route that relies on more reasoned processing as seen in The Theory of Reasoned Action, whereas the social reaction pathway is analogous to the peripheral route that relies more on heuristics, including prototypes. Like most dual-process models, the PW model suggests that the

reasoned, intentional processes and the image-based, social reaction process can, and often do, operate simultaneously (Gibbons et al., 2003; Reyna & Farley, 2006).

Figure 1.



The PW model is based on three primary assumptions. First, for young people, more so than adults, behaviors related to health risk are volitional, but not necessarily rational or intentional. This discrepancy between intentions and behavior is not necessarily due to a lack of awareness of their intentions, but instead it is a reflection of the nature of risk behavior as being a reaction to risk-conducive and socially-based environments (Gibbons, Gerrard, Blanton, Russell, 1998). Second, health risk behaviors, such as alcohol use, are social events for adolescents, as they rarely engage in such behaviors alone (Gibbons et al., 1998; Nadler & Fisher, 1992). Finally, because of their social nature, these risk behaviors have clear social images associated with them. When adolescents consider engaging in specific risk behaviors, these images have an impact (Gibbons et al, 1998). Specifically, the model was designed to address the social nature

of health-related risk behaviors in adolescents. It does so by acknowledging that risk behaviors are often reactions to risk-conducive environments that adolescents encounter rather than planned behaviors (Gibbons et al., 2003).

Behavioral willingness. Behavioral willingness is defined as an openness to risk opportunity, or what an individual would be willing to do under certain circumstances (Gibbons & Gerrard, 1997). Individuals who are high in behavioral willingness often have not considered the implications and consequences of risk behaviors. This lack of forethought leaves these individuals to be particularly susceptible to social factors, such as prototypes, and social influence factors, such as perceived norms, and therefore they are more likely to engage in the risk behavior itself (Gerrard et al., 2008; Gibbons & Gerrard, 1997). Willingness measures tap into a general openness to engage in a behavior and do so by asking how willing adolescents would be to react to several different situations in which the opportunity to engage in risk behavior exists (Gerrard et al., 2008).

The PW model suggests that because willingness is less of a pre-determined plan of action and involves less reasoned, more heuristic processing, it is more likely to be altered by social factors than intentions. Along these lines, research has shown that social comparison processes have a greater impact on willingness than on behavioral intentions (Gibbons et al., 1998; Gibbons & Gerrard, 1997; Stock, Litt, & Gibbons, 2010). Research has shown that willingness is malleable, particularly for individuals who do not yet have a lot of experience with the particular behavior (e.g., Gerrard et al., 2008; Gerrard, Gibbons, Brody, Murry, Cleveland, & Wills, 2006; Pomery, Gibbons, Reis-Bergen, & Gerrard, 2009). Because of the malleable nature of behavioral willingness, it is important

to look at potential antecedents of willingness, such as prototypes or social images, attitudes, and perceived vulnerability.

Prototypes. During adolescence, social images gain importance because of the increased concern for social appearance and peer approval that characterizes this life-stage (Finkenauer, Engels, Meeus, & Oosterwegel, 2002; Harter, 1998; Steinberg & Morris, 2001). Adolescents are preoccupied with social images—both their own and of others (Youniss & Haynie, 1992; Chassin, Tetzloff, & Hershey, 1985). Adolescents realize that if they engage in risky behaviors within a social context they may acquire the image themselves (e.g., Gibbons & Gerrard, 1995). In this sense, these social images are social consequences, as well as antecedents of risk behavior (Gerrard et al., 2008). As such, social images and the desire to be more like them, are likely tied with one's identity. One reason adolescents take up specific behaviors, such as drinking, is to become more like the type of person who performs these types of behavior (Chassin et al., 1985; Gerrard et al., 2008; Leventhal & Cleary, 1980). An assumption of the PW model is that people socially compare with both those who engage in a specific behavior, and their own images of the typical person who engages in the risk behavior, and that these images influence willingness to engage in risky behavior. The image associated with peers who engage in a risk behavior has an impact on adolescents' decisions to engage in the behavior, especially because of the social nature of alcohol use.

Past research has shown that adolescents are familiar with prototypes and that these prototypes are associated with attitudes and subjective norms regarding specific health behaviors, such as alcohol use (Gerrard et al., 2008; Gibbons & Gerrard, 1995). In adolescence, favorable prototypes are prospectively related to willingness to drink, more

strongly than they are with intentions (Gibbons et al., 2004; Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999). The more favorable the image is to adolescents, the more willing they are to do the behavior.

Prototypes of alcohol users. Drinker prototypes are assessed by asking adolescents' their perceptions of peers who drink alcoholic beverages, i.e. the characteristics associated with the prototypical peer drinker (Gibbons & Gerrard, 1997). There is evidence that prototype favorability is stable across whether or not someone drinks alcohol such that both drinkers and non-drinkers endorse similar levels of favorability toward prototypical drinkers (Chassin et al., 1985; Gerrard et al., 2002). Furthermore, longitudinal studies have demonstrated that drinker prototypes indirectly predict adolescents' future drinking behavior (Blanton, Gibbons, Gerrard, Conger, & Smith, 1997; Gibbons & Gerrard, 1995; Gerrard et al., 2002) such that having more favorable images of the typical alcohol drinker predicts greater levels of behavioral willingness, which in turn predicts subsequent alcohol use. In addition, holding a favorable prototype of a typical person who drinks alcohol is related to more positive attitudes about alcohol use in general (Blanton et al., 1997; Gerrard et al., 2002).

Prototypes of alcohol abstainers. Most of the research on prototypes has focused on images associated with those who engage in risky behavior. However, studies have shown that adolescents also hold clear mental representations of the type of person who avoids, or abstains from, engaging in health risk behaviors (Blanton et al, 2001; Gerrard et al., 2002; Wills, Gibbons, Gerrard, & Brody, 2000). In fact, abstainer prototypes have been shown to predict behavioral willingness to use alcohol as strongly as user prototypes in adolescence (Rivis et al., 2006). In a series of studies that examined the relationship

between adolescents' images of typical drinkers and non-drinkers and their subsequent alcohol consumption, Gerrard and colleagues (2002) concluded that abstainer images primarily exert an inhibiting effect on risk behavior: wanting to acquire characteristics of the positive image of non-drinkers inhibits willingness to drink among young people. Research has indicated that holding more favorable prototypes of abstainers is directly and positively related to greater willingness to refuse substances (Wills, Gibbons, Gerrard, Murry, & Brody, 2003). The present study will further examine factors that enhance the predictive utility of user and abstainer prototypes, such as perceived norms and the impact of individual differences in social comparison.

Social Norms

Subjective norms, or perceptions of other peoples' attitudes and behaviors, are frequently included in models of health behavior (Ajzen, 1991; Gibbons et al., 2009). Both the PW model and the Theory of Reasoned Action include a measure of subjective norms, which are associated with higher levels of willingness and intentions (Gibbons et al., 1995). The subjective norm construct within the PW model is conceptualized as descriptive norms (perceptions of what others are actually doing; Gibbons et al., 2003). Descriptive norms provide information to an individual that they might use to guide behavioral decisions (e.g. "If everyone else is doing it, I might as well do it too," Cialdini, Kallgren, & Reno, 1991). Research has indicated that the addition of descriptive norms significantly increases the utility of health models in predicting health risk behavior (Rivis, Sheeran, & Armitage, 2003). Peers have been shown to play an important role in the development of attitudes regarding substance use such that adolescents' beliefs of whether or not their peers use substances has been found to be

significantly related to peer use (Borsari & Carey, 2001; Duncan, Duncan, & Hops, 1994; Schier & Botvin, 1997; Jessor et al., 1995; Simons-Morton, Chen, Abroms, & Haynie, 2004). Because observing the behavior of others is one way that information about the normal way to behave is obtained, perceptions of others' behavior may be particularly influential in motivation behavior in adolescents. Indeed, several researchers have argued that social influences from peers, such as how normative behaviors are perceived as being, are the most important predictors in behavior in adolescent populations (Beal, Ausiello, & Perrin, 2001; D'Amico & McCarthy, 2006; Kandel, 1980; Oetting & Beauvais, 1986; 1987).

Research has also indicated that descriptive norms are particularly important to include in models of adolescent health risk because adolescents are unlikely to believe that their parents and, to a lesser extent, peers think that they ought to perform behaviors such as alcohol use. Instead, there is likely to be more variance on a measure of what the adolescent thinks his/her friends are doing (Rivis et al., 2006). Furthermore, research has shown that adding a descriptive norm component to social marketing campaigns greatly increases their behavioral impact (Cialdini, 2003; Cialdini, Reno, & Kallgren, 1990). In addition, injunctive norms require greater processing than descriptive norms for adolescents (Gerrard et al., 2006) indicating that descriptive norms are take less cognitive effort. Together, this research indicates that the inclusion of descriptive norms in models of adolescent risk behavior should improve their predictive value.

Older peers. Research has shown that younger adolescents often consider the behavior of older peers when making risk decisions (Kinsman, Romer, Furstenberg, & Schwarz, 1998). Many adolescents want to act "grown up" and therefore are curious

about how older adolescents behave (Pickhardt, 2007). This is supported by research that has shown that adolescents who have older peer groups are more at risk for alcohol and other substance use than adolescents who do not have older peers (Grant, Bucholz, Madden, Slutske, & Heath, 1998). Furthermore, associating with older peers may accelerate social development, resulting in a higher percentage of adolescents, who report having older peers, reporting alcohol use at earlier ages (Stattin, Gustafson, & Magnusson, 1989). Research has also shown that adolescents who are among the younger students in their schools are at greater risk for substance use if the older students in their school are substance users (Leatherdale et al., 2006). Because substance use increases as adolescents move through the adolescent years (Youth Risk Behavior Surveillance System, 2007), older peer groups are more likely to be alcohol using peer groups.

Norms and the PW model. Perceptions that important others (e.g., peers) engage in the behavior are associated with greater behavioral willingness to engage in risk behavior (Gibbons, Helweg-Larsen, & Gerrard, 1995; Stock et al., 2010). Research has examined how peer influences impact adolescents' drinker prototypes as well as their alcohol consumption (Blanton et al., 1997; Gerrard, Gibbons, Zhao, Russell, & Reis-Bergan, 1999; Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999). These studies demonstrated that having a drinking conducive peer group predicts greater alcohol use by adolescents. One mechanism through which this may happen is the role of prototypes. It has been shown that for adolescents, believing that most of their peer group drinks alcohol is positively related to positive alcohol prototypes (Blanton et al., 1997), which in turn predicts greater willingness to use alcohol. This notion is supported by research on risky sexual behavior that has indicated that prototypes become more favorable and non-

risk prototypes become less favorable as the behaviors associated with these images become more normative (Cleveland, Wills, Gibbons, Gerrard, & Pomery, 2008). Research has also found that an adolescents' peer group's drinking behavior is directly related to their own alcohol use, as well as to positive risk images, which in turn is related to higher willingness to drink and higher drinking levels among adolescents (Blanton et al., 2007). Moreover, perceptions of peer use showed a much stronger relationship with drinker prototypes than did parental alcohol use (Blanton et al., 1997; Ouellette al., 1999).

The importance of norm perceptions suggests that cognitions about others' behaviors play an important role in determining behavioral willingness and risk behavior. It is therefore likely that norm perception will influence how willing people will be to use alcohol. In terms of the present study, one of the primary goals was to examine how normative information influences the variables in the PW model. The present study will use a novel method to manipulate norms by manipulating the content of several simulated Facebook profiles.

Additional Variables in the Prototype Willingness Model

Perceived vulnerability. Most traditional models of health behavior include measures of absolute perceived vulnerability, which is the perception of being vulnerable to the negative consequences associated with the health behavior (Gerrard, Gibbons, & Bushman, 1986; Van der plight, 1998). There is evidence that people's estimates of the likelihood that they will suffer negative consequences from engagement in a risk behavior reflects some awareness of the relationship between their risk behavior and these consequences (Gerrard & Luus, 1995; Gibbons et al, 2008). However, a problem

with most absolute perceived vulnerability measures is that they confound intentions with vulnerability such that individuals who are not intending to engage in the risk behavior will typically report they are not at risk (Gibbons et al., 1998, Weinstein et al., 1998). An example of this is that a low risk estimate from an alcohol drinker might be viewed as optimistic, whereas it would be viewed as accurate from a person who has never had alcohol. One solution to this problem is to use conditional measures of perceived vulnerability, i.e., ask participants what their personal risk would be *if they were* to engage in the behavior. Such measures are useful for people who may or may not believe they will ever engage in a certain behavior, because they are not as closely linked to previous or anticipated behavior (Gibbons, Lane, Gerrard, Pomery, & Lautrup et al., 2002; van der Velde, Hooykaas, & van der Pligt, 1996). Thus, conditional measures allow researchers to assess risk perceptions among people who are not currently engaging in the behavior but may do so in the future. For this reason, it has been suggested that they are better indicators of true perceived risk for a behavior (Rodin, 1992) and as such, are included as a cognitive antecedent of willingness within the PW model.

Perceived vulnerability has been shown to be related to several components of the PW model. Low levels of conditional vulnerability are associated with higher willingness to engage in a risk behavior (Gibbons et al., 1998; Stock et al., 2009). In addition, like willingness, conditional measures of risk are more likely to be influenced by social factors (Gibbons et al., 2004). One social factor that may influence perceived vulnerability is the social norms for a behavior. Within the PW model, believing that a behavior is normative is associated with lower levels of perceived vulnerability to the consequences of risky behavior (Gerrard et al., 2008; Gibbons et al., 2003). However, no

research to date has experimentally examined whether subjective norms, as conceptualized in the PW model, predicts perceived vulnerability. This may occur because if an adolescent believes that all of his or her peers are engaging in a risk behavior, they are less likely to believe that there are negative consequences for performing the behavior. The present study will examine whether descriptive norms influence perceived vulnerability within the PW model using an experimental design.

Affect-based attitudes. Although conditional perceived vulnerability represents the attitude component of the PW model, it is likely that other types of attitudes have an impact on behavioral willingness as well. Attitude toward a behavior is defined as a person's overall evaluation of performing the behavior in question. Most health behavior models conceptualize attitudes as being the result of beliefs and evaluations of those beliefs, which is a relatively analytical process (Fishbein & Ajzen, 1975). However, research has indicated that attitudes can also be conceptualized as being more experiential and heuristic in nature (Ajzen, 2002). Affect is defined as a person's perceptions of "goodness" or "badness" and are likely occur rapidly and automatically (Slovic, Finucane, Peters, & MacGregor, 2002). Although analysis is certainly important in some decision-making circumstances, reliance on affect and emotion is a quicker, easier, and more efficient way to navigate one's surroundings (Slovic et al., 2002). It has been suggested that risk decisions stem more from how people feel about the behavior, rather than what they think about the behavior (Slovic et al., 2002) Because affect-based attitudes are more experiential and reactive in nature (Slovic et al., 2002), it is likely they are related to various components of the PW model. Therefore, a secondary aim of the present study is examine whether affectively based attitudes play a role in the PW model.

Although no published experimental research to date has examined the role of affectively based attitudes in the PW model, their heuristic nature makes them a likely candidate for interaction with other key PW variables, namely behavioral willingness. For example, it is possible that believing that a majority of one's peers are engaging in alcohol use will lead to more positive affective attitudes (e.g. "if most of my peers are using alcohol, it must be good"). Additionally, past experience with alcohol is likely to determine the "goodness" or "badness" an individual associates with alcohol use, and these attitudes in turn are likely to predict behavioral willingness.

Social Comparison as a moderator of PW model. The idea that people are examining risk images when making decisions about their own use implies that people are engaging in social comparison. Social comparison is implicit within the PW model as it is assumed that participants are comparing with specific people or images of certain types of people when considering a risk behavior. These specific images or people are referred to as social comparison targets (Gibbons et al., 2004; Blanton et al., 1997).

Social comparison was originally conceived as a way for people to evaluate themselves in the absence of objective standards (Festinger, 1954). Further research has shown that individuals often engage in upward comparison. Upward social comparison occurs when individuals compare themselves to others who are deemed socially better in some way (Buunk, Kuyper, & Van Der Zee, 2005). People intentionally compare themselves with others so that they can make their self-view more positive. In this type of comparison, people want to believe themselves to be part of the elite, and make comparisons showing the similarities in themselves and the comparison group (Suls, Martin & Wheeler 2002). Because research has shown that adolescents want to be seen as

more mature, experienced, and often older than they really are (Kinsman et al., 1998), it is likely that older peers serve as targets for upward social comparisons.

Building on Festinger's original research, a more recent literature has examined the role that social comparison plays in health-risk behaviors (Gibbons et al., 2003; Gibbons & Gerrard, 1997). This is not surprising given that past research has shown that people's risk judgments and decisions are highly affected by comparative reference points (Kahneman & Tversky, 1979; van der Pligt, 1996). Additionally, in a volume that summarized applications of social comparison theory to health (Buunk & Gibbons, 1997), research indicated that people compare themselves with risk prototypes as well as other people who currently engage in risk behaviors when considering whether or not to engage in risky behavior (Gibbons & Gerrard, 1997). Combined, this research suggests that social comparisons play an important role in decisions to engage in health-risk behaviors.

Individual differences in social comparison. A number of researchers have suggested that certain individuals may be more inclined to engage in social comparison than others (e.g., Gilbert et al., 1995; Hemphill & Lehman, 1991; Taylor, Buunk, Collins, & Reed, 1992). This propensity to engage in social comparisons is frequently referred to as Social Comparison Orientation (SCO; Gibbons & Buunk, 1999). SCO is a dispositional variable referring to individuals' tendency to compare themselves to others. A high SCO individual is someone who is sensitive to the behavior of others and has a degree of uncertainty about the self, along with an interest in reducing self-uncertainty via comparisons with others (Gibbons & Buunk, 1999)

Research has also shown that prototypes have a stronger impact on the associated health behaviors, including alcohol consumption, of young people who are high in social comparison tendencies (Gibbons & Gerrard, 1997; Gerrard et al., 2008). In a follow-up study to previous work using the PW model, Gibbons & Gerrard (1997) included a social comparison scale in order to further investigate the role that comparison plays in the risk image process related to substance use. The results of this study provided evidence that prototypes were most predictive of behavioral change in terms of substance use and changes in behavioral willingness to use substances for those people who reported more frequent social comparisons (Gibbons & Gerrard, 1997). Furthermore, consistent with the assumed role of social comparison in the PW model, favorability of risk images was more strongly related to subsequent risk behavior for those adolescents who frequently engaged in social comparisons, or those who adolescents who were high in dispositional social comparison tendencies (Gibbons & Gerrard, 1995; Stock et al., 2010).

In addition to the work looking at prototypes, recent research has indicated that SCO also moderates the relationship between peer norms for substance use and risk cognitions such that individuals who more frequently engage in social comparisons exhibit a stronger link between perceived peer norms and subsequent alcohol use cognitions and behaviors (Crawford & Novak, 2001). Further support for these findings was found among both a sample of adolescents and a sample of college students, in which results indicated that the highest levels of willingness to use, favorable user prototypes, positive attitudes towards use, and actual substance use were for individuals high in SCO with substance using friends (Stock et al., 2010). Thus, being high in SCO is associated with higher levels of use for those with using friends. However, SCO may also

serve as a protective factor for substance use, such that the lowest levels of use were for high comparing individuals (both in the adolescent and college sample) with low using friends. The results of the study indicate that the perceived norms for peer groups are more strongly related to subsequent risk cognitions for those adolescents who were high in SCO. As such, the present study aims to extend this work by examining the effect that that individual differences in SCO have on the relationships between descriptive norms and the other primary variables within the PW model. Specifically, the present study will manipulate the comparison targets that participants views in order to portray alcohol use as either being normative, or not.

Past Behavior. Researchers have consistently found that past behavior is associated with future behavior (Norman & Conner, 2005; Albarracín & Wyer, 2000). Past behavior has informational value, which can influence one's attitudes, intentions, and expectations (which then predict behavior; Ouellette & Wood, 1998). Research has found that having engaged in a specific behavior in the past is associated with more favorable attitudes toward the behavior (e.g., Bentler & Speckart, 1981), more positive subjective norms (Gerrard, Gibbons, Benthin, & Hesling, 1996) and greater prototype favorability and behavioral willingness to engage in the behavior again (e.g., Gibbons et al., 1998). Because of this, it is important to control for past behavior when conducting the analyses for the present study.

Chapter 3: The Present Study

The present study had the following main objectives. First, the study investigated the role that descriptive norms play on the constructs of behavioral willingness, abstainer and drinker prototype favorability, affectively-based attitudes toward alcohol use and abstaining from alcohol, and perceived vulnerability for alcohol-related consequences within the PW model. Descriptive norms were manipulated by having participants view information on the normativeness of older peers drinking or abstaining from alcohol by viewing comparison targets via profiles from the social networking site, Facebook. A second primary objective was to determine whether SCO moderated the relationship between descriptivenorms (as manipulated via the Facebook profiles) and willingness to use alcohol, user prototypes, abstainer prototypes, attitudes toward use, attitudes toward abstaining, and, perceived vulnerability, in a sample of early adolescents.

The following primary hypotheses were made.

Hypothesis 1a: There will be a main effect of the norm manipulation such that participants in the user condition (those who view primarily user profiles) will be more willing to use alcohol, have more favorable prototypes of alcohol users, less favorable prototypes of alcohol abstainers, have more favorable affective attitudes toward alcohol use, less favorable affective attitudes toward abstaining from alcohol, and lower perceived vulnerability compared to participants in the abstainer condition (who view primarily abstainer profiles).

Hypothesis 1b: There will be a 2-way interaction between the norm manipulation and social comparison orientation (SCO), such that participants who view primarily user profiles and are high in SCO will exhibit the greatest levels of these cognitions and

participants in the abstainer condition who are high in SCO will display the lowest levels of these cognitions.

In addition to testing the primary hypotheses, a series of mediation analyses were conducted in order to determine if prototypes, attitudes and perceived vulnerability mediated the relationship between norms and behavioral willingness, as predicted by the pathways outlined in the PW model.

Method

Procedures

In order to determine an appropriate sample size, a power analysis was conducted using the G*Power3 software program (Faul, Erdfelder, Lang, & Buchner 2007), which was designed as a general stand-alone software program for statistical tests commonly used in social and behavioral research. A power analysis was conducted considering the experimental design of the present study, and using a medium effect size (0.25) and a power of 0.95. Results of the power analysis indicated that in order to meet these criteria, a minimum of 189 participants were needed. Therefore, data were collected from approximately 200 adolescents between the ages of 13 and 15. Recruitment occurred in one of two ways.

General Recruitment Strategy. In order to obtain a large enough sample of adolescents, the researcher compiled a list of local schools and community groups that might be willing to participate in the study. Once the list was compiled, participants were recruited in a manner appropriate to the specific site.

Private school recruitment. One subset of adolescents was recruited through local private schools. The researcher contacted the school principal and told him or her about

the research project (see Appendix A for script and letter). The principal was informed that upon completing the study, his/her students would receive GWU paraphernalia, such as pens and pencils, as well as an informational pamphlet on the dangers of drinking alcohol. If the principal agreed to allow their students to participate, the researcher coordinated a time with the school and its teachers to collect data from students. Participant recruitment then occurred by sending home letters to all eligible students and their parents, along with a parental consent form (see Appendix B). The letter informed the parents that the purpose of the study was to examine the role internet social networking sites may have on alcohol-related attitudes of younger adolescents. They were told that some questions are hypothetical and some would ask about actual underage drinking. The parents were informed that they needed to return the consent form, via mail in a pre-addressed and stamped envelope, by a certain date in order for their child to be eligible for the study. Consent forms that were received were stored in a locked filing cabinet.

On a date determined with the school, the researcher administered the survey to any student who had parental consent. Depending on the preference of the school, and available space, the surveys were administered in one of two ways: 1) students who had received parental consent were gathered together and taken to a separate room and given the consent information and survey packets or 2) students who obtained parental consent remained in the same classroom as their peers who did not get parental consent. For the scenario where everyone remained in the same classroom, the instructions were read out loud to the class, but only those students with parental consent received the teen consent form and survey packet, while students without parental consent received a packet of word puzzles.

Students who had parental consent were given an adolescent consent form (see Appendix C) and survey packet (see Appendix D). The consent form told adolescents that the purpose of the study was to examine the relationship between internet networking sites (such as Facebook), personality, and health behaviors, such as alcohol use. The participants were instructed to read the consent form first, and if they consented, to mark with an "X" on the consent form next to where it said "Yes, I agree to participate in the study" or "No, I do not want to participate in this study." The students who indicated that they consented to participate then began the survey packet.

After completing the survey, the students were debriefed as a class and given the opportunity to ask questions. As requested by the institutional review board, all students, regardless of whether they completed the survey or not, were given an information pamphlet about the dangers of drinking alcohol (see Appendix F). Those students who completed the survey were also given GWU paraphernalia.

Community-based recruitment. The second recruitment strategy focused on gaining a community sample of adolescents. The researcher contacted local community groups (e.g., Jewish youth groups and swim teams) and followed the same protocol as described with the school samples, with minor modifications (e.g. collecting data after school hours).

The study instruments and protocol were approved by the University's Institutional Review Board.

Administration. Participants were each randomly assigned to one of two different conditions: (1) primarily alcohol users; (2) primarily alcohol abstainers. After reading the introductory instructions, participants assigned to the alcohol user condition viewed the

profiles of three high schools students who openly drink alcohol and one profile of a high school student who abstains from alcohol use (see Appendix E for example profiles). Participants assigned to the abstainer condition viewed the profiles of three alcohol abstainers, and one alcohol user. All participants saw the same sequence of profiles in each condition. The decision to use a 3:1 stimuli manipulation was based on research that has shown that telling adolescents that either a majority or minority of people engage in certain risk behaviors has led to significant differences in attitudes for a wide array of behaviors, including heavy alcohol use (Kulik, Butler, Gerrard, Gibbons & Mahler, 2008; Perkins, 2002; Polonec, Major, & Atwood, 2006; Smith & Louis, 2008).

Each participant viewed a series of images taken from the internet social networking site, "Facebook." It is important to note that these Facebook profiles were fabricated by the researcher. Images were taken from public domain websites and the researcher fabricated the names and information on the profile pages. Each profile had three photos of the target and a series of comments left on their Facebook pages by friends. In the user condition, the photos of users all contained images of alcohol (beer cans, wine bottles, etc.) and in the abstainer condition, the photos of abstainers were of the target posing for the camera without any alcoholic beverages. In terms of the comments on the Facebook pages, the user condition pages had comments written by friends that alluded to a specific drinking incident or future desire to drink alcohol (e.g. "You were so drunk last night" and "Can you get us some beer for this weekend?"). The comments left on the abstainer's pages were primarily focused around social activities (e.g. "Do you want to go to the movies tonight?" and "What are you doing after school today?"). After viewing all four profiles, each participant rated the profiles they saw on

several different dimensions and then answered questions regarding their alcohol-related cognitions and behaviors.

Measures

Profile Ratings. To determine how favorable each target in the Facebook profiles was viewed, participants rated profile targets on several different statements including "This participant is attractive" and "This student looks like they like to have fun" and "This student is similar to me." Participants were asked to rate their agreement with each statement on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). To create an overall index of how favorable each profile was rated, responses to the first two statements were averaged for each Facebook profile and then added to the response to the similarity item to create an overall index, with higher scores indicating that the target profile was rated as more favorable. All student indices had satisfactory internal validity (all αs > .70).

In order to determine whether the individual profiles (i.e., all drinkers or abstainers) in each condition were viewed similarly, a series of ANOVAs were conducted within each condition. For each condition, the ratings for students 1-3 were compared (i.e. all the user profiles in the user condition compared and then all the abstainer profiles in the abstainer profiles compared). Results indicated that for users, there were no significant differences in profile ratings (F (1,198) = 1.05, p = .40). The same pattern held for the abstainer condition such that there were there were no significant differences in profile ratings (F (1,198) = .97, p = .46). Because the profiles were rated as being similar, the three profiles were combined in order to create an index of profile favorability for abstainers in the abstainer condition (α = .91) and the users in the user

condition (α = .87). The abstainer profile in the user condition and the user profile in the abstainer condition were used to create separate indices.

Behavioral Willingness. The alcohol-willingness measure began with a description of a hypothetical scenario: "Suppose you were with a group of friends at one of their houses. Your friend's parents are gone for the night, and your friend has gotten a hold of some alcohol. If your friend offered you alcoholic beverages, how willing would you be to do each of the following?" Three items assessing willingness to drink followed this statement—"have 1 or two drinks," "drink enough to get drunk," and "stay and drink if you knew you would not get into trouble"—each item was rated on a 7-point scale from 1 (*not at all willing*) to 7 (*very willing*). The three items were combined to create an overall index of willingness (α = .93).

Prototypes. Images of alcohol users and abstainers were introduced with two lead-in statements: "Please think about the type of person your age and gender who drinks (does not drink) alcohol. How much do you think the following words describe your image of that person?" Following each stem were four items with the adjective descriptor stem "How [descriptor] are they?" Each item had a 7-point response scale ranging from 1 (*not at all*) to 7 (*very*). The descriptors were smart, popular, mature, and attractive. In addition, participants were asked to rate how similar they were to the typical user and abstainer on the same 7-point scale. The descriptor items were averaged for each prototype and then added to the similarity score to create an index of prototype favorability (see Gerrard et al., 2006), where higher scores reflect greater favorability of alcohol users and abstainers (αs =.85 and .84 respectively).

Attitudes. Affective attitudes toward alcohol use and abstaining from alcohol were assessed using 3 items per scale (Montano, 1986; Slovic et al., 2002). These items assess participant's immediate response to a set of semantic differential items. The stem for the items read "When you think about using alcohol, (not using alcohol) what comes to mind?" Items include "good to bad", "right to wrong", and "acceptable to unacceptable". All items were scored on a 7-point scale such that higher scores reflect more positive attitudes. Scales were created for attitudes towards alcohol use (α = .87) and attitudes toward abstaining from alcohol (α = .88).

Conditional perceived vulnerability. Conditional perceived vulnerability was assessed by asking the following two items: "If you drank alcohol, how likely is it that you would have a drinking problem in the future?" and "If you drank alcohol, how likely is it you would experience health problems, such as getting sick?" Both items were scored on a scale ranging from 1 (*not at all likely*) to 7 (*very likely*) and averaged to create a composite scale (α = .82).

Social Comparison. Social comparison tendency was assessed by using a subset (5 items) of the Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999) which assesses an individual's propensity to socially compare. Sample items include "If you want to find out how well you did something, how often do you compare yourself (how well you did) with how well other people did?", "How often do you compare the kind of person you are (popular, nice, smart, etc.) with what other people your age are like?" All items were scored on a scale from 1 (*never)* to 5 (*all the time*). Items from the Iowa-Netherlands Comparison Orientation Measures were averaged in order to create an overall index of social comparison tendencies (α = .78)

Drinking Behaviors. Previous alcohol use was assessed by asking one question which asked participants if they had ever drunk beer, wine, wine coolers, whiskey, gin, or other liquor. Participants responded either no or yes.

Facebook Use. Personal Facebook use was assessed by asking participants if they currently have "A Facebook, or other social networking (i.e. Myspace, Twitter) account". If participants answered "yes" they were then asked to report, on average, how much time per week they spend on Facebook or other social networking sites. Responses ranged from "no time" to "more than 2 hours".

Manipulation Check. In order to determine if the main manipulation of condition (user vs. abstainer profiles) was effective, participants were asked to indicate whether most of the high school students' they viewed in the profile drink alcohol or do not drink alcohol.

Perceptions of Use. In order to examine whether the normative manipulation had an impact on descriptive norms, participants were asked to report what percentage of high school students they believe drink alcohol in the last 3 months and what percentage of high school students get drunk from alcohol in the last 3 months. These two percentage items were combined ($\alpha = .88$) to create an index of perceptions of use.

Demographics. Information including gender and age were collected.

Chapter 4: Results

General Analytic Plan

In order to describe the participants, descriptives and frequencies were conducted on all major dependent variables. In addition, correlational analyses were conducted. To take advantage of the continuous nature of SCO, hierarchical multiple regression analyses were used to examine both the main effect of the norm manipulation as well as the hypothesized interaction between SCO and condition. In the first step, condition was entered. In the 2nd step, SCO was entered. In 3rd step, the control variables were entered (age, gender, past alcohol use, and time spent on Facebook)[1]. Finally, in the 4th step, the 2-way interaction between condition and SCO was entered.

In addition to testing the primary hypotheses, a series of mediation analyses were conducted in order to determine if attitudes and perceived vulnerability mediated the relationship between condition and willingness as would be predicted by the PW model. An additional mediation analysis was conducted in order to determine if perceptions of adolescent alcohol use mediated the relationship between descriptive norms as portrayed by Facebook and willingness to use alcohol. All mediation analyses were conducted according to the guidelines set forth by Baron and Kenny (1986).

[1] All analyses were also conducted controlling for site. Results indicated that adding site as a control variable did not have a significant impact on the results.

Descriptives

Demographics. Two hundred participants completed the study (95 males, 105 females). The average age of the participants was 14.5 years (*SD* = .77). Of these participants, 73% reported ever drinking alcohol. Eighty-eight percent of participants reported that they had a current Facebook account and the modal response for time spent on Facebook was at least one hour per week. Data were collected from a total of 7 sites, 5 of which were private Catholic high schools, with the remaining two being a high school swim team and religious youth group, respectively. A majority of the sample was Caucasian. It is important to note that roughly 50% (n = 102) of the participants came from one school, whereas the remaining participants were evenly distributed across the other 6 sites. A total of 5 other sites declined to participate.

Manipulation Check

In order to determine whether participants responded as they should have for the item that asked them whether or not most of the targets in the profiles they viewed drank alcohol, a Chi-square test was conducted for each condition. Results indicated that within the user condition, the frequency distribution (98% yes, 2% no) of yes/no responses did not differ from the hypothesized results ($\chi^2 = .005$, $p = .94$). The same analysis was conducted for the abstainer condition, and also indicated that the frequency distribution (3% yes, 97% no) did not differ from they hypothesized results (($\chi^2 = .002$, $p = .89$) indicating that participants in the abstainer condition also answered this item in the expected manner. Of all participants, one student incorrectly answered the item. Upon further review, this participant was deleted from the analyses because he also provided incorrect perceptions of use percentages, suggesting they either did not read, pay

attention to, or could not comprehend, the information presented in the Facebook Profiles.

Perceptions of use. In order to further determine the effectiveness of the norm manipulation, a one-way ANOVA was conducted for the perceptions of use item. Results indicated that participants in the user condition reported that a significantly greater proportion of high school students had engaged in alcohol use in the last three months than participants in the abstainer condition (*Ms* = 71% vs. 29%; F (1,199) = 17.32, $p <$ .001). This indicates that participants who viewed user profiles perceived that more high school students drank alcohol. These analyses indicate that the manipulation was effective in changing normative perceptions of alcohol use.

Profile ratings. Analyses were conducted to determine if there were condition differences in how favorable user and abstainer profiles were rated. Results indicated that there was a significant condition difference (F (1, 199) = 7.05, $p < .001$) for user profiles such that participants in the user condition viewed the user profiles as being significantly more favorable. However, results indicated that there was not a significant difference between conditions on abstainer profile ratings (F (1, 199) = 3.02, $p = .09$), such that both participants in the user and abstainer condition rated abstainer profiles as being equally favorable. The results of these analyses indicate that condition did have an impact on how favorable users and abstainers were rated, specifically in the user condition.

Randomization Check

In order to determine if there were any errors in randomization, a series of one-way ANOVAs were conducted on condition. Results indicated that there were no significant differences between conditions on any of the key independent and control

variables, including SCO (F (1,199) = .96, p = .38), past alcohol use (F (1,198) = 1.08, p = .30), time spent on Facebook (F (1,199) = .52, p = .43), age (F (1,194) = .30, p = .51), or gender (F (1,198) = .00, p = .99).

Correlations

As presented in Table 1, perceptions of alcohol use were positively associated with greater behavioral willingness, more favorable user prototypes, more positive attitudes toward alcohol use, as well as demographic variables of age and past alcohol use (all ps < .05). In addition, the user profile ratings were associated with greater willingness, user prototype favorability, and attitudes toward alcohol use (all ps > .05). Additionally, user profile ratings were associated with lower perceived vulnerability, less favorable abstainer prototypes, and less favorable attitudes toward abstaining (p < .05). On the other hand, abstainer profile ratings were negatively correlated with willingness, user prototype favorability, and attitudes toward alcohol use and positively associated with perceived vulnerability, abstainer prototypes, and attitudes toward abstaining (ps < .05). SCO was not significantly correlated with any of the major dependent variables (ps > .10). As expected, there were significant inter-correlations between all primary variables within the PW model including willingness, prototypes, perceived vulnerability, and affective attitudes (all ps < .05). Additionally, age was positively associated with perceptions of use, user prototypes, and attitudes toward alcohol use such that older adolescents reported higher levels of all constructs (ps < .05). Gender was positively correlated (p < .05) with perceived vulnerability such that females reported greater levels of perceived vulnerability to the consequences of alcohol use than males. Finally, greater time spent on Facebook was positively associated with greater perceptions of alcohol use

among high school students, willingness to use alcohol, more favorable user prototypes, and more positive attitudes toward using alcohol (ps < .05).

Table 1

Means, Standard Deviations, and Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Condition	-															
2 SCO	.07															
	.18**	.01														
	.15**	.05														
	.11*	.04			-											
	-.07	.06	.06			-										
	.12*	-.04	.24**			-.45**	-									
	-.02	.07	-.16*													
	-.13*	.08	-.08	-.49**	-.37**											
	.05	.06	.13*	.13*	.30**											
	.04	-.03	.22**	.15*	.24**											
	.00	.09	.06	.00	.06											
	.07	.13	.18*	.41**	.33**											
	.08	.00	.20*	.67**	.45**											
	.18*	.00	.29**	.45**	.54**			-.33**	-.15**	.23**	.17*	.14	.19**	.39**	-	
	-.10	.15*	-.10	-.30**	-.18**		-.20*	.26**	.29**	.20**	.00	.30*	-.05	-.29**	-.10	-
		3.45	56.13	2.61	6.99	9.99	2.82	6.05	5.25	3.07	14.51			2.61	6.67	8.19
		.80	18.17	2.01	2.46	2.24	1.28	1.13	1.31	2.10	.77			2.03	2.10	2.67
		1-7	0-100	1-7	1-14	1-14	1-7	1-7	1-6	1-5				1-7	1-14	1-14

Regressions: Condition x SCO

Willingness. Regression analyses were conducted in order to determine if there was a main effect condition and the interaction between norms and social comparison predicted behavioral willingness. Past use had a significant effect on willingness such that ever having used alcohol was predictive of greater willingness to use (β = .40, t = 5.99, p > .01; see Table 2). Results also indicated that controlling for age, gender, past use, and time spent on Facebook, there was a significant main effect of condition on willingness (β = .13, t = 1.96, p < .05), such that participants in the user condition reported greater willingness to engage in alcohol use. The SCO main effect (β = -.09, t = .81, p = .42) and the interaction between condition and SCO were not significant (β = .15, t = .45, p = .65).

Table 2

Willingness to use alcohol

Variable	Unstandardized Coefficients	Standardized Coefficients	*t*-value	*p*-value
Age	.22	.09	1.33	.18
Gender	.13	.04	.52	.61
Time on Facebook	.08	.09	1.25	.21
Past Alcohol Use	1.7	.40	5.99	.00
Condition	.41	.13	1.96	.05
SCO	-.20	-.09	.81	.42
SCO*Condition	.14	.15	.45	.65

Note: Final Step in regression analysis.
Gender coded (0 = male, 1 = female)
Condition coded (0 = abstainer, 1 = user)

User Prototypes. Past use was a significant predictor of user prototypes (β = .28, $t = 4.16$, $p < .001$) such that ever having used alcohol predicted more favorable user prototypes. In addition, greater time spent on Facebook predicted more favorable alcohol user prototypes (β = .24, $t = 3.62$, $p < .01$). Condition entered in as significant (β = .14, $t = 2.00$, $p < .05$) such that being in the user condition predicted more favorable user prototypes. However, condition was no longer significant in the final step (β = .10, $t = 1.59$, $p = .14$). SCO (β = .06, $t = .29$, $p = .77$) and the condition by SCO interaction (β = .10, $t = .28$, $p = .78$) were not significant.

Table 3

User Prototypes

Variable	Unstandardized Coefficients	Standardized Coefficients	*t*-value	*p*-value
Age	.05	.03	.47	.63
Gender	.07	.03	.44	.42
Time on Facebook	.28	.24	3.62	.00
Past Alcohol Use	1.50	.28	4.16	.00
Condition	1.02	.10	1.59	.14
SCO	.29	.06	.29	.77
SCO*Condition	.11	.10	.28	.78

Note: Final Step in regression analysis
Gender coded (0 = male, 1 = female)
Condition coded (0 = abstainer, 1 = user)

Attitudes Toward Alcohol Use. Results indicated there was a significant main effect of time spent on Facebook such that greater time spent on Facebook predicted more favorable attitudes toward alcohol use (β = .14, $t = 2.04$, $p < .05$; see Table 4). In addition ever having used alcohol predicted more favorable attitudes towards alcohol use

(β = .46, t = 6.44, p < .001). Significant main effects were also found for both condition (β = .62, t = 2.21, p < .01) and SCO (β = -.52, t = -2.20, p < .01) such that participants in the user condition and those with lower SCO reported more favorable attitudes toward alcohol use. Finally, there was a marginal interaction between condition and SCO predicting attitudes toward using alcohol (β = .60, t = 2.09, p < .10) indicating that the highest levels of willingness were reported by those in the user condition who had lower levels of SCO.

Table 4

Attitudes Toward Alcohol Use

Variable	Unstandardized Coefficients	Standardized Coefficients	*t*-value	*p*-value
Age	.05	.03	.47	.63
Gender	.07	.03	.44	.42
Time on Facebook	.09	.14	2.04	.04
Past Alcohol Use	1.27	.46	6.44	.00
Condition	1.52	.62	2.21	.03
SCO	-.69	-.52	-2.20	.01
SCO*Condition	.36	.60	1.09	.08

Note: Final Step in regression analysis
Gender coded (0 = male, 1 = female)
Condition coded (0 = abstainer, 1 = user)

Perceived Vulnerability. There was a significant main effect of past alcohol use such that having used alcohol in the past was associated with lower perceived vulnerability (β = -.24, t = -3.38, p < .01; see Table 3). Results also revealed a significant main effect of condition such that participants in the user condition reported lower perceptions of perceived vulnerability (β = -.12, t = -1.98, p < .05). There was no main

effect of SCO (β = -.17, *t* = -.91, *p* = .42). Furthermore, the interaction between condition and SCO was not significant (β = .49, *t* = 1.36, *p* = .17).

Table 5

Perceived Vulnerability

Variable	Unstandardized Coefficients	Standardized Coefficients	*t*-value	*p*-value
Age	-.01	-.00	-.10	.92
Gender	.32	. 12	1.74	.08
Time on Facebook	-.03	-.05	-.64	.52
Past Alcohol Use	-.70	-.24	-3.38	.00
Condition	-.32	-.12	-1.98	.04
SCO	-.28	-.17	-0.91	.42
SCO*Condition	.31	.49	1.36	.17

Note: Final Step in regression analysis
Gender coded (0 = male, 1 = female)
Condition coded (0 = abstainer, 1 = user)

Attitudes Toward Abstaining From Alcohol. Past alcohol use was a significant predictor of less positive attitudes toward abstaining (β = -.24, *t* = -.3.29, *p* < .01). Results also indicated that the main effects of condition (β = -.13, *t* = -.40, *p* = .69), and SCO (β = .16, *t* = .73, *p* = .47) were not significant predictors of attitudes toward abstaining. The interaction between condition and SCO was also not significant (β = -.15, *t* = -.42, *p* = .68).

Abstainer Prototypes. Results indicated that the main effects of past use (β = -.09, *t* = -1.18, *p* = .25), condition (β = -.06, *t* = -.20, *p* = .84), and SCO (β = .05, *t* = .24, *p* = .81) were not significant predictors of abstainer prototypes. The interaction between

condition and SCO on abstainer prototypes was also not significant (β = .01, t = .03, p = .97).

Additional Analyses

Mediation analyses. In order to better understand the impact that the norm manipulation had on willingness, mediation analyses were conducted. The specific mediation paths tested were derived from the PW model. Specifically, the mediation analyses conducted examined both attitudes toward alcohol use and perceived vulnerability as potential mediators of the relationship between condition and willingness. All analyses controlled for age, gender, past use, and time spent on Facebook. All mediations followed the guidelines set forth by Baron and Kenny (1986) such that in the first step, willingness was regressed on the normative manipulation in order to show that there is an effect to be mediated. In the second step, the mediator variable was regressed on condition. Next, willingness was regressed on the mediator variables. Finally, to establish that full mediation of the condition to willingness relationship, the effect of condition on willingness was tested controlling for the mediator.

Attitudes Toward Use Mediation. As expected, results indicated that participants in the user condition reported greater willingness to use alcohol (β = .14, t = 2.10, p < .05). In the second step, attitudes toward alcohol use were regressed on condition. Also as expected, participants in the user condition had more favorable attitudes toward alcohol use than those in the abstainer condition (β = .13, t = 1.98, p < .05). In the final step of the analysis, there was a significant relationship between attitudes toward use and willingness (β = .60, t = 10.19, p < .001) such that more favorable attitudes toward

alcohol use predicted greater willingness to use alcohol, while the relationship between condition and willingness became non-significant (β = .06, t = 1.25, p > .10). Results of a Sobel test (2.07, p < .05; Sobel, 1982) further indicated that attitudes toward alcohol are a significant mediator between condition and willingness (see Figure 2).

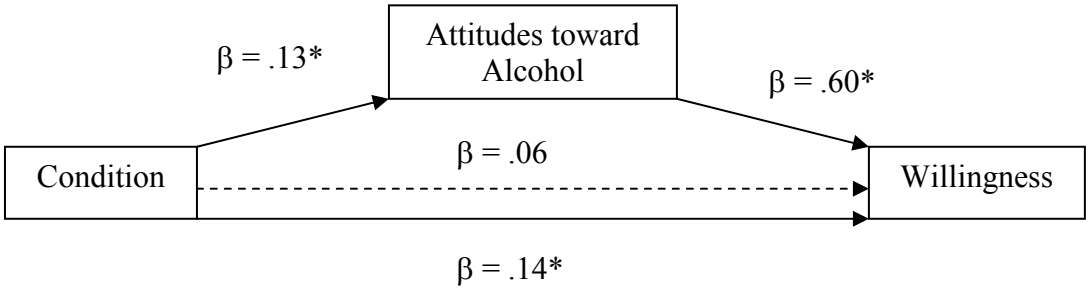


Figure 2. Regression coefficients demonstrating mediation of the effect of condition on willingness by attitudes toward alcohol. Note: * denotes p < .05, dashed line indicates the path when attitudes to alcohol are entered into the model.

Perceived Vulnerability Mediation. As found in the regression above, participants in the user condition reported lower perceptions of vulnerability than those in the abstainer condition (β = – .13 t = 2.01 p < .05). The relationship between perceived vulnerability and willingness (β = -.41, t = 6.74, p < .001) revealed that lower perceived vulnerability predicted greater willingness to use alcohol. The relationship between condition and willingness became non-significant when perceived vulnerability was entered in to the equation, (β = .06, t = 1.02, p > .10). Results of a Sobel test (3.00, p < .01; Sobel, 1982) further indicated that perceived vulnerability functioned in much the

same way as attitudes towards alcohol, and was a significant mediator between condition and willingness to use alcohol (see Figure 3).

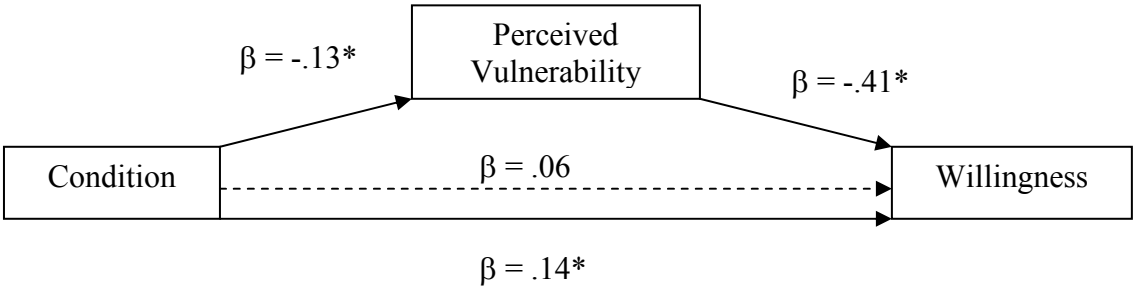


Figure 3. Regression coefficients demonstrating mediation of the effect of condition on willingness by perceived vulnerability. Note: * denotes $p < .05$, dashed line indicates the path when perceived vulnerability was entered into the model.

Perceptions of Use as a Mediator. In order to further determine the mechanism by which descriptive norms, via Facebook, influenced behavioral willingness, a mediation analysis was conducted whereby perceptions of use were tested as a mediator between condition and willingness. Results indicated that participants in the user condition reported greater perceptions of use than those in the abstainer condition ($\beta = .15$, $t = 2.01$ $p < .05$). The relationship between perceptions of use and willingness ($\beta = .22$, $t = 3.28$, $p < .001$) revealed that greater perceived alcohol use among high school students predicted greater willingness to use alcohol. The relationship between condition and willingness became non-significant when perceptions of use were entered in to the equation, ($\beta = .01$, $t = 1.01$, $p > .10$). Results of a Sobel test (2.16, $p <$

.01; Sobel, 1982) further indicated that perceptions of use mediated the relation between condition and willingness to use alcohol (see Figure 4).

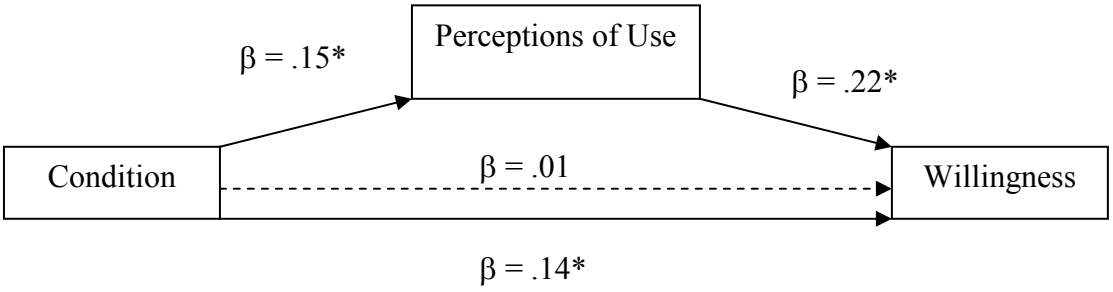


Figure 4. Regression coefficients demonstrating mediation of the effect of condition on willingness by perceptions of use. Note: * denotes $p < .05$, dashed line indicates the path when perceived vulnerability was entered into the model.

Examining Intentions. Because the PW model includes intentions as a proximal antecedent to behavior through the reasoned path (Gerrard et al., 2008; Gibbons et al., 1998; Gibbons & Gerrard, 1997), it is important to determine whether norms also influence intentions. Examining whether intentions were influenced by descriptive norms will help examine if social norms as conceptualized in the social reaction pathway have a stronger impact on willingness than intentions. In order to determine whether intentions were predicted by condition, SCO, and the interaction between them, a hierarchical linear regression was conducted.

Intentions to use alcohol were assessed by asking how strongly participants agree with the statement "I intend to drink alcohol within the next 3 months." The single item was scored on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results indicated that of the control variables, only past use was a significant predictor of intentions to use such that ever having used alcohol predicated greater intentions to use alcohol ($\beta = .37$, $t = 5.54$, $p < .001$). The main effects of condition ($\beta = -.06$, $t = -.26$, $p = .79$), and SCO ($\beta = .08$, $t = .41$, $p = .68$) were not significant predictors of intentions to use alcohol. In addition, the interaction between condition and SCO on intentions ($\beta = -.24$, $t = -.70$, $p = .49$) was also not significant. These results imply that intentions to use alcohol were not influenced by either the norm manipulation or individual differences in social comparison. This provides evidence that at least for adolescent alcohol use, behavioral willingness is more malleable than intentions.

Chapter 5: Discussion

The assertion that adolescents' risky health behavior is influenced by perceptions about their peers' risk behavior, or descriptive norms, has been supported by research indicating that if adolescents believe that most of their peers drink alcohol, they are more likely to drink alcohol as well (e.g., Borsari & Carey, 2001; Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006; Schroeder & Prentice, 1998). The relationship between descriptive norms and use has been shown to be particularly strong for adolescents who have slightly older peer groups who engage in alcohol use (Grant et al., 1998; Kinsman et al., 1998; Leatherdale et al., 2006). Despite the well known relationships between peer norms and alcohol use, little research to date has examined how norms for slightly older peers, whom younger adolescents likely want to emulate, influence risk cognitions that have been shown to predict future alcohol use. The present study aimed to fill this gap in the literature by examining the role that normative information plays on the constructs of prototype favorability, behavioral willingness, and perceived vulnerability within the PW model. In addition, the present study examined whether affectively based attitudes are influenced by norms and in turn if these affective attitudes predict willingness to use alcohol. Finally, the present study aimed to determine whether the tendency to engage in social comparison moderated the relationship between norms and alcohol risk-cognitions.

Descriptive Norm Manipulation

As hypothesized, participants who viewed Facebook profiles that portrayed alcohol use as being normative reported greater willingness to use alcohol, more positive

attitudes toward alcohol use, and lower perceived vulnerability to the consequences of drinking alcohol than those participants who viewed alcohol use as being non-normative. In addition, the results indicated that norms have an indirect effect on behavioral willingness through both perceived vulnerability and attitudes toward alcohol use .These results indicate normative information can have both direct and indirect impact on several key risk-related cognitions in the PW model. However, contrary to the hypotheses, norms did not have a significant influence on abstainer prototypes and attitudes toward abstaining. It is important to note that there was a significant main effect of norms on user prototypes when norms were entered in the first step.

Additionally, as evidenced by a follow-up mediation analysis, the normative manipulation also had a significant impact on perceptions of alcohol use among high school students. This is important to note becauseit provides evidence that norms, as conveyed by Facebook, can impact a person's normative perceptions. These perceptions in turn, are likely to lead to greater willingness to use alcohol in the future. Thus, Facebook use does not directly and immediately lead to alcohol risk cognitions, but rather works through transforming normative perceptions.

Norms and prototypes. The fact that norms did not have a significant impact on prototypes is surprising given that one of the hypothesized pathways in the PW model is between norms and prototypes (Blanton et al., 1997; Cleveland et al., 2008). It is possible that since participants were given actual images of users and abstainers, their prototypes were not as salient as their favorability of the students in the profiles they actually viewed. The profile rating items came before the prototype items and were a more direct measure of image favorability, thus it is possible that the prototype measures did not have

as strong of an effect as they would have if they had been viewed first. Instead, the social images based off the content in the Facebook profiles were likely more salient. Evidence for this assertion comes from additional post-hoc analyses that indicated that there was a significant effect of the norm manipulation on user profile ratings. In addition, post-hoc analyses indicated that overall images (combination of profile ratings and prototypes), predicted willingness to use alcohol more strongly than did prototypes alone. Future research involving specific comparison targets should examine whether adding favorability ratings of actual comparison targets to those of general social images (prototypes) strengthens the prediction of willingness.

In addition to the prototype measurement issues, it is also possible that the norm manipulation did not have a significant effect on abstainer prototypes and attitudes toward abstaining because by definition, abstaining is not risky. Research has shown that because adolescent risk behavior is often public and typically very salient, risk images tend to have more of an impact on teens than on other types of images, including abstainer images (Gibbons & Gerrard, 1997; Gibbons et al., 2003). In addition, research has shown that normative images have less of an impact on risk cognitions (Blanton, Stuart, & vandenEijnden, 2001; Helweg-Larsen & Collins, 1994), and since in the present study, participants reported that roughly 2/3 (68%) of their close friends abstain from alcohol, abstainer images may have simply not been as salient as user images. Finally, it is possible that the Facebook profiles did not adequately portray abstaining as they did not explicitly mention that the students abstain. In this way, the abstainer profiles may have actually served more as a control condition, and thus wouldn't be expected to exert influence on abstainer prototypes and attitudes.

Overall, the results of the present study indicate that descriptive norms consistently predict risk cognitions in an adolescent sample. This provides further evidence for the assertion that descriptive norms are a powerful source of social influence in adolescence and should be included in models of health risk behavior (Cialdini, 2003; Gerrard et al., 2008; Rivis et al., 2006).

Importance of normative perceptions. Additional analyses indicated that the content adolescents viewed on Facebook significantly altered their perceptions of alcohol use among high school students. That is to say that Facebook exposure did not directly increase their willingness to use alcohol, but rather impacted their normative perceptions of use, which in turn lead to greater willingness. These reports are important to note because it is the first study to date that indicates that exposure to alcohol related information on social networking sites can influence how normative and acceptable an adolescent views drinking to be. Correlation analyses also indicate that there is a relationship between normative perceptions and other variables within the PW model, including attitudes, prototypes, and perceived vulnerability.

Examining intentions. Another important finding to note is that exposure to information that portrays alcohol use as normative did not influence intentions to use alcohol. It is not entirely surprising that intentions were not significantly impacted by descriptive norms because intentions are based more on past behavior and have been shown to be less susceptible to social influences among adolescents (Gibbons et al., 2009; Gibbons et al., 1998; Pomery et al., 2009). It is important to note that intentions may be more predictive of use for older adolescents who have more experience with alcohol use. The results of this study indicate that in adolescence, behavioral willingness

is more likely to be affected by socially and heuristically based cognitions than intentions (Gibbons & Gerrard, 1997; Gibbons et al., 2008). Indeed, research has shown that behavioral willingness is more likely to be influenced by brief socially-based interventions than intentions are (Gerrard et al., 2008; Gerrard et al., 2006).

The Moderating Role of Social Comparison

Previous research that has shown that SCO moderates the relationship between friend use and adolescent substance use (Crawford & Novak, 2001; Stock, et al., 2010). Based on this, and the research that has shown that social comparison is implicit within the PW model (Gibbons et al., 2004; Blanton et al, 2001), it was hypothesized that SCO would moderate the impact of norms on willingness, prototype favorability, perceived vulnerability and affective attitudes. Generally, the results indicated that SCO did not significantly interact with the norm manipulation for any of the risk-related cognitions.

One potential reason for this may be that because alcohol use is a specific domain of health risk behavior, global measures of SCO may not have moderated the impact of norms on other risk-related cognitions. Research on SCO has suggested that people may compare more and less frequently in different domains (Gibbons & Buunk, 1997), and as such, perhaps a more specific measure of SCO that captures image and popularity based comparisons may be a stronger predictor of alcohol-related cognitions. Because research has shown that adolescent alcohol use is closely tied to notions of popularity and maintaining a favorable social image (Chassin et al., 1985; Diego, Field, & Sanders, 2003), SCO items that are more directly tied to notions of popularity and impression management may be more appropriate. Preliminary findings from the present study indicate that indeed, the two items from the SCO scale that specifically mention

popularity are more closely associated with profile ratings and prototypes than the other SCO items. Another potential reason that the general measure of SCO didn't have an impact on risk-related cognitions is that only five items from the full SCO scale (Gibbons & Buunk, 1999) were used. Although this subset of items has been used in previous research with adolescents (Gerrard et al., 2006; Gibbons et al., 2003), it is possible that the five items did not adequately capture the propensity to socially compare in this particular sample.

The Prototype Willingness Model

The present study also provides further support for the relationships between variables in the PW model. Specifically, adolescents who viewed Facebook content portraying alcohol use as normative reported higher perceptions of alcohol use in high school students, more positive attitudes toward using alcohol, and lower perceived alcohol-related risk. Furthermore, the present study indicates that affective attitudes play a similar role to prototypes and perceived vulnerability within the PW model, such that they also mediate the relationship between norms and willingness. Notably, this is the first study to date that has directly examined the role of manipulating norms within the context of the PW model and provides evidence that social norms, at least in this age group, are indeed malleable, and predict a variety of risk-related cognitions.

Limitations

In spite of the important findings derived from the present study, there are still limitations that need to be addressed. First, the participants in the present study were not ethnically or socio-economically diverse. Because a majority of the participants were White students at private high schools, it is not clear how the findings of this study would

generalize to other populations. Additional research then needs to be conducted with different populations in order to replicate the findings and discover more about the role that norms play within the PW model and on health behavior more generally.

In addition, the distribution across sites was uneven, making generalization more difficult. It is possible that the results were primarily driven by the site with the largest sample size. Because of the uneven distribution and unequal variances for the sites, results of a standard student *t*-test would not be robust (Markowski & Markowski, 1990). However, it is important to note this limitation and for future research to focus on ascertaining a more representative sample.

Another limitation is that the profiles that the participants viewed were not counterbalanced such that in each condition, participants viewed only one order of profiles. It is possible that there were order effects that influenced how favorable abstainers versus users were viewed. Perhaps participants who viewed three users and then one abstainer automatically rated the abstainer as less favorable because it was the last thing they saw. However, the results of this study indicate that this may only be true for the user profiles, as analyses indicated that abstainer profiles were not rated more positively in the abstainer condition than the user condition.

Finally, although norms were shown to be malleable in this age group, research has shown that as adolescents enter young adulthood, they are less susceptible to social influences, including peer norms (Steinberg & Monahan, 2007; Sumter, Bokhorst, Steinberg, & Westenberg, 2009). It is therefore possible that the results found in this study would not hold for a slightly older population. Additional research should examine whether older adolescents are as susceptible to descriptive norms as portrayed via

Facebook. Finally, research should examine whether norms, via Facebook, for same-aged peers exert the same influence on risk-cognitions.

Future Research

Although the present study adds important knowledge to the existing literature on social influences on adolescent alcohol use, there are still several avenues for future research. An important direction to pursue is to further examine the role of affective-based attitudes within the PW model. This study provides evidence that these more heuristic-based attitudes do indeed function within the PW model as they are predicted by descriptive norms, but more research is needed to fully examine the relationships between affective attitudes and the other key PW variables. Future research should also examine how SCO, and more specifically a domain-specific SCO, influences risk behavior, especially when people are making frequent comparisons with risky/non-risky counterparts. It is possible that a more domain-specific SCO measure would accurately capture the role that image-based social comparisons may play on prototype favorability.

Furthermore, the findings of this study point to a need for longitudinal research on the role of normative interventions and their impact on risk cognitions over time with actual alcohol use as the primary dependent variable. It is important to determine how repeated and long-lasting exposure to normative information, via actual peers on social networking sites influences risk cognitions over time. Longitudinal studies could also provide insight into the role that norms plays in tandem with experience with to shift decision making from a more social and reactive process, to one that is more rational (Gerrard et al., 2008; Pomery et al., 2008). It is possible that as an adolescent gains more experience with drinking behavior and/or views drinking as being normative, the images

they view on Facebook will not have as strong of an impact on their alcohol-related risk cognitions.

Another possible line of future research should examine other individual difference variables that may moderate the relationship between norms and risk cognitions. Possible individual differences that may moderate this relationship include self-esteem, the need to belong, self-monitoring tendencies, and risk-taking tendencies. Future research should examine these possibilities in order to determine if certain individuals are more influenced by social norms for alcohol use than others.

Finally, the present study is one of the first to examine the role that Facebook plays in alcohol use, and future research should continue to examine how exposure to Facebook content influences risk-related cognitions. More research is needed to fully understand what content, either photos or wall posts, are the most influential. In addition, research should focus on determining the mechanisms through which this information is integrated into the decision-making process. It is also possible that the relationships found in the present study extend to other health risk behaviors, such as tobacco and other substance use. Additionally, future research should determine whether time on Facebook coupled with the content of profiles also influences other health risk behaviors. Finally, with the proliferation of other social networking sites such as Twitter and Myspace, it is important to determine whether certain formats and social networking venues have the same impact on risk behavior as does Facebook.

Implications for Intervention.

Researchers and public health officials have cited adolescent alcohol use as a major public health concern (Monitoring the Future, 2009; NIAAA, 2007) and as such,

have called for research that can inform effective prevention practices. Results of this study indicate that there are several social factors that could be targeted when creating interventions.

First, in light of the findings that exposure to Facebook profiles that contain alcohol and greater time spent on Facebook both predict riskier cognitions as evidenced by correlations and main effects in the regression analyses, it is important for interventions to consider the role that Facebook and other social networking sites may play on risk behavior. Interventions could focus on limiting the time an adolescent spends on Facebook, as well as the content that adolescents are allowed to view.

Parental monitoring. Limited research has been conducted that has examined the relationship between internet parental monitoring and deviant behavior. Research has shown that parental monitoring of other media, such as television, is related to lower adolescent deviance (Amato & Fowler, 2002; Pettit, Dodge, Bates, & Criss, 2001). Research has also shown that adolescents who are allowed to watch movies that depict alcohol use are significantly more likely to become alcohol users than peers who are not allowed to watch such films (Sargent, Wills, Stoolmiller, Gibson, & Gibbons, 2006). Thus, it is likely that greater parental monitoring of internet activity would predict less deviant behavior, including alcohol use. Currently, only two-thirds of adolescents have rules that limit their time spent on social networking sites (Pew, 2010), however little research has examined whether these rules impact risk behavior. Given that the present study indicated that time spent on Facebook, as well as exposure to alcohol related images on Facebook predict risky alcohol-related cognitions, future interventions should inform parents and teachers about the risk associated with Facebook use, and encourage

them to limit and/or monitor the content their children view on Facebook. In light of the strong effects of media exposure on alcohol use (Anderson, de Bruijn, Angus, Gordon, & Hastings, 2009; Sargent et al., 2006), it is possible that exposure to alcohol-related content in social networking sites may have an even stronger effect. Because social networking sites are by nature more interactive and repetitive, and contain images of actual peers, it is possible that the risks related to social networking sites are greater than other types of media.

Media literacy. In addition to encouraging greater parental monitoring of social networking site use, another viable intervention strategy is to teach adolescents to critically evaluate the content they see on such sites. Previous research has shown that media literacy programs have been broadly effective at reducing risky decision making, including decisions about alcohol (Austin, Pinkleton, Fujioka, 2001; Primack, Gold, Land, & Fine, 2008). Such media literacy campaigns have typically been targeted at television and movie viewing, but are likely relevant for social networking sites as well. Because the present study showed that Facebook content impacted the normative perceptions of XXZX among XXX, it is important to teach adolescents that what they see on Facebook and other social networking sites is not necessarily a full or accurate picture of other people's risk behavior. Future interventions could focus on having adolescents evaluate the content they view on Facebook and encourage them to question what they see.

Dual-Processing models. The findings of the present study also have implications for dual-processing models of health behavior used in designing health interventions. Until recently, a majority of health behavior interventions, especially those for alcohol

use, have been based on the assumption that most health-risk behavior is reasoned (Ajzen & Fishbein, 1975; Albarracin et al., 2001). The findings of the present study, in combination with previous work that has focused on reactive and socially-based health risk behavior decision making (Gibbons & Gerrard, 1995; Gibbons et al., 1998), indicates that aspects of adolescents' decision-making also includes heuristic, social, and reactive elements (Reyna & Farley, 2006). That is not to say that some health risk behavior is not reasoned, but in particular this study indicates that adolescent alcohol use in this age group, where the individuals are less experienced with the risk behavior, is one behavior that likely operates primarily through behavioral willingness. Behavioral willingness and prototypes are responsive to contextual factors (Gerrard et al., 2006), and this is particularly true when the context is social (e.g., includes the presence of peers or friends). Because research has shown that willingness to drink alcohol typically increases over time (Gerrard et al., 2006), making the social images associated with these behaviors less positive and the perceptions of behavior less normative, should slow this natural progression.

Indeed, research has shown that altering a combination of attitudes, prototypes, and willingness can affect subsequent risk behavior, including alcohol use (Gerrard et al., 2006; Gibbons et al., 2005). Interventions using a PW model framework for reducing health risk cognitions in adolescents have been shown to be effective in reducing risk-related cognitions and behaviors in a variety of health domains, including alcohol use (Brody et al., 2004; Gerrard et al., 2005; Gerrard et al., 2006). These interventions have used the PW conceptual model and translated it for use in adolescent populations. To date, interventions based on the PW model have been effective in adolescent populations

by increasing protective factors against substance by making their images of drinkers (i.e. prototypes) more negative and decreasing their perceived similarity to these images, as well as increasing their negative attitudes toward alcohol use as well as their willingness to use (Brody et al., 2004; Gerrard et al., 2006; Murry et al., 2007). The present study extends this literature by showing that normative perceptions can set into motion a series of cognitions outlined by the PW model.

Conclusion

In conclusion, this study highlights the importance of several social factors for adolescent decisions to use alcohol. Namely, this study provides evidence that alcohol use social norms for a slightly older peer group, via a social networking site, influences risk cognitions related to alcohol use. In addition, this is the first study to date to manipulate social norms among adolescents within the PW model. This study demonstrates the need to consider both an individual's perceptions of use based off of the content they view on online social networking sites such as Facebook and suggests that certain individuals, specifically those who perceive that a majority of their peers are using alcohol, may be particularly at risk for using alcohol themselves, and as such are logical targets for prevention efforts.

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Appendix A

School Recruitment Documents

1. Phone Script

Hello, is this XXX?

(if yes, continue)

My name is Dana Litt, and I am a doctoral candidate at The George Washington University in the Psychology department. I would like to discuss a research opportunity for your students. I would like to invite your students, ages 13-15, to participate in a research project that I am conducting in fulfillment of my doctorate. The research is under the guidance of Dr. Michelle Stock, assistant professor of Psychology. The project is designed to study how internet social networking sites (such as Facebook) may affect teenager's attitudes toward alcohol use. The entire study has been approved by GWU's institutional review board in order to ensure the safety and confidentiality of participants.

Would you like more information on this study, the reasoning behind it, and how it will benefit your students?

(if yes, continue)
(if no, thank for their time)

One particular behavior that is of public health concern is underage drinking. According to the 2008 Monitoring the Future survey, more than 50% of 9th graders and 40% of 8th graders have consumed alcohol. One factor predictive of substance use is knowing other students who drink. One way in which many teenagers learn about the drinking behaviors of other students is through internet social networking sites, such as Facebook. The purpose of the study is to examine the role internet sites have on alcohol-related attitudes of younger adolescents. This information is important for designing effective education and prevention programs. It is also important that we gain a greater understanding of the impact of social networking sites on alcohol related attitudes and behaviors, as adolescent membership to networking sites, such as Facebook, is becoming increasingly popular.

Participation in this research involves your students completing a brief questionnaire that assesses the above variables. We would like to work out a time with your students and teachers for us to come into the classroom and administer the questionnaire. The administration will take less than 30 minutes of your students' time.

Because the students are under the age of 18, we will also need parental consent. The way in which we plan on doing this is to send home packets to the parents that contain a letter, similar to this one, that describe the study, as well as a parental consent document. If the parents consent, the students will return the sealed consent form to a designated contact (either you, or their teacher). The researcher will create a list of students who returned the signed consent. On the day that the researchers come to your school, every child with a signed parental consent form will be given an adolescent consent form that informs them of the purpose of the study and their rights as a participant. If they agree to participate, they will be given the brief survey. We are taking several steps to ensure that the responses of your students remain confidential.

Regardless of whether a student completes the survey, all students in the classroom will be given a pamphlet about the dangers of alcohol use, as well as a list of resources for both the teen and parents.

I sincerely hope that you are willing to assist us in our research project. With your help, and the responses of the students, we hope to gain a better understanding of how internet social networking sites influence alcohol attitudes and behavior.

Are you interested working with us on this project?

(if yes, continue)
(if no, thank for their time)

Thank you so much. I will send you an email that contains more details of the project. If you want to continue corresponding with me on this project, that would be great. If not, I am glad to talk with someone else in your school for the remainder of the correspondence.

Thanks again for your time.

Dana

2. Follow-up email script

Dear XXX,

Thank you so much for agreeing to allow your students to participate in our study. As a reminder, participation in this research involves your students completing a brief questionnaire that assesses how internet social networking sites (such as Facebook) may affect teenager's attitudes toward alcohol use. We would like to work out a time with your students and teachers for us to come into the classroom and administer the questionnaire. The administration will take less than 30 minutes of your students' time. We will work with you and your teachers to find a time that will work for us to come into classrooms and administer the survey.

Because the students are under the age of 18, we will also need parental consent. The way in which we plan on doing this is to send home packets to the parents that contain a letter, similar to this one, that describe the study, as well as a parental consent document. If the parents consent, the students will return the sealed consent form to a designated contact (either you, or their teacher). The researcher will create a list of students who returned the signed consent. On the day that the researchers come to your school, every child with a signed parental consent form will be given an adolescent consent form that informs them of the purpose of the study and their rights as a participant. If they agree to participate, they will be given the brief survey. For those students who do not participate, they will be given a packet of word games to complete.

The completed questionnaires will be stored in a locked filing cabinet and will not include any identifying information. The responses from the questionnaires will be entered in a computer database and will not be linked to a specific person. We have taken measures to ensure that responses remain anonymous.

Regardless of whether a student completes the survey, all students in the classroom will be given a pamphlet about the dangers of alcohol use, as well as a list of resources for both the teen and parents.

I sincerely hope that you are willing to assist us in our research project. With your help, and the responses of the students, we hope to gain a better understanding of how internet social networking sites influence alcohol attitudes and behavior.

Please let me know if you have any questions or concerns. I will be keeping in contact with you, or your designated contact, throughout this process to schedule data collection times, and answer any additional questions.

Sincerely,

Dana Litt, M.Phil
Department of Psychology
The George Washington University
dana.litt@gmail.com
202-994-3984

Michelle Stock, Ph.D.
Department of Psychology
The George Washington University
mstock@gwu.edu
202-994-2171

Appendix B

Parental Letter and Consent form

1. Letter

Internet Social Networking Sites, Personality, and Health

date

Dear Parent(s) or Guardian(s),

I am a doctoral student in the Applied Social Psychology program at The George Washington University. I am inviting your teen to participate in a research project that I am conducting. The project is designed to study how internet social networking sites (such as Facebook) may affect teenager's attitudes toward alcohol use.

One particular behavior that is of public health concern is underage drinking. According to the 2007 Monitoring the Future survey, more than 50% of 9th graders and 40% of 8th graders have consumed alcohol. There are several factors hypothesized to be predictive of substance use in adolescents, one of which is having friends who drink. However, little research has focused on the psychological mechanisms that may explain this relationship. One way in which many teenagers keep in touch with their friends is through internet social networking sites, such as Facebook. The purpose of the study is to examine the role internet sites may have on alcohol-related attitudes of younger adolescents. Some questions are hypothetical and some ask about actual underage drinking. Other questions ask about images of drinkers and non-drinkers. This information is important for designing effective education and prevention programs.

Participation in this research involves your child completing a brief questionnaire that assesses the above variables. We have worked out a time with your child's school to administer the survey. In order to complete the survey, parents must give consent for their child. We have enclosed the parental consent document. Please read carefully over this document. If you agree to let your child participate in this study, please sign and date the consent form and place it in the enclosed stamped and self-addressed envelope. Please return the sealed envelope to the researchers by <INSERT DATE HERE>. On <INSERT DATE HERE> the research team will be visiting your child's school. Every child with a signed parental consent form will be given an adolescent consent form that informs them of the purpose of the study and their rights as a participant. If they agree to participate, they will be given the brief survey.

The completed questionnaires will be stored in a locked filing cabinet and will not include any identifying information. The responses from all questionnaires will be

combined and will not be linked to a specific person. We have taken measures to ensure that responses remain anonymous.

Students who complete the survey will be given GW paraphanelia, such as keychains, pens, etc. All students in the classroom will be given a pamphlet about the dangers of alcohol use, as well as a list of resources for both the teen and parents. We encourage you and your child to read over this valuable information together. If you and your child do not want to be involved in this project you can simply discard this information.

Please return the parental consent form in the enclosed stamped envelope BY <INSERT DATE HERE

If you have any questions or concerns regarding this research project please contact Dana Litt, the graduate student in charge of this project, at (202) 994-3984. Thank you for your time.

Sincerely,

Dana Litt, M. Phil.
Doctoral Candidate
The George Washington University

Michelle Stock, Ph.D.
Assistant Professor
The George Washington University

2. Consent Form

Internet Networking Sites, Personality, and Health

IRB # 050912

Dr. Michelle Stock

PARENTAL PERMISSION FORM

I. INTRODUCTION

Your son or daughter is invited to take part in a research study. Before you decide to allow your son or daughter to be a part of this study, you need to understand the risks and benefits. This permission form provides information about the research study. **If you have any questions about the information contained in this form you may contact Dana Litt, the graduate student in charge of this project at (202) 994-3984 or Dr. Michelle Stock, the principal investigator at (202) 994-2171.** If you agree to allow your son or daughter to take part in the research study, please sign this permission form.

II. PURPOSE

The Department of Psychology at The George Washington University is carrying out a research study to better understand the relationships between internet networking sites (such as Facebook), personality, and health behaviors, such as drinking alcohol. Your child's participation in the study will help us better understand the role that internet networking sites play in decisions to drink alcohol. Some of the questions in the questionnaire ask your child to report whether he or she has used alcohol, which is illegal for adolescents. Some of the questions are hypothetical, and some ask about actual behaviors. Your son or daughter will be instructed that may skip any questions that make them uncomfortable. Your son or daughter's academic standing will not be affected by whether or not they participate in the study.

III. PROCEDURES

As a participant in this study we are requesting that your son/daughter complete a brief questionnaire. This questionnaire will require approximately 30 minutes of your son or daughter's time and will be administered at their school during a pre-arranged time. Only those students who have returned signed parental permission forms will be allowed to complete the study.

We have structured this study to ensure that your child's responses will be completely anonymous. This means that no one, besides the research staff, will see your child's

responses. Their name will not be attached to their data. Your child has the right to skip any questions on the questionnaire they feel uncomfortable answering. Also, as indicated below, your child may completely withdraw from the study at any time.

IV. POSSIBLE RISKS

It is possible that some of the questions, especially those about alcohol may make your son or daughter uncomfortable. They will be instructed that they may skip any questions that make them uncomfortable. Also, it is possible that they may have some questions about alcohol after completing the survey. We will be providing a pamphlet to every student that lists some resources for you and your son or daughter about the dangers of alcohol use.

V. BENEFITS

Your son or daughter will receive no direct benefits for his or her participation.

VI. RIGHT TO WITHDRAW FROM THE STUDY

Your child's participation in this research study is voluntary. He or she may decide not to begin or to stop this study at any time.

VII. CONFIDENTIALITY OF RESEARCH RECORDS

No personally identifying information will be collected from your son or daughter (e.g., name, social security number). Your child will not be identified in any reports or publications of this study. Your son or daughter‘s records will confidential. The completed questionnaires will be stored in a locked filing cabinet that will only be accessible by the research staff.

VIII. QUESTIONS

If you have questions about the procedures of this research study, please contact Dana Litt at (202) 994-3984 or Dr. Michelle Stock by telephoning (202) 994-2171. If you have questions about the assent process or any other rights as a research subject, please contact The George Washington University Office of Human Research at (202) 994-2715.

IX. SIGNATURES

By signing this permission form, you affirm that you have read this permission form, the study has been explained to you, your questions have been answered, and you agree to allow your son or daughter to take part in this study. You do not give up any of your legal rights by signing this permission form.

_____

Parent Name

_____

Parent Signature

Appendix C

Adolescent Consent Form

Internet Networking Sites, Personality, and Health

IRB # 050912

Dr. Michelle Stock

TEEN CONSENT FORM

You are invited to take part in a research study. Before you decide to be a part of this study, you need to understand what we will ask you to do. This form provides information about the research study. You may ask the researcher if you have any questions, or if you would like further explanations. If you want to take part in the research study, you are asked to indicate so by checking the "yes, I agree to participate" line at the bottom of this form. If you do not want to take part in this study, that is fine. You are under no obligation to participate. Your academic standing will not be affected by whether or not you choose to participate in this study. You are free to choose whether or not you will take part in the study.

I. PURPOSE

The purpose of this research study is to study the relationship between internet networking sites (such as Facebook), personality, and health behaviors, such as alcohol use.

II. PROCEDURES

As a participant in this study you will complete a brief questionnaire. The questionnaire will take about 30 minutes of your time.

III. POSSIBLE RISKS AND DISCOMFORTS

Some of the questions in the questionnaire ask you to report whether you have used alcohol, which is illegal for people your age. Some of the questions are hypothetical, and some ask about your actual behaviors. You may feel uncomfortable answering some of these questions. If so, you may skip those questions.

IV. BENEFITS

You will receive no direct benefits for participating in this study.

V. RIGHT TO WITHDRAW FROM THE STUDY

Your participation in this research study is voluntary. You may decide not to begin or to stop this study at any time.

VI. CONFIDENTIALITY OF RESEARCH RECORDS
Any information obtained in this study will be confidential (private) and kept between you and researchers from this study at The George Washington University. Your parents and your school will not be given any of the information you provide on the questionnaires. Some of the questions ask you whether you have ever used alcohol. In order to keep all of your information confidential, we are taking several steps. First, we are not collecting your name, so we cannot link your name to the study. Also, we are asking very little information about yourself (age and gender only) so that it would be nearly impossible to link you to this study.

VII. PERSONS TO CONTACT
If you have questions about the procedures of this research study, please contact Dana Litt at (202) 994-3984 or Dr. Michelle Stock at (202) 994-2171. If you have questions about the assent process or any other rights as a research subject, please contact The George Washington University Office of Human Research at (202) 994-2715.

VIII. CONSENT
By marking this consent form with an "x", you affirm that you have read this consent form, the study has been explained to you, your questions have been answered, and you agree to take part in this study.

_____yes, I agree to participate in this study _____no, I am choosing not to participate in this study.

Appendix D

First, we would like you to take a look at Facebook profiles of several local students. These students were selected because they were rated by their classmates as being the most well-liked. We are not displaying the names of their high schools to protect their privacy.

Please spend a few minutes to look over each profile.

When you are finished looking at the profiles, we will ask you to answer questions about these students' personalities and social lives.

Please read carefully through all items and answer honestly. Please keep in mind that you can skip any questions you are not comfortable answering. All of your answers will be confidential.

Please view profile 1 and answer the following questions about the profile. Please circle the letter that best represents how you feel.

Student 1:

1. This student is attractive (good looking).

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

2. This student looks like they like to have fun.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

3. This student is similar to me.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

Now, please read student 2's profile and answer the following questions:

Student 2:

1. This student is attractive (good looking).

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

2. This student looks like they like to have fun.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

3. This student is similar to me.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

Now, please read student 3's profile and answer the following questions:

Student 3:

1. This student is attractive (good looking).

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

2. This student looks like they like to have fun.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

3. This student is similar to me.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

Now, please read student 4's profile and answer the following questions:

Student 4:

1. This student is attractive (good looking).

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

2. This student looks like they like to have fun.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

3. This student is similar to me.

A	B	C	D	E	F	G
Strongly disagree						**Strongly agree**

For this section, please circle the percentage that you think best answers the questions .

1) What percentage of *high school students* do you think:

a) drank alcohol in the past 3 months

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

b) got drunk (e.g., had 4 or more drinks in one night) in the past 3 months

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Next, we are interested in learning about the relationship between personality and health behaviors. Please read each item carefully and answer as honestly as possible.

We would like you to think about yourself in certain situations. We are not saying that you would be in these situations. We just want you to think about them, then tell us how you think you would act. We will call these "suppose" questions.

Please read the following scenarios and respond to each item accordingly.

a) Suppose you were with a group of friends at one of their houses. Your friend's parents are gone for the night, and your friend has gotten a hold of some alcohol. If your friend offered you alcoholic beverages, how willing would you be to do each of the following (circle your answer)?

1. Have one or two drinks

A	B	C	D	E	F	G
Not at all willing			**Maybe**			**Very willing**

2. Drink enough to get drunk.

A	B	C	D	E	F	G
Not at all willing			**Maybe**			**Very willing**

3. How willing would you be to drink alcohol with friends if you knew you would not get in trouble?

A	B	C	D	E	F	G
Not at all willing			**Maybe**			**Very willing**

Some of the questions below are about "images". Images are pictures we have in our mind about people and groups. For example, we all have ideas about what the type of kid who plays basketball is like. We might say that the typical basketball player is tall and skinny, or that the typical movie star is rich and good looking. We are not saying they are all alike; rather, we are saying that some of them may be similar in some ways. In these questions you will be asked to think about different images you have.

Please think about the type of person your age and gender **who drinks alcohol**. How much do you think the following words describe your image of that person? Use the following scale and give a response to each, by circling your answer.

1. smart

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

2. popular ("cool")

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

3. mature

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

4. attractive (good-looking)

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

How similar are you to the typical person your age and gender who drinks alcohol?

1	2	3	4	5	6	7
Not at all Similar						Very Similar

How often do you think about the type of person who drinks alcohol?

1	2	3	4	5	6	7
Not at all						all the time

Please think about the type of person your age and gender **who does not drink alcohol.** How much do you think the following words describe your image of that person? Use the following scale and give a response to each.

1. smart

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

2. popular ("cool")

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

3. mature

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

4. attractive (good-looking)

A	**B**	**C**	**D**	**E**	**F**	**G**
Not at all						**Extremely**

How similar are you to the typical person your age and gender who does <u>not drink</u> alcohol?

1	2	3	4	5	6	7
Not at all Similar						Very Similar

How often do you think about the type of person who does <u>not drink</u> alcohol?

1	2	3	4	5	6	7
Not at all						all the time

Please read the following items and answer carefully. Please circle your answer.

1. How likely is it something bad would happen to you if you drank alcohol?

A	B	C	D	E	F	G
Not at all likely						**Very likely**

2. If you drank alcohol, how likely is it you would experience health problems (such as getting sick)?

A	B	C	D	E	F	G
Not at all likely						**Very likely**

3. If you drank alcohol, how likely is it you would get into trouble with your parents.

A	B	C	D	E	F	G
Not at all likely						**Very likely**

In this set of questions, we'd like you to indicate what comes to mind when you think about different things. Please circle the number that best represents your answer. For example, if you think something is more good than bad, circle a number closer to the "good" side than the "bad" side.

1. When you think about **using alcohol**, what comes to mind?

1	2	3	4	5	6	7
Good						**Bad**
1	**2**	**3**	**4**	**5**	**6**	**7**
Right						**Wrong**
1	**2**	**3**	**4**	**5**	**6**	**7**
Acceptable						**Unacceptable**

2. When you think about **not using alcohol**, what comes to mind?

1	2	3	4	5	6	7
Good						**Bad**
1	**2**	**3**	**4**	**5**	**6**	**7**
Right						**Wrong**
1	**2**	**3**	**4**	**5**	**6**	**7**
Acceptable						**Unacceptable**

Please read each question below and circle the extent to which you disagree or agree with each statement.

1. I intend to use drink alcohol within the next 3 months.

1	2	3	4	5	6	7
Strongly disagree	**Moderately disagree**	**Slightly disagree**	**Neither**	**Slightly agree**	**Moderately agree**	**Strongly agree**

From time to time most people compare themselves with others. There is nothing good or bad about this type of comparison, and some people do it more than others.

1. If you want to find out how well you did something, how often do you compare yourself (how well you did) with how well other people did?

A	B	C	D	E
Never				**All the time**

2. How often do you compare the kind of person you are (popular, nice, smart, etc.) with what other people your age are like?

A	B	C	D	E
Never				**All the time**

3. When you want to know how well things are going for you in general, how often do you compare your life with other peoples' lives?

A	B	C	D	E
Never				**All the time**

4. When you want to learn more about something, how often do you try to find out what others think about it?

A	B	C	D	E
Never				**All the time**

5. How often do you compare how you are doing socially (e.g., social skills, popularity) with other people?

A	B	C	D	E
Never				**All the time**

***Please think back to the profiles you viewed earlier:

Do most of the students drink alcohol?

_____no

_____yes

The following ask you questions about yourself. Keep in mind that you may skip any questions you feel uncomfortable answering.

1. What is your age in years? _____

2. What is your sex?

_____Male _____Female

3. During the past 6 months, how many of your *best friends* have drank alcohol (beer, wine, rum, vodka, etc.)? Is it…

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

4. During the past 6 months, how many of your *classmates* have drank alcohol (beer, wine, bourbon, vodka, etc.)? Is it…

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

5. What percentage of your close friends are at least one year older than you?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

6. Do you have an older sibling?

_____yes _____no

7. If you have an older sibling, do they drink alcohol?

_____yes _____no ____not sure

8. Have you ever tried alcohol (beer, wine, mixed drink, etc.)?

_____no

_____yes (if yes, please answer questions 9 and 10)

9. During the past 6 months, how often have you had a whole drink of alcohol, that is 1 beer or 1 glass of alcohol or wine?

_____Never
_____1-2 times
_____About 3-5 times
_____About 6-9 times
_____ 2-4 times per month
_____5-7 times per month
_____About two times per week
_____More than 2 times per week

10. During the past 6 months, how often have you had a lot to drink, that is 4 or more drinks at one time?

_____Never
_____1-2 times
_____About 3-5 times
_____About 6-9 times
_____ 2-4 times per month
_____5-7 times per month
_____About two times per week
_____More than 2 times per week

11. Do you currently have a Facebook, or other social networking (i.e. Myspace, Twitter) account?

_____no
_____yes (if yes, please answer questions 12-14.

12. On average, How much time per week do you spend on Facebook, or other social networking sites?

_____none
_____less than 15 minutes
_____16-30 minutes
_____31-60 minutes
_____61-90 minutes
_____91-120 minutes
_____more than 2 hours

13. Of your friends on Facebook, what percentage have photos that show them drinking alcohol?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

14. Of your friends on Facebook, what percentage are at least one year older than you?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

15. Did you hear anything about this study before you participated?

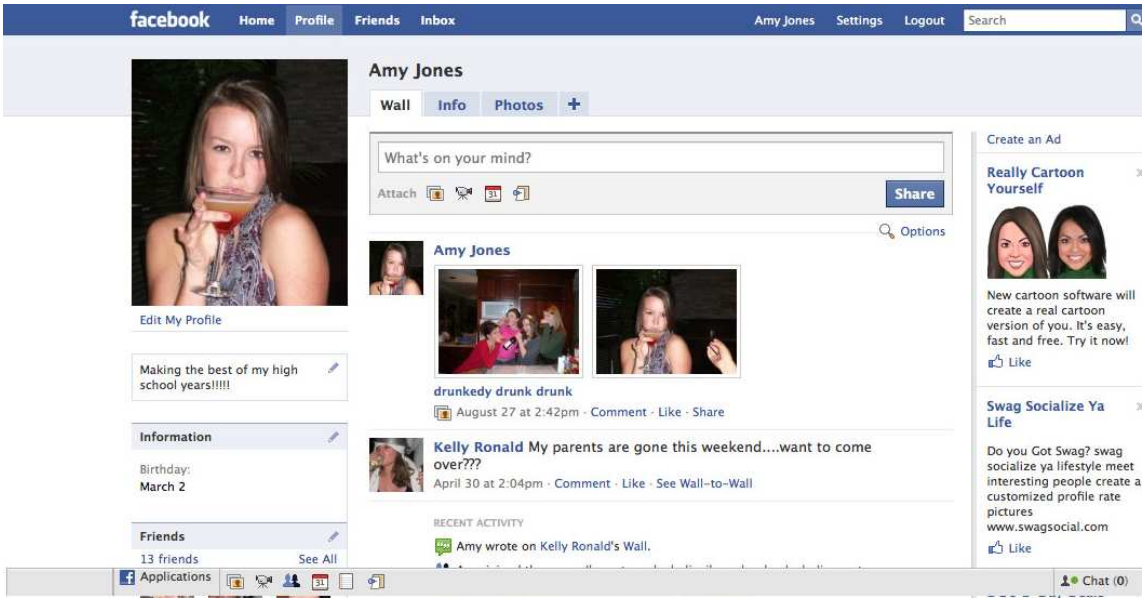
_____no
_____yes

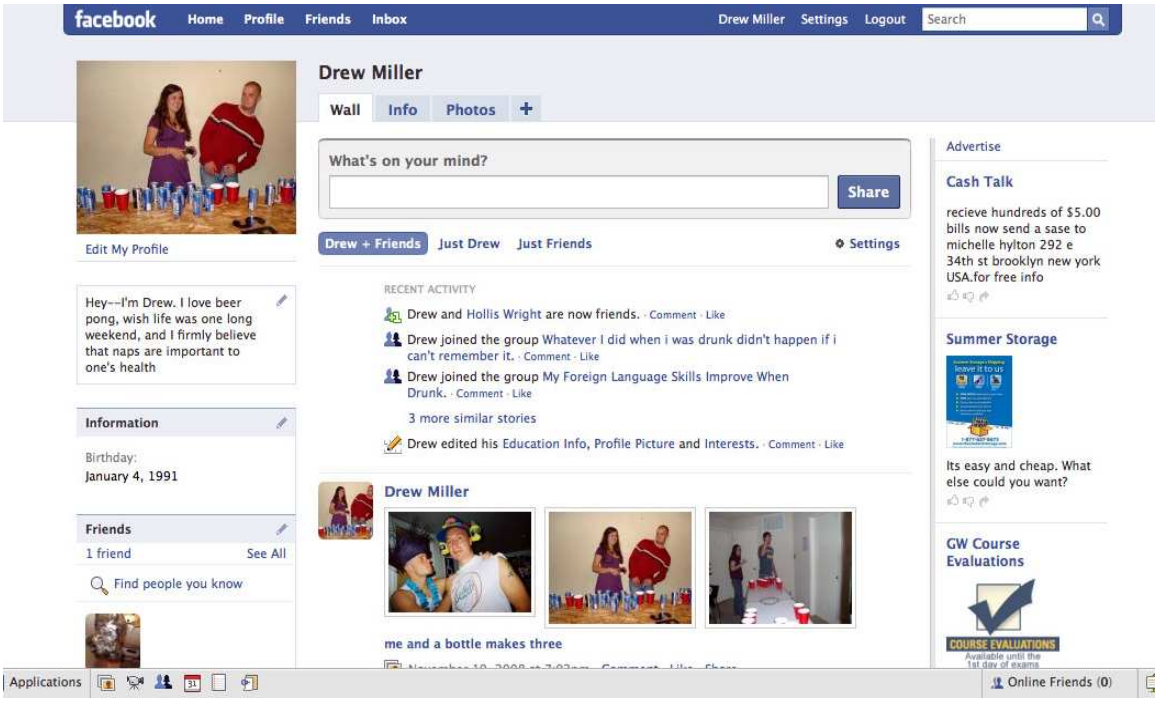
If yes, please explain:

_____
_____
_____
_____
_____

Appendix E

Sample Facebook Pages

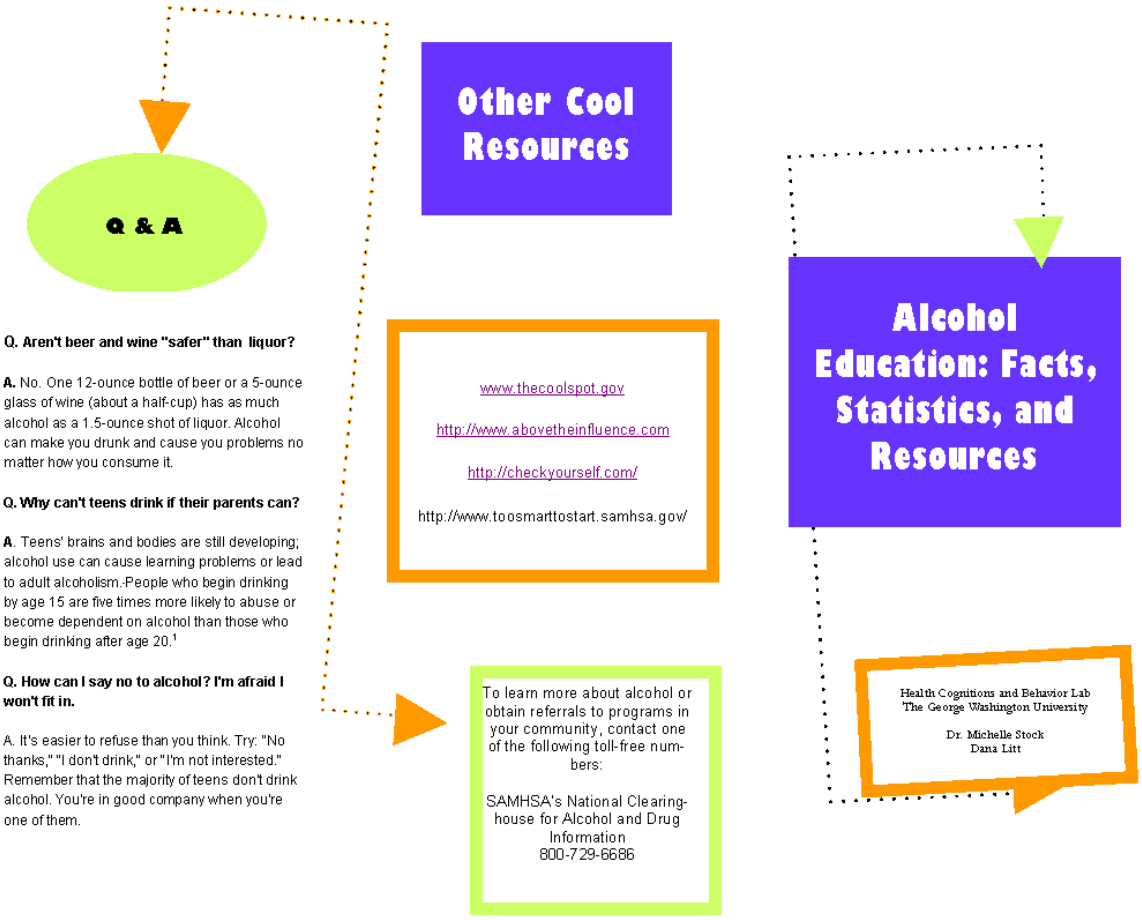



facebook
Home
Profile
Friends
Inbox
Drew Miller
Settings
Logout
Search
Drew Miller
Wall
Info
Photos
What's on your mind?
Share
Drew + Friends
Just Drew
Just Friends
Settings
RECENT ACTIVITY
Drew and Hollis Wright are now friends. · Comment · Like
Drew joined the group Whatever I did when i was drunk didn't happen if i can't remember it. · Comment · Like
Drew joined the group My Foreign Language Skills Improve When Drunk. · Comment · Like
3 more similar stories
Drew edited his Education Info, Profile Picture and Interests. · Comment · Like
Drew Miller
me and a bottle makes three
Edit My Profile
Hey--I'm Drew. I love beer pong, wish life was one long weekend, and I firmly believe that naps are important to one's health
Information
Birthday:
January 4, 1991
Friends
1 friend
See All
Find people you know
Advertise
Cash Talk
recieve hundreds of $5.00 bills now send a sase to michelle hylton 292 e 34th st brooklyn new york USA.for free info
Summer Storage
Its easy and cheap. What else could you want?
GW Course Evaluations
COURSE EVALUATIONS
Applications
Online Friends (0)

facebook
Home
Profile
Friends
Inbox
Mike Johannson
Settings
Logout
Search
Mike Johannson
Wall
Info
Photos
What's on your mind?
Share
Mike + Friends
Just Mike
Just Friends
Settings
RECENT ACTIVITY
Mike and Robert Fathke are now friends. · Comment · Like
Mike wrote on Grant Meade's Wall.
Mike and Mark Kessler are now friends. · Comment · Like
Mike and Todd Spears are now friends. · Comment · Like
Jason Brooks hey--we need another for ultimate? do you play frisbee?
January 13 at 8:05pm · Comment · Like · See Wall-to-Wall
Jessica Stanton How are classes? I am going to be SO busy this semester!!!
January 13 at 7:56pm · Comment · Like · See Wall-to-Wall
Chelsea McHugh hey! My break was really good. Went to a few concerts. Spent a lot of time home with the fam. Kinda boring, but at least I slept a lot!
January 13 at 7:49pm · Comment · Like · See Wall-to-Wall
Edit My Profile
Write something about yourself.
Information
Birthday:
October 13, 1990
Friends
16 friends
See All
Jason Brooks
Debora Weiss
Mark Kessler
Advertise
Want a free black Mac?
We need laptop users. We'll give you a Macbook to use and keep. You tell us what you think of it. Current free laptop is the black Air.
Laptop Testers Needed
We'll give you a Macbook to test and keep. You tell us what you think. Current free laptop is the orange Macbook Air.
Applications
Online Friends (0)

Appendix F

Pamphlet



FACTS

Alcohol affects your brain. Drinking alcohol leads to a loss of coordination, poor judgment, slowed reflexes, distorted vision, memory lapses, and even blackouts.

Alcohol affects your body. Alcohol can damage every organ in your body. It is absorbed directly into your bloodstream and can increase your risk for a variety of life-threatening diseases, including cancer.

Alcohol affects your self-control. Alcohol depresses your central nervous system, lowers your inhibitions, and impairs your judgment. Drinking can lead to risky behaviors, such as driving when you shouldn't, or having unprotected sex.

Alcohol can kill you. Drinking large amounts of alcohol at one time or very rapidly can cause alcohol poisoning, which can lead to coma or even death. Driving and drinking also can be deadly. In 2005, 39 percent of drivers age 15 to 20 who died in traffic accidents had been drinking alcohol.

Alcohol can hurt you--even if you're not the one drinking. If you're around people who are drinking, you have an increased risk of being seriously injured, involved in car crashes, or affected by violence.

BEFORE YOU DRINK

Get the facts. One drink can make you fail a breath test. In some States, people under age 21 can lose their driver's license, be subject to a heavy fine, or have their car permanently taken away.

Stay informed. "Binge" drinking means having five or more drinks on one occasion. Studies show that more than 35 percent of adults with an alcohol problem developed symptoms--such as binge drinking--by age 19.

Know the risks. Alcohol is a drug. Mixing it with any other drug can be extremely dangerous. Alcohol and acetaminophen--a common ingredient in pain and fever reducers--can damage your liver. Alcohol mixed with other drugs can cause nausea, vomiting, fainting, heart problems, and difficulty breathing. Mixing alcohol and drugs also can lead to coma and death.

Look around you. Most teens aren't drinking alcohol. Research shows that 71 percent of people 12-20 haven't had a drink in the past month.

SOURCES:

Traffic Safety Facts 2005 Data: Young Drivers, National Highway Traffic Safety Administration. U.S. Department of Transportation, 2004.

2006 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration.

KNOW THE SIGNS

How can you tell if a friend has a drinking problem? Sometimes it's tough to tell. But there are signs you can look for. If your friend has one or more of the following warning signs, he or she may have a problem with alcohol:

- -Getting drunk on a regular basis
- -Lying about how much alcohol he or she is using
- -Believing that alcohol is necessary to have fun
- -Having frequent hangovers
- -Feeling run-down, depressed, or suicidal
- -Having "blackouts"--forgetting what he or she did while drinking

What can you do to help someone who has a drinking problem? Be a real friend. You might even save a life. Encourage your friend to stop or seek professional help. For information and referrals, call the National Clearinghouse for Alcohol and Drug Information at 800-729-6686.