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THE EFFECT OF MULTIPLE NORMATIVE MESSAGES ON PERSUASION

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By

Katherine Ann Klein

A DISSERATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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ABSTRACT

THE EFFECT OF MULTIPLE NORMATIVE MESSAGES ON PERSUASION

By

Katherine Ann Klein

Social norms campaigns have become a popular approach to combat heavy drinking on college campuses. Despite the popularity of the social norms approach, studies have failed to consider the consequences of receiving multiple normative messages. This study, therefore, was an initial investigation into the effects that multiple normative messages and advertisement believability have on persuasion. A 3x3 experiment with 262 college students was conducted. The results show that both descriptive and injunctive norms have statistically significant effects on attitude, and attitude change. It was also found that attitudes and behavioral intentions are most favorable for drinking five or more drinks when participants receive either two congruent messages advocating heavy drinking or no messages whatsoever. There was no evidence that advertisement believability mediated the relationship between message congruency and attitudes or behavioral intentions. This study not only provides evidence consistent with the effectiveness of the social norms approach but it also has implications for future campaigns.

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INTRODUCTION

Despite the popularity of the social norms approach, research continues to reveal inconsistent results, particularly in college students' drinking. Approximately 80 to 90% of college students drink alcohol (Haines & Spear, 1996), and a large number of students are classified as excessive drinkers. The National College Health Assessment (American College Health Association [ACHA], 2006) found that in the fall of 2005, 32% of females and 46% of males at universities across the country reported having five or more drinks in one sitting during the previous two weeks. This heavy episodic drinking can result in consequences such as death, injury, assault, sexual abuse, unsafe sex, drunk driving, and legal consequences (Hingson, Heeren, Zakocs, Kopstein & Wechsler, 2002). Furthermore, most consequences of college student drinking do not occur from long term harm, such as liver damage, but instead from a heavy episode of drinking (Neighbors, Oster-Aaland, Berstrom & Lewis, 2006). For these reasons, excessive drinking has become a very important social issue. Many college campuses have adopted a social norms-based approach (SNA) to combat high drinking rates and reduce injury from excessive alcohol consumption. The SNA, which was originally formulated in 1986 (Perkins & Berkowitz, 1986), is based on the idea that if people overestimate a norm, correcting these misperceptions may lead to reduced alcohol consumption. These campaigns, however, have produced contradictory results. One possible explanation for these inconsistent results is that students may receive incongruent normative messages. An example of an incongruent normative message is a descriptive norm which suggests one behavior and an injunctive norm which suggests a conflicting behavior. This study seeks to clarify the effects of receiving incongruent normative messages.

One of the early studies to report a reduction in excessive drinking following the implementation of a social norms-based campaign was conducted by Haines and Spear (1996). They reported an 8.8% decrease in students who were self-identifying as binge drinkers after exposure to a social norms-based campaign. Not only did this study reduce reports of heavy episodic drinking, but a greater reduction in the perceived norm of how many students binge drink after a social norms campaign, compared with a traditional strategy, was also reported. Since this study, others have also trumpeted the social norms approach and reported a reduction in excessive drinking at schools implementing such a program.

It should be noted that since the time of this study the terminology used to refer to sizeable alcohol consumption has changed. The Haines and Spear (1996) study referred to heavy drinking as binge drinking. The present study, however, referred to a large quantity of alcohol in one sitting as heavy drinking and not binge drinking. Although some researchers (Wechsler, Lee, Kuo, Seibring, Nelson & Lee, 2002) still refer to it as binge drinking, this term has largely been discontinued. Wechsler and Nelson (2001) defined binge drinking as five or more drinks in a row at least once in the past two weeks for males and four or more drinks in a row in the past two weeks for females. Problems have been noted with using the term binge drinking (Inter-Association Task Force on Alcohol and Other Substance Abuse Issues [IATF], 2000; The Higher Education Center, 2000)ⁱ. For these reasons, this study uses the terms heavy drinking or excessive drinking.

Since the Haines and Spear (1996) study, there has been additional evidence of the effectiveness of the social norms approach. DeJong et al. (2006) conducted a multisite randomized trial comparing institutions implementing a social norms-based

campaign with those that did not and found that the perception of student drinking norms, self-reported alcohol consumption, and alcohol-related consequences increased at all schools regardless of condition. This increase was much smaller, however, at schools implementing a social norms-based approach (DeJong et al., 2006).

The social norms approach has also been found to be influential across different behavior. Olds, Thombs, and Tomasek (2005) examined seventh through 12th grade students and found that both injunctive and descriptive norm perceptions that were left uncorrected were more strongly related to behavioral intentions to initiate cigarette, marijuana, or alcohol use than were socio-demographic variables. Fabiano, Perkins, Berkowitz, Linkenbach, and Stark (2004) also found evidence that norms about sexual violence were misperceived and that correcting these misperceptions may be successful at reducing sexual violence against women.

Social norms approaches have also been successful in reducing alcohol consumption in high-risk populations. Perkins and Craig (2006) found that after exposure to a social norms campaign, frequent alcohol consumption, high-quantity consumption, and negative consequences from drinking all declined by 30% or more among college student athletes. Larimer, Turner, Mallett, and Geisner (2004) also found that normative perceptions influence behavior among students involved in fraternities and sororities. This finding is key as fraternity and sorority members have been labeled a particularly high-risk population with increased alcohol consumption (Bartholow, Sher & Krull, 2003; Borsari & Carey, 1999; Cashin, Presley & Meilman, 1998). Larimer et al. (2004) found that descriptive norm perceptions predicted drinking behavior and injunctive norm perceptions predicted drinking one year after the original survey.

There are, however, other studies which have reported incongruous results. Werch et al. (2000) found that a social norms campaign targeting first-year residential college students had no significant impact on reducing alcohol consumption or alcohol use risk factors. Clapp, Lange, Russell, Shillington, and Voas (2003) conducted an experiment in which one residence hall received a descriptive norm campaign and the comparison residence hall received the policies and laws surrounding alcohol consumption. Clapp et al. (2003) found that the group receiving the normative campaign decreased their perception of how much the typical college student drank compared to the comparison group but that they did not reduce their actual alcohol consumption. There was a slight increase in alcohol consumption among those who received the normative campaign but the difference was not statistically significant.

Campo, Brossard, Frazer, Marchell, Lewis, and Talbot (2003) also report that the social norms approach is widespread at college campuses but that the results for these campaigns are obscured by measurement problems. Campo et al. (2003) found that perceptions of friends' drinking, which are similar to the Theory of Planned Behavior's measure of the subjective norm, influenced drinking behavior but descriptive norms, a construct central to the social norms approach, did not.

Descriptive and Injunctive Norms

Social norms campaigns feature either or both a descriptive and an injunctive norm message. Descriptive norms are the perception of what other people do. The descriptive norm is indicated by the perception of "what is everyone else doing?" (Cialdini, Reno & Kallgren, 1990) and provide a guide for action, particularly when the situation is ambiguous (Lapinski & Rimal, 2005). Alternatively, injunctive norms are the

perception of what one should or ought to do (Borsari & Carey, 2003), and are based on the perception of what is typically approved. Injunctive norms serve as a cue to action as people are motivated to avoid social sanctions or seek approval (Mead, 1932).

There are a large number of studies that have examined the impact that descriptive and injunctive norms have on behavioral intentions and behavior. A metaanalysis by Borsari et al. (2003) that included 23 studies evaluating descriptive and injunctive norms surrounding college student drinking found that focusing on descriptive norms was an effective way to influence perceptions of others' drinking. The results for injunctive norms were unclear because only two studies included in the meta-analysis focused on injunctive norms.

In a series of three studies examining the differential impact of norm type Reno, Cialdini, and Kallgren (1993) found evidence of a more nuanced relationship. Reno et al. (1993) claim that injunctive norms have a greater impact across situations than descriptive norms. In these studies the descriptive norm involved watching someone refrain from littering and the injunctive norm included observing social disapproval of another's littering. It was found that descriptive norms were successful in reducing littering in a clean environment that had not already been littered. Injunctive norms, on the other hand, were successful in reducing littering in both a clean and littered environment (Reno et al., 1993). Trockel, Williams, and Reis' (2003) results did not concur with this finding; they found that focusing on descriptive norms or subjective norms were statistically significant predictors of alcohol consumption among fraternity men whereas injunctive norms were not.

Multiple Normative Messages

Schultz, Nolan, Cialdini, Goldstein, and Griskevicius (2007) offer an explanation as to why normative campaigns have produced inconsistent results. Schultz et al. (2007) posit that when people receive a single normative message, a boomerang effect may result for those whose behavior is below the actual norm. In the case of alcohol consumption, those who consume less alcohol than the norm may increase their alcohol consumption to match the norm. Thus, social norms are powerful for both those whose behaviors are above and below the norm. Schultz et al. (2007) found that what they termed a boomerang effect is indeed present when people only receive one descriptive norm message; however, the boomerang effect disappears when participants receive both a descriptive and an injunctive norm message that suggest the same behavior.

Conflicting Messages

An alternative explanation for the inconsistent results that social norms campaigns have produced is that people receive conflicting messages. A conflicting message is one which is perceived by audiences as advocating two different positions; therefore, it is two-sided and non-refutational. A conflicting normative message is a special type of conflicting message and occurs when the descriptive norm message presents a different message recommendation than the injunctive norm message. In the realm of alcohol consumption this situation could occur if a message highlighted social pressure to drink but claimed that drinking should be avoided, or if it emphasized the benefits of alcohol consumption but demonstrated no evidence of social pressure to drink. Another type of conflicting message would be one that said that few people drink but encouraged others to drink. Despite the plethora of studies that examine normative campaigns, there are no known studies that have explicitly evaluated the relative suasory effect of conflicting and

non-conflicting normative messages. This deficiency in the existing research is somewhat surprising as numerous studies have documented that people report receiving conflicting health messages (e.g. Brashers, Goldsmith & Hsieh, 2002; Meredith, Jeffe, Mundy & Fraser, 2001; Yuksel & Corbett, 2005). For instance, conflicting health messages have become such a problem in HIV prevention campaigns that health professionals are attempting to create an international agency responsible for compiling HIV statistics to clear up the muddled effects of many agencies supplying mixed messages (Billingham, 2006). Although these mixed messages are not explicitly defined they consist of multiple agencies offering divergent advice and statistics.

Despite the dearth of studies examining the effects of incongruent normative messages, many papers point out that people receive incongruent normative messages quite often. Yanovitzky and Stryker (2001) suggest that students not only receive normative messages about drinking from university campaigns but also from the media, and that these messages often conflict with each other.

Peralta (2002) also indicates that college students receive incongruent normative messages. By conducting semi-structured interviews with college students, Peralta (2002) found that students perceive a body-image norm which encourages thinness but simultaneously perceive a norm which encourages alcohol consumption. These two norms directly conflict with each other as students believe that if they consume alcohol they will gain weight. Peralta (2002) concludes that both of these norms influence behavior as students still drink, but 40% of students reported concern about the calories in alcohol and approximately 18% changed their eating habits in response to the number of calories ingested from consuming alcohol. During the interviews some students

mentioned skipping dinner before drinking, self-induced purging, or extra exercise due to the increased caloric intake from drinking. Although this study provides evidence of students receiving conflicting messages surrounding alcohol consumption, there is not a study that controls the content of normative messages so as to look at the effects of incongruent messages on persuasion.

Without explicitly examining the effects of incongruent messages, some studies have found that normative messages from different sources are more influential, thus raising the possibility that people receive multiple normative messages. Yanovitzky, Stewart, and Lederman (2006) found that perceived alcohol use by close peers, such as best friends and friends, had a more influential effect on alcohol use than perceived alcohol use by students in general. Park, Klein, and Smith (2007a) also found that the drinking behavior of close friends, as measured by a subjective norm, influenced behavioral intention, and that the injunctive and descriptive norms of other university students did not. Further, Park et al. (2007a) found that both descriptive and injunctive norms for college students across the United States, as opposed to students at the participants' own university, were statistically significant predictors of behavioral intention.

It is somewhat naïve to think that people are only receiving normative messages supplied by university normative campaigns. Further evidence for incongruent normative messages can be found on college campuses where students are forbidden to drink when they are underage, but many local liquor stores and bars do not check identification, and alcohol may be allowed on campus or involved in many social activities (Ross, 2004).

Nygaard and Grube (2005) also found evidence of a discrepancy between enacted norms (i.e., behavior) and normative messages. They conducted 44 semi-structured interviews with adolescents, who had previously reported driving while intoxicated or riding with a drunk driver, in order to examine the impact of incongruent messages surrounding drinking alcoholic beverages. They found that the messages from adult authorities and the behavior of these same authorities were often discrepant. Adolescents understood adult messages advising that they should not engage in drunk driving but reported observing adult behavior which conflicted with this message. This discrepancy left them ambivalent about the dangers of drinking and driving. The findings indicated that conflict between normative messages and enacted norms leads to ambiguity among the adolescents and an inability make sense out of the ambiguity surrounding the effects of drinking and driving.

Elek, Miller-Day, and Hecht (2006) looked at how norms influence early adolescent substance use. Although personal anti-drug norms had the largest effect on overall substance use, this study did find that both injunctive and descriptive norms influenced early adolescents. The correlation between perceived peer use, or descriptive norms, and overall substance use was .10, whereas the correlation between parents' injunctive norms and substance use was -.16 and friends' injunctive norms and substance use was -.12. Thus, the more parents and friends disapproved of substance use, the less likely adolescents were to report substance use; however, the greater the perception of substance use by peers, the more likely students were to report substance use. This study shows that adolescents perceive anti-drug injunctive norm messages from their parents and friends, who influence behavior, but at the same time perceive that others are using

illegal substances and this factor also influences their behavior. Thus, adolescents receive multiple and conflicting normative messages and all of these messages influence their health outcomes.

Message Sidedness

The previously cited studies provide evidence that people do receive incongruent normative messages. They do not, however, examine the effects of receiving opposing messages. One of the possible explanations for how people deal with incongruent messages may be found in traditional theories of attitude change literature, such as the message sidedness corpus. In a meta-analysis that examined the persuasiveness of oneand two-sided messages, Allen (1991) found that a two-sided nonrefutational message was less persuasive than a one-sided message, and that a two-sided refutational message was more persuasive than a one-sided message. Two conflicting normative messages are akin to a two-sided nonrefutational message and it can, therefore, be expected that a conflicting message would be less persuasive than a single message.

As the aforementioned review shows, people are likely to receive conflicting messages and to receive them from multiple channels. Despite the dearth of research examining the effects of incongruent normative messages, predictions can be made about these effects based on studies that examined refutational messages. Previous research has found that nonrefutational two-sided messages are ineffective (Allen, 1991) and approximately cancel each other out (Anderson & Hovland, 1957), yielding no net attitude change.

It can, therefore, be expected that two normative messages that suggest the same position, in other words two one-sided messages, are likely to have the greatest effect on

attitudes and produce attitude change in the same direction. Examples of two messages advocating the same position would be both injunctive and descriptive norm messages either suggesting drinking in moderation or drinking heavy amounts of alcohol. This reasoning leads to the hypotheses of the study.

The first hypothesis predicts that if both normative messages are congruent and suggest heavy drinking, attitudes will be more favorable toward drinking five or more drinks at one sitting. If both normative messages are congruent and suggest moderate drinking, attitudes will be less favorable. If the messages are incongruent, attitudes will be intermediate, i.e., between the two extremes. Put differently, repetition, at least up to a moderate point, facilitates the persuasion process (Cacioppo & Petty, 1979; Weiss, 1971; Wilson & Miller, 1968), particularly when the repeated messages differ slightly and emanate from different sources (Harkins & Petty, 1981a, 1981b).

It can also be predicted that normative messages will have a similar affect on behavioral intentions. Hypothesis two, therefore, predicts that if both normative messages are congruent and suggest heavy drinking, behavioral intentions will be more favorable toward drinking five or more drinks at one sitting. If both normative messages are congruent and suggest moderate drinking, behavioral intentions will be less favorable. If the messages are incongruent, behavioral intentions will be intermediate, , i.e., between the two extremes.

Believability

Attitude change must also be considered in light of advertisement believability. One possible effect of incongruent normative messages is that university normative campaigns which supply statistics are often perceived as inaccurate or biased. Polonec,

Major, and Atwood (2006) evaluated a normative campaign that featured the message that most students on campus drink zero to four drinks when they party and found that 72.6% of students did not believe the normative message. This point leads to the third hypothesis of this study which posits that those who receive two congruent messages are likely to find the advertisement more believable than those who receive two incongruent messages.

Alternatively, when messages are found to be believable, normative perceptions are more accurate (Park, Klein & Smith, 2007b). Social judgment theory also points to the necessity of believability for attitude change. Social judgment theory is based on the premise that the effect of a persuasive message is determined by how the audience perceives what the message suggests. (Sherif, Sherif, & Nebergall,1965). Smith, Atkin, Martell, Allen, and Hembroff (2006) found that messages that fell in the latitude of acceptance or noncommitment were more likely to be effective than messages that fall in the latitude of rejection. Messages that fall in the latitude of rejection will not be accepted because they are not believed. Therefore, for a social norms campaign to have the most effect and change attitudes, the messages must be believable. The fourth hypothesis, therefore, predicts that believability will mediate the relationship between message congruency and attitude. The fifth hypothesis predicts that believability will mediate the relationship between message congruency and behavioral intention.

METHODS

Subjects

Subjects in this study were students from communication courses at a large Midwestern University. A convenience sample of 262 subjects was obtained. Participation was voluntary and students were offered either extra credit or research credit in their courses in exchange for their participation. The sample had slightly more females than the MSU population; the MSU population is 45% male and the sample was 33% male. The ethnic composition of the sample closely approximated the MSU population: 10.7% of the sample self-identified as Black or African American, compared to 8.4% in the general population. Approximately 82.4% of the sample self-identified as White or Caucasian as compared to 82.0% of the MSU population. The sample was about 3.1% as Asian or Pacific Islander, compared to 5.7% in the population. About 2.7% of the sample self-identified as Hispanic or Latino and 3.2% of the MSU population did. In the sample the remained 0.4% self-identified as other and the MSU population is 0.7% Native American. All participants were undergraduates with 33.2% in their first year, compared to 26% in the MSU population; 26.0% in their second year, compared to 22% in the MSU population; 20.2% in their third year, compared to 25% in the MSU population; 14.9% in their fourth year; and 5.3% in their fifth year. The MSU population is 27% senior but is not broken down by years in college. Participants ranged in age from 18 to 38 with the mean age being 20 (S = 1.88), which is identical to the general population. About 17.9% of the participants were members of a fraternity or a sorority compared to about 8.4% of undergraduate students at large.

Design

The effectiveness of normative messages about alcohol consumption was examined using a 3x3 between subjects experiment with an imbedded control condition. The design of the study is detailed in Table 1. Dependent measurements were obtained with a pre- and post-test. Immediately following the pre-test, participants viewed a series of three advertisements that were displayed by an LCD projector. Students viewed a normative advertisement about alcohol consumption, an advertisement about seatbelts, and an advertisement about donating blood. There were three different orders of the advertisements that were selected and assigned at random. All advertisements can be found in Appendix C. In the control condition, students did not view the normative advertisement but simply viewed the other two advertisements. The additional two public service announcements (PSA) were included to conceal the intent of the study. Following the messages, participants completed the post-test which was identical to the pre-test except that the behavior items were excluded as actual behavior could not have been expected to change during the course of the study. The nine different experimental conditions and messages are detailed in Table 2. The descriptive norm advertisements featured messages that either suggested drinking in moderation, drinking more heavily, or were absent. An example of a descriptive norm message suggesting drinking in moderation is "77% of MSU students drink less than 5 drinks when they party." An example of a descriptive norm message suggesting heavy drinking is "23% of MSU students drink less than 5 drinks when they party." The control condition was without a normative advertisement about alcohol consumption. In the other conditions, injunctive norm advertisements, like the descriptive norm advertisements, either suggested drinking in moderation, heavy drinking, or were absent. An example of an injunctive norm

message suggesting drinking in moderation is "72% of MSU students disapprove of drinking more than 4 drinks when they party." An example of an injunctive norm message suggesting heavy drinking is "28% of MSU students disapprove of drinking more than 4 drinks when they party." There were two conditions with incongruent messages, four with single messages, two with congruent messages, and one devoid of messages to serve as a control condition. Each participant was only in one condition and was randomly assigned to that condition.

Instrumentation

In order to gauge the strength of the normative induction, respondents were asked questions about their injunctive and descriptive norm perceptions after viewing the normative messages at the post-test. Respondents' behavioral intention and attitudes toward drinking five or more drinks were measured at both pre- and post-test. Demographic information was measured on the pre-test. Advertisement believability was measured immediately following the experimental stimulus. A copy of the measures can be found in the Appendix B.

Behavioral intention was measured with four items. One item was open ended and asked participants, "the next time that you party/socialize with friends, how many drinks do you think you will have." The remaining three questions employed five point Likert Scales with five being strongly agree and one being strongly disagree. Higher numbers indicated a greater intention to drink five or more drinks. Behavioral intention items were summed to form a behavioral intention index.

Attitudes toward drinking five or more alcoholic drinks in one sitting were measured in a semantic differential format that featured 11 pairs of bipolar adjectives.

The 11 bipolar adjectives for these items ranged from one to seven where seven indicated a more favorable attitude toward drinking five or more drinks. Attitude items were summed to form an attitude index.

Perceptions of the descriptive norm were measured with four items. Three of the items were measured with five point Likert Scales with five being strongly agree and one being strongly disagree. Higher numbers reflected higher levels of perceived alcohol consumption. The other item was an open ended question that asked participants "think of all MSU undergraduate students. What percentage do you think have five or more drinks in one sitting at least once during a normal week?" Descriptive norm items were summed to form an index of descriptive norm perception.

Perceptions of the injunctive norm were measured with five items. Four of these items were five point Likert Scales that were scored in a similar manner to the descriptive norm perception items. The last item was open ended and asked participants "think of all MSU undergraduate students. What percentage do you think consider drinking five or more drinks in one sitting at least once during a normal week to be an acceptable activity?" Injunctive norm items were summed to form an index of injunctive norm perceptions. Higher scores on this index indicated a perception of greater approval for consuming five or more alcoholic drinks.

Believability was measured for the advertisement as a whole with one dichotomous item that asked participants if they found the advertisement believable. A response of no was coded as zero and yes as one. Thus, a higher number indicated greater believability.

There was also a variable created to test hypotheses four and five. The conditions in which participants received two messages, regardless of type, were recoded into three: (1) the two incongruous message conditions were collapsed, (2) the congruous condition suggesting heavy drinking, and (3) the congruous condition suggesting moderate drinking.

Procedure

Participants were randomly assigned to a condition and an order. Three orders were chosen randomly. The experiment was administered to groups of about 10 at a time, all in the same condition and order. Upon arriving for the experiment students were told that they were evaluating potential PSAs. They were asked to give their honest evaluation of the messages. It took participants approximately 30 minutes to complete the experiment. At the end of the study they were debriefed about the purpose of the study and given the actual percentages for both the descriptive and injunctive norm surrounding alcohol consumption at their university. All study advertisements are located in Appendix C.

RESULTS

Scales

Confirmatory factor analysis (CFA) was performed on all scales to assess content validity. Reliability analyses were also conducted on all scales. The results of these analyses are reported in subsequent paragraphs.

Attitudes. Participant attitudes toward consuming five or more alcoholic drinks were measured on a set of seven point semantic differential scales. Originally 11 sets of bipolar adjectives were employed to measure attitudes. Based on the results of CFA, it was decided that seven items fit best. Items were eliminated if the item produced a substantial number of errors of a magnitude greater than would be expected by chance alone. For the pre-test the root mean squared error (RMSE) was .030 and for the post-test the RMSE was .033. There were no statistically significant errors for both the pre-test and the post-test. Inter-item correlations, factor loadings, and descriptive statistics for the preand post-test attitude items can be found in Tables 3 and 4. The distribution of the pretest attitude index was slightly negatively skewed (skew = -.635, standard error = .150, kurtosis = -.170, standard error = .300) with a mean of 25.29, a standard deviation of 7.93, and an α of .902. The distribution of the post-test attitude index was also slightly negatively skewed (skew = -.458, standard error = .150, kurtosis = -.311, standard error = .300) with a mean of 23.96, a standard deviation of 8.05, and an α of .902. The correlation between the pre- and post-test seven item attitude measure was .88.

Attitude Change. Attitude change was calculated employing the seven attitude measures and subtracting the pre-test measure from the post-test attitude measure. The distribution of the attitude change index was slightly negatively skewed (skew = -.274,

standard error = .150, kurtosis = .929, standard error = .300) with a mean of -1.3244, a standard deviation of 3.569 and an α of .453. A one sample t-test was conducted and revealed that there was statistically significant attitude change as attitudes became less favorable toward drinking five or more drinks in one sitting from the pre-test to the posttest, t(261) = -6.006, p < .001.

Behavioral Intention. Behavioral intention was measured with five items. Four of the items employed a Likert Scale and one was open ended; therefore, all items were standardized. Based on the results of the CFA, one item was discarded because it lowered the reliability and produced significant errors. The resulting four items were summed to form an index which did have one significant error for the pre-test and one for the post-test. For the pre-test the RMSE was .083 with an α of .771. For the post-test the RMSE was .032 and the α was .801. Inter-item correlations and descriptive statistics for these indices can be found in Tables 5 and 6. The distribution for the pre-test was slightly negatively skewed and platykurtic (skew = -.140, standard error = .150, kurtosis = -.915. standard error = .300). The distribution for the post-test was symmetrically distributed but platykurtic (skew = -.020, standard error = .150, kurtosis = -.900, standard error = .300). Again, because the index was standardized the mean of both the pre- and post-test distributions was 0. For the pre-test index the standard deviation was 3.673 and for the post-test the standard deviation was 3.684.

Believability. For every normative advertisement, regardless of the messages presented, believability was measured with one dichotomous item that asked, "I found this ad to be believable." The mean for this measure was .554 and the standard deviation

was .498. The distribution of this item was slightly negatively skewed and platykurtic (skew = -.217, standard error = .159, kurtosis = -1.970, standard error = .318).

Descriptive Norm Perceptions. Descriptive norm perceptions were measured with four items. Three of the items employed a Likert response scale and one item was open ended. Due to the differing response formats for these items, all items were standardized. Based on the results of the CFA, the least number of errors and the smallest RMSE occurred when all of the original items were retained. The RMSE for the post-test measure of descriptive norm perceptions was 0.111 and there were no statistically significant errors. Inter-item correlations and descriptive statistics for this index can be found in Table 7. Because the items were standardized the mean of each item was 0. Once the items were summed to form an index, the mean was also 0, the standard deviation 3.261 and α =.832. The distribution of the descriptive norm perception index was slightly negatively skewed and platykurtic (skew = -.300, standard error = .150, kurtosis = -1.101, standard error = .300).

Injunctive Norm Perceptions. Injunctive norm perceptions were measured with five items. Four of the items featured a Likert Scale and one was open ended; therefore, all items were standardized. Based on the results of the CFA, one item was thrown out because it lowered the reliability and produced significant errors. The resulting four item index had no statistically significant errors. The RMSE was 0.027 and the α was .801. Inter-item correlations and descriptive statistics for this index can be found in Table 8. The distribution of the injunctive norm perception index was slightly negatively skewed and platykurtic (skew = -.383, standard error = .150, kurtosis = -.811, standard error = .300). Again because the items were standardized, the mean of each item was 0. When

the items were summed to form an index, the mean of the distribution was 0 and the standard deviation was 3.157.

Induction Check

In order to check if students perceived the normative components of each message, an Analysis of Covariance (ANCOVA) was conducted in which the injunctive and descriptive norm inductions were independent group factors and the pre-test attitude index was a covariate. Means and standard deviations of the normative perceptions which were not adjusted for the covariate are presented in Table 9. There was a main effect for the injunctive norm condition on the injunctive norm index, F (2,252) = 3.664, p=.027, such that when the injunctive norm induction suggested drinking five or more drinks in one sitting, participants reported that they perceived this injunctive norm suggesting heavy drinking. There was also a substantial main effect for the descriptive norm condition on the injunctive norm index, F(2.252) = 6.647, p=.002, such that when the descriptive norm induction suggested drinking five or more drinks in one sitting, participants reported that they perceived an injunctive norm that suggested heavy drinking as well. There was not a statistically significant interaction between descriptive and injunctive norms, F(4, 252) = .461, p = .765. There was also a main effect for the injunctive norm condition on the descriptive norm index, F(2,252) = 5.063, p = .007, such that when the injunctive norm condition suggested drinking five or more drinks in one sitting, participants perceived a descriptive norm that also suggested heavy drinking. There was also a main effect for the descriptive norm condition on the descriptive norm index, F(2,252) = 7.628, p = .001, such that when the descriptive norm induction suggested drinking five or more drinks in one sitting, participants perceived this

descriptive norm suggesting heavy drinking. Again, there was not a statistically significant interaction between descriptive and injunctive norms F(4, 252) = .805, p = .523. Perceptions of the injunctive norm and the descriptive norm were also correlated, r = .653, p < .001. Thus, the normative messages led participants to infer both descriptive and injunctive norms for college students about consuming alcohol.

Order Effects

Because three different orders of the advertisements were utilized, an Analysis of Variance (ANOVA) was conducted to estimate order effects. There was no evidence of any order effects on the post-test attitude, F(2,258) = .358, p = .70, post-test behavioral intention, F(2,258) = 1.095, p = .336, or attitude change, F(2,259) = .691, p = .502. *Hypotheses*

Hypothesis One. The first hypothesis predicted that if both normative messages were congruent and suggested heavy drinking, attitudes would be more favorable toward drinking five or more drinks. However, if both normative messages were congruent and suggested moderate drinking, attitudes would be less favorable. Incongruent messages would produce attitudes that were intermediate. In sum, if only the two message conditions are considered, two main effects (one for the descriptive norm induction and one for the injunctive norm induction) are expected.

In order to test this hypothesis, only the conditions in which participants received two normative messages were considered. An ANCOVA was conducted in which the pre-test attitude measure was entered into the model as a covariate and the descriptive and injunctive norm inductions were entered as fixed factors. The means for this analysis, which are unadjusted for the covariate, are presented in Table 10. The results show a

statistically significant main effect for descriptive norms on post-test attitude, F(1,113) = 4.786, p = .031, $\eta^2 = .041$, r = .202, d = .405. There was also a statistically significant effect for injunctive norms on post-test attitude, F(1, 113) = 7.937, p = .006, $\eta^2 = .066$, r = .257, d = .507. There was no evidence of an interaction between norm type, F(1, 113) = 1.179, p = .280, $\eta^2 = .010$, r = .100, d = .200. Looking at the means presented in Table 10 it is evident that the most favorable attitudes toward drinking five or more alcoholic drinks occurred when participants received two congruent messages suggesting heavy alcohol consumption. The least favorable attitudes toward drinking five or more drinks occurred when participants received two congruent messages suggesting moderate alcohol consumption. Thus, the data were consistent with the hypothesis.

In order to provide a more nuanced assessment of the relationship between multiple normative messages on attitudes, a regression analysis was conducted, in which the post-test attitude was regressed onto the pre-test and the two normative conditions. Regression analysis revealed that the model significantly predicted post-test attitudes, F(3, 114) = 193.842, p < .001. R for the model was .914 and adjusted R² was .832. Further, descriptive norms had a substantial positive impact on attitudes, $\beta = .084$, t(114)= 2.204, p = .030. The impact of injunctive norms on attitude was also statistically significant, $\beta = .107$, t (114) = 2.816, p = .006. Table 11 displays the results of the regression analysis.

Hypothesis Two. Hypothesis two predicted that if both normative messages were congruent and suggested heavy drinking, behavioral intentions would be more favorable toward drinking five or more drinks at one sitting. If both normative messages were congruent and suggested moderate drinking, behavioral intentions would be less

favorable. If the messages were incongruent, behavioral intentions would be intermediate.

In order to test this hypothesis, only the conditions in which participants received two normative messages were considered. An ANCOVA was conducted in which the pre-test behavioral intention measure was entered into the model as a covariate. The means for this analysis, which have not been adjusted for the covariate, are presented in Table 12. The analysis revealed that descriptive norms did not have a substantial impact on post-test behavioral intentions, F(1,113) = .830, p = .364, $\eta^2 = .007$, r = .087, d =.167. Injunctive norms, however, did have a statistically significant effect on behavioral intention, F(1,113) = 5.469, p = .021, $\eta^2 = .046$, r = .214, d = .429. There was not a statistically significant interaction between descriptive and injunctive norms, F(1,113) =.085, p = .772, $\eta^2 = .001$, r = .032, d = .063.

Looking at the means presented in Table 12, the largest intentions to consume five or more alcoholic drinks occurred when participants received two congruent messages suggesting heavy alcohol consumption. The smallest behavioral intention to consume five or more alcoholic beverages occurred when participants received two congruent messages suggesting moderate drinking. As predicted, the means for the incongruent normative messages were in between the two extremes. In the main, the data were consistent with the spirit of the second hypothesis. The main effect of the descriptive norm, however, did not reach conventional levels of significance.

In order to examine further the relationship between multiple normative messages and behavioral intention, behavioral intentions was regressed onto pre-test behavioral intention, descriptive and injunctive norms. Regression analysis revealed that the model

significantly predicted post-test behavioral intention, F(3, 114) = 323.740, p < .001. R for the model was .946 and adjusted R² was .892. Descriptive norms did not have a substantial impact on behavioral intention $\beta = .028$, t (114) = .908, p = .366. The impact of injunctive norms on behavioral intention was positive and statistically significant $\beta =$.071, t (114) = 2.347, p = .021. The results of this analysis are presented in Table 11.

Because the effect of descriptive norms was within sampling error of zero, descriptive norms were eliminated from the regression equation and the analysis was conducted again. Therefore, behavioral intention was regressed onto injunctive norms and the pre-test measure of behavioral intention. These results are consistent with the previous analysis. The model significantly predicted post-test behavioral intention, F(2,115) = 484.941, p<.001. R for the model was .946 and adjusted R² was .892. The impact of injunctive norms on behavioral intention was positive and statistically significant β = .070, t (115) = 2.317, p =.022.

Although there were no hypotheses posed about the effects of receiving a single normative message, the design of the study allows for analysis of all nine conditions. Further, the data are informative. For these reasons, an ANCOVA including all nine conditions was conducted with the pre-test was entered into the model as a covariate. The means from this analysis, which are not adjusted for the covariate, are presented in Table 13. There were two statistically significant main effects for norm type on post-test attitude. Both the descriptive norm, F(2, 252) = 3.829, p = .023, $\eta^2 = .029$, r = .170, d = .341, and for the injunctive norm, F(2, 252) = 5.213, p = .006, $\eta^2 = .040$, r = .200, d = .400, produced statistically significant effects. The interaction between norm type on

post-test attitude was not statistically significant, F(4, 252) = 1.702, p = .150, $\eta^2 = .026$, r = .161, d = 322.ⁱⁱ

Looking at the means presented in Table 13, attitudes were most favorable for drinking five or more drinks when participants received either two congruent messages which suggested heavy drinking or no messages whatsoever. When participants received an injunctive norm message which suggested heavy drinking and no descriptive norm message, attitudes toward drinking five or more drinks were also higher than the other conditions.

In order to examine the main effects in more detail a contrast analysis on the main effects was performed. For the injunctive norm messages, attitudes were substantially different for the heavy drinking condition compared with the moderate and no message condition, p = .005. There was, however, no statistically significant difference between the moderate condition and the no message condition, p = .109.

For the descriptive norm conditions, the no message condition and the heavy drinking message condition were substantially different than the moderate drinking message condition, p = .007. The heavy message condition was not statistically different, however, from the no message condition, p = .709.

Behavioral intentions were also examined when participants received a single message. An ANCOVA was conducted with the pre-test behavioral intention index entered into the model as a covariate. The means from this analysis are presented in Table 16. The results show that the injunctive norm had a statistically significant effect on posttest behavioral intention, F(2, 252) = 6.510, p = .002, $\eta^2 = .049$, r = .221, d = .442. The descriptive norm effect on behavioral intention was not statistically significant, F(2, 252)

= .914, p = .402, $\eta^2 = .007$, r = .084, d = .167. There was also not a substantial interaction between norm type on behavioral intention, F(4, 252) = .450, p = .772, $\eta^2 = .007$, r = .084, d = .167. The main effect for injunctive norms is apparent when looking at the means presented in Table 15, as the greatest intentions to consume alcohol occurred when the injunctive norm suggested heavy alcohol consumption.

In order to examine the main effects in more detail a contrast analysis on the main effects was performed. For the injunctive norm messages, behavioral intentions were substantially different for the moderate drinking condition compared with the no message and heavy drinking condition, p = .001. There was, however, no statistically significant difference between the no message condition and the heavy drinking condition, p = .133. There was also a statistically significant difference between the behavioral intentions for the no message condition and the moderate message condition, p = .038. The heavy drinking condition was also different from the moderate and no message condition, p = .003.

For the descriptive norm conditions, the moderate drinking condition was not substantially different from the no message condition and the heavy drinking message condition, p = .256. The no message condition was also not substantially different from the heavy drinking condition, p = .462. The no message condition was also not significantly different from the moderate drinking condition, p = .178 and the heavy drinking condition was not different from the no message condition and the moderate drinking condition, p = .935.

Hypothesis Three. The third hypothesis predicted that those who received two congruent messages were likely to find the advertisement, as a whole, more believable
than those who received two incongruent messages. To test this hypothesis, a message congruency variable was created where 1 was coded if a participant received two congruent messages and -1 was coded if a participant received two incongruent messages. There was a statistically significant relationship between message congruency and advertisement believability, χ^2 (1, N= 117) = 6.353, p = .012, φ = .233. Table 16 contains the percentages for each of these conditions. Those who received two congruent messages were more likely to find the advertisement believable; whereas, those who received two incongruent messages were less likely to find the advertisement believable. Thus, the data are consistent with hypothesis three.

Advertisement believability was also examined for each of the types of normative messages. A correlation analysis was conducted with the dichotomous advertisement believability variable and the trichotomous injunctive norm condition variable. There was a statistically significant positive relationship between injunctive norms and advertisement believability, r = .145, p = .027. Those who received an injunctive norm message which suggested heavy drinking were more likely to find the advertisement believable; whereas, those who received an injunctive norm message which suggested moderate drinking were more likely to find the advertisement unbelievable. There was not, however, a statistically significant relationship between descriptive norm messages and advertisement believability, r = .077, p = .242.

Hypothesis Four. The fourth hypothesis postulated that advertisement believability would mediate the relationship between message congruency and attitudes. To the extent that believability mediates the relationship between the normative messages and attitude, when messages are believable, congruent, and suggest heavy drinking, then it is expected that students would have a very positive attitude toward consuming five or more drinks at one sitting. On the other hand, when messages are believable, congruent, and suggest moderate drinking, then it is expected that students would have a less favorable attitude toward consuming five or more drinks at one sitting. Alternatively, when messages are believable but incongruent, it is expected that attitudes are intermediate between these two extremes. When messages are not believable, however, there is no reason to expect attitudes to vary across these three message conditions. To test this idea the four, two message conditions were recoded into three: (1) the two incongruous message conditions were collapsed, (2) the congruous condition suggesting heavy drinking, and (3) the congruous condition suggesting moderate drinking.

An ANCOVA was conducted with the pre-test attitude measure entered as a covariate and the new recoded condition variable and advertisement believability as independent factors. The means for this analysis, which are not adjusted for the covariate, are presented in Table 17. The results revealed that advertisement believability did not have a significant impact on the post-test attitude measure, F(1, 110) = .170, p = .681, $\eta^2 = .002$, r = .045, d = .089. Condition did have a substantial impact on post-test attitude, F(2, 110) = 6.852, p = .002, $\eta^2 = .111$, r = .333, d = .666, such that when participants received two congruous messages which suggested heavy alcohol consumption, attitudes were more favorable toward consuming five or more drinks in one sitting. The interaction between the recoded condition variable and advertisement believability was also not significant, F(2, 110) = 1.254, p = .289, $\eta^2 = .022$, r = .148, d = .297. These results show that there is no evidence that advertisement believability mediated the relationship between message congruency and post-test attitudes.

Hypothesis Five. The fifth hypothesis postulated that advertisement believability would mediate the relationship between message congruency and behavioral intentions. Similar to the procedure used with hypothesis four, an ANCOVA was also conducted with the pre-test behavioral intention measure entered as a covariate, the new condition variable and advertisement believability as independent factors, and the behavioral intention measure as a dependent variable. The new recoded trichotomous condition variable was entered as the independent factor. The means for this analysis, which are not adjusted for the covariate, are presented in Table 18. Advertisement believability did not have a significant impact on behavioral intentions, F(1, 110) = .106, p = .745, $\eta^2 = .001$, r = .031, d = .063. The condition variable, however, had a statistically significant effect on behavioral intention, F(1, 110) = 3.192, p = .045, $\eta^2 = .055$, r = .235, d = .469. Interestingly, behavioral intentions to consume five or more alcoholic drinks in one sitting were greatest when participants received two incongruous messages but did not believe the advertisement. The interaction between advertisement believability and the trichotomous condition variable was also not statistically significant, F(2, 110) = 1.960, p = .146, $\eta^2 = .034$, r = .184, d = .369. Therefore, there was no evidence that advertisement believability mediated the relationship between message congruency and behavioral intention. The fifth hypothesis was, therefore, not supported.

The design of this study also allows for analysis of a recent research finding by Schultz et al. (2007) who found that in the realm of energy conservation those who were using less energy increased their energy use when supplied with a descriptive norm message about energy usage in the neighborhood. Schultz et al. (2007) found that a single descriptive norm message served as a point of comparison from which people did not

want to deviate. Therefore, after being supplied with a descriptive norm message about energy consumption, those who consumed more energy than the norm decreased their energy usage from the baseline and those who used less energy than the norm increased their energy usage from the baseline to match the norm. Those, however, who had been low energy consumers and were supplied with a descriptive norm message and an injunctive norm message in the form of a positively valenced emoticon continued to consume less energy.

In order to delve further into the finding that Schultz et al. (2007) reported, independent samples t-tests were conducted with the attitude change means. For the descriptive norm condition which suggested moderate drinking, there was significant negative attitude change from the pre-test to the post-test, t(90) = -4.927, p<.05, indicating that overall participant attitudes became less favorable toward drinking five or more drinks. For the no message descriptive norm condition, there was also significant negative attitude change, t(83) = -2.874, p<.05. There was also significant negative attitude change for the descriptive norm condition which suggested heavy drinking, t(96)= -2.376, p<.05. Turning to the injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking, t(85) = -2.1279, p<.05. The injunctive norm condition which suggested moderate drinking also produced negative attitude change which approached conventional levels of significance, t(87) = -1.551, p<.10.

These analyses show that even when presented with normative messages that encouraged heavy drinking, participant attitudes toward drinking five or more drinks

became less favorable from the pre-test to the post-test. Thus, students were motivated to hold a less favorable attitude toward consuming large amounts of alcohol and did not try to match the normative information that they received. This effect held even when participants were supplied with normative messages that encouraged heavy alcohol consumption. Thus, Schultz et al.'s (2007) concern of a boomerang effect was not evident in these data.

DISCUSSION

This study was an initial investigation into how receiving multiple normative messages affected attitudes and attitude change. Although this is the first study to do so, this topic is important to explore as it is highly likely that people do receive conflicting normative messages in their everyday life. Furthermore, the intricate design of this study allowed for analysis of all possible message conditions and, thus, provided rich data. There were nine different conditions which included a no message control condition. Two fake advertisements were also included to conceal the intent of the study. Additionally, there were three possible orders of these advertisements to minimize any possible order effects.

The design of study allows for investigation into the relationship between different types of norms, advertisement believability, and receiving multiple messages. The first and second hypotheses were consistent with the data as attitudes and behavioral intentions to consume five or more drinks were greatest when participants received two congruent messages suggesting heavy alcohol consumption. Attitudes and behavioral intentions to consume five or more drinks were smallest when participants received two congruent messages suggesting moderate drinking, intermediate when they received two incongruent messages, and largest when they received two congruent messages suggesting heavy drinking.

Interestingly when taking into account the single message conditions, behavioral intentions to consume five or more drinks were greatest when injunctive norms suggested heavy drinking regardless of the descriptive norm message or when participants received no messages at all. The power that injunctive norms have on behavioral intentions was

also illustrated by the statistically significant main effect for injunctive norms on behavioral intention. Descriptive norms did not produce a statistically significant main effect on behavioral intention. This finding mirrors previous findings which have found that injunctive norms, more so than descriptive norms, have a strong association with behavior across different types of behavior (e.g. Cialdini, Kallgren, & Reno, 1991; Klein & Boster, 2005).

The injunction check data also point to the relationship between norm types. For the injunctive norm condition, participants perceived both injunctive and descriptive norms. For the descriptive norm condition, participants also perceived both injunctive and descriptive norms. There was, however, no evidence of an interaction. Each induction, therefore, bolstered the other. This is an important finding because normative campaigns often only focus on descriptive norms. This data show that even if normative campaigns only focus on one type of norm, the audience is likely to perceive both types of norms. This is perhaps because what is approved of is often what is done (Cialdini et al., 1990).

Although there are no known previous quantitative studies that have looked at the effects of receiving multiple normative messages on persuasion, the message sidedness literature has looked at the effects of multiple messages on persuasion. Allen (1991) found that a two-sided nonrefutational message was less persuasive than a one-sided message, and that a two-sided refutational message was more persuasive than a one sided message. Two incongruent normative messages are akin to a two-sided nonrefutational message and a single message is equivalent to a one-sided message. The adjusted posttest means are consistent with Allen's (1991) finding. When incongruous, or two-sided

nonrefutational, messages were administered, attitudes were intermediate. When onesided messages suggested heavy drinking, attitudes were most positive toward drinking. And, when one-sided messages suggested moderate drinking, attitudes were least positive toward drinking.

These findings provide additional evidence that the social norms approach can have powerful effects on college alcohol consumption. Further support for the social norms approach was evidenced as both descriptive and injunctive norms had significant main effects on the post-test attitude measure and also attitude change. Early support for the power of social norms came from Perkins and Berkowitz (1986) and Cialdini, Reno, and Kallgren (1990) and has continued with a recent study by DeJong et al. (2006) who found that campuses that implemented a social norms-based campaign had lower perceptions of student drinking levels and lower alcohol consumption compared with schools that did not implement a norm-based campaign. However, others have doubted the effect that the social norms approach has on drinking attitudes, behaviors, and intentions (Wechsler et al., 2003). This study provides evidence that norms as part of persuasive advertisements have strong associations with attitudes toward heavy drinking and can be influential when employed in social norms campaigns.

The results of this study should be considered in light of the environment in which it was conducted. This study was conducted at a university where a social norms campaign has been in place for six years. All participants in this study have been exposed to an ongoing normative campaign throughout their college careers. Therefore, any effect on attitudes and behavioral intentions that occurred was above and beyond any changes that have already taken place due to this pre-existing campaign.

Linkenbach (2003) has developed a model for social norms campaigns based on reducing alcohol related crashes in Montana. This model consists of the steps necessary to take a campaign from the strategic planning steps to evaluation. Linkenbach (2003) notes that during this process it is very important that the messages are delivered often enough to achieve saturation and create audience awareness. It takes approximately eight months to one year to carry out a normative campaign and evaluate its effectiveness (Linkenbach, 2003).

This framework for a successful social norms campaign provides interesting insight into the current study. Participants were only exposed to the campaign message once and their attitudes and behavioral intentions were measured immediately following. The experimental normative messages were able to affect both attitudes and behavioral intentions after only one exposure. Therefore, if the same campaign messages were delivered repeatedly in an extensive social norms campaign then the findings of this study might be even more pronounced.

Further, a stronger relationship between advertisement believability and attitudes and behavioral intention might be evident in an extensive campaign. Even though this study did not find evidence that advertisement believability mediated the relationship between message congruency and attitudes or behavioral intentions, other studies have found that advertisement believability plays a crucial role in estimating peer alcohol consumption (Park et al. 2007b). Therefore, a longer social norms campaign might find that advertisement believability does mediate the relationship between message congruency and behavioral intentions and between message congruency and attitudes.

As expected, there was a significant relationship between message congruency and advertisement believability. Those who received two congruent messages found the advertisements more believable than two incongruent messages. Although this result may seem intuitive, it is an important finding. Other studies have pointed out that college students receive incongruent messages about alcohol consumption (e.g. Yanovitzky & Stryker, 2001; Peralta, 2002; Ross, 2004; Nygaard & Grube, 2005). Therefore, if students receive incongruent normative messages about alcohol consumption, this message environment is going to have detrimental affects on the believability of normative campaigns produced by universities.

An interesting finding of this study was the association between norm type and believability. The relationship between descriptive norms and advertisement believability was not statistically significant but the relationship between injunctive norms and advertisement believability was. This result corroborates studies that have found that the types of norms are not only conceptually different but that they are also related to other variables differently (Klein & Boster, 2006; Park & Smith, 2007; Park et al. 2007a).

The design of this study also allowed for an additional investigation into Schultz et al.'s (2007) finding. Although the results of this study did not replicate Schultz et al.'s (2007) finding, one possible explanation for this may be explained by the type of behavior studied. Energy consumption is a very ambiguous behavior. It is difficult to gauge, not only the energy usage of neighbors, but also how much energy consumption is approved. Further, the behavior is enacted in a private setting. Alcohol consumption, however, is a much more public and a less ambiguous behavior (Lapinski & Rimal, 2005). It is a lot easier to observe normative behavior and approval around alcohol

consumption compared to energy consumption. Lapinski and Rimal (2005) assert that behavioral attributes like privacy and ambiguity effect normative influence. When a situation is public and unambiguous, norms have a much more powerful effect as people are more susceptible to descriptive normative forces than when a situation is private and ambiguous (Lapinski & Rimal, 2005). Therefore, the difference in the behavioral attributes of alcohol consumption and energy consumption may yield a difference in findings.

Although the behavior of drinking is more public and ambiguous, the messages that participants received in the present study were more ambiguous than the messages in the Schultz et al. (2007) study. This may be an alternate explanation for the difference in findings. Participants were given an actual point estimate of the energy consumption norm in the Schultz et al. (2007) study. The present study, however, was not as precise and offered participants a range of normative behavior. Therefore, the message was more ambiguous and might not have produced what Schultz et al. (2007) termed a boomerang effect as participants did not have an exact figure to strive to reach. An interesting replication of the present study would be to supply participants with exact figures about their peers' alcohol consumption. For instance, messages could be designed so that they give participants the mean number of drinks that students at their university consume in one sitting. Or a replication of the Schultz et al. (2007) study could be designed where people are given ranges of normative energy use to see if this still produces what Schultz et al. (2007) termed a boomerang effect. Therefore, the differences in findings between the present study and the Schultz et al. (2007) may be due to the variation in either the ambiguity of the behavior or the messages.

Limitations

Overall this study shows that the different norm types can have effects on attitudes and that receiving incongruent messages can obfuscate these effects. Although this study was an important initial investigation into how incongruent messages affect believability and attitudes, it is not without limitations. One possible limitation of this study is that the sample was a convenience sample. A larger, random sample might make the results more generalizable to college students across the United States. It should be noted, however, that unlike many studies in which college students are simply studied out of ease, this study sampled college students because they were the most relevant population for this area of study. Normative campaigns have largely focused on reducing heavy episodic alcohol consumption among college students; therefore, a study looking at the effects of incongruent normative messages about alcohol consumption makes sense with a college student sample.

Another possible limitation of this study is the immediate measure of attitudes and attitude change following the viewing of the normative advertisements. A future study might want to look at multiple exposures to incongruent messages over time. The measure of believability might also be considered a limitation. Although there was only one indicator for this construct, this type of dichotomous measure has been used effectively in past studies (e.g. Park et al., 2007b). Many researchers face the dilemma that a one item measures creates because not only is it difficult to create more than one measure for certain constructs but survey length must also be considered in order to avoid survey fatigue. Therefore, a replication of this study that includes more indicators for this

construct might further illuminate the relationship between believability and normative messages.

Implications and Future Directions

Although this study is not without limitation it does have some important implications for future normative campaigns. This study shows that when participants receive two congruent normative messages, attitude change can be achieved. Many normative campaigns and studies only employ one type of normative message, usually a descriptive norm message. This study shows that not only do injunctive norms have effects but that employing these messages together can be powerful. Future social normsbased campaigns should look to employ both descriptive and injunctive norms jointly to maximize results.

Because this study was an initial investigation into the effect of conflicting normative messages, it can be used as a foundation for continued research on this topic. Future studies might seek to replicate the findings of this study but with messages that are framed differently. This study used the phrasing "five or more drinks" when delivering injunctive norm messages and "four or fewer" when delivering descriptive norm messages. A future study could look to change this wording to see if the effects still hold or if the effects can be attributed to framing.

In addition to changing the wording of the messages, the wording of the attitude measure could also be altered in a future study. The attitude measure in this study asked participants about their attitude toward drinking five or more drinks in one sitting. Future studies may want to also ask other attitude measures to see if the results still hold.

This study could be replicated, not only with differently worded messages and attitude measures, but also with a different topic. Previous studies (e.g. Klein & Boster, 2006) have found that norms may operate differently with different types of behavior. Therefore, replicating this study with other behaviors that norms have been applied to such as organ donation (Park & Smith, 2007), reusing hotel towels (Goldstein, Griskevicius & Cialdini, 2007), water conservation (Corral-Verdugo & Frias-Armenta, 2006), smoking (Gunther, Bolt, Borzekowski, Liebhart, & Dillard (2006), and rape (Bohner, Siebler & Schmelcher, 2006) might be beneficial and demonstrate the extent to which the results of this study can be generalized across topic.

APPENDICES

APPENDIX A

Tables and Figures

Table T. Design o	or the Study			
			Descriptive Norm	
		Suggesting	Null	Suggesting
		drinking in		drinking in large
		moderation		quantities
	Suggesting	Incongruent	Single Message	Congruent
	drinking large	Message		Message
Injunctive Norm	quantities			
	Null	Single Message	No Message	Single Message
			Condition	
	Suggesting	Congruent	Single Message	Incongruent
	drinking in	Message		Message
	moderation			

Table 1. Design of the Stud

			Descriptive Norm	
Injunctive		Suggesting drinking in moderation	Null	Suggesting drinking large quantities
Norm	Suggesting drinking large quantities	"77% of XXX students drink 4 or fewer drinks when they party."		"23% of XXX students drink 4 or fewer drinks when they party"
		"28% of XXX students disapprove of drinking 5 or more drinks when they party"	"28% of XXX students disapprove of drinking 5 or more drinks when they party"	"28% of XXX students disapprove of drinking 5 or more drinks when they party"
		1	2	3
	Null	"77% of XXX students drink 4 or fewer drinks when they party." 4	No Message Condition 5	"23% of XXX students drink 4 or fewer drinks when they party" 6
	Suggesting drinking in Moderation	"77% of XXX students drink 4 or fewer drinks when they party."	"72% of XXX students disapprove of drinking 5 or more drinks when they party."	"23% of XXX students drink 4 or fewer drinks when they party"
		"72% of XXX students disapprove of drinking 5 or more drinks when they party." 7	8	"72% of XXX students disapprove of drinking 5 or more drinks when they party." 9

Table 2: Study Messages by Condition

	1	2	3	4	5	6	7	FL	Mean	St. Dev
1								.82	3.402	1.360
2	.666**							.77	4.234	1.510
3	.612**	.620**						.77	4.701	1.692
4	.623**	.568**	.618**					.77	3.309	1.253
5	.661**	.543**	.573**	.663**				.77	3.399	1.250
6	.573**	.599**	.582**	.517**	.541**			.73	3.651	1.429
7	.548**	.500**	.503**	.480**	.525**	.513**		.66	2.674	1.318

Table 3: Pre-Test Attitude Measure Inter-Item Correlations, Factor Loadings, and **Descriptive Statistics**

Note: Factor Loading is abbreviated as FL ** Correlation is statistically significant at the .01 level (2-tailed)

	1	2	3	4	5	6	7	FL	Mean	St. Dev
1								.87	3.172	1.361
2	.758**							.85	3.812	1.593
3	.564**	.591**						.68	4.565	1.686
4	.658**	.615**	.551**					.76	3.100	1.252
5	.786**	.705**	.563**	.696**				.87	3.222	1.242
6	.552**	.641**	.502**	.455**	.567**			.68	3.512	1.445
7	.592**	.516**	.411**	.492**	.574**	.456**		.65	2.686	1.307

Table 4: Post-Test Attitude Measure Inter-Item Correlations, Factor Loadings, and Descriptive Statistics

Note: Factor Loading is abbreviated as FL ** Correlation is statistically significant at the .01 level (2-tailed)

	1	2	3	4	FL	Mean	St. Dev
1					.76	4.997	3.042
2	.700**				.96	3.015	1.241
3	.762**	.876**			.94	2.973	1.230
4	.670**	.920**	.832**		.91	3.077	1.187

Table 5: Pre-test Behavioral Intention Inter-Item Correlations, Factor Loadings, and **Descriptive Statistics**

Note: Factor Loading is abbreviated as FL All means and standard deviations are shown prior to standardization

****** Correlation is statistically significant at the .01 level (2-tailed)

	1	2	3	4	FL	Mean	St. Dev
1	<u>-</u> <u></u>				.78	4.916	3.049
2	.710**				.94	2.981	1.192
3	.781**	.870**			.94	2.874	1.195
4	.686**	.906**	.840**		.92	3.019	1.143

Table 6: Post-test Behavioral Intention Inter-Item Correlations, Factor Loadings, and Descriptive Statistics

Note: Factor Loading is abbreviated as FL

All means and standard deviations are shown prior to standardization

****** Correlation is statistically significant at the .01 level (2-tailed)

	1	2	3	4	FL	Mean	St. Dev
1					.67	47.218	22.131
2	.558**				.89	3.309	.975
3	.504**	.647**			.71	3.157	.944
4	.489**	.652**	.467**		.71	3.031	.998

Table 7: Descriptive Norm Perception Inter-Item Correlations, Factor Loadings, and Descriptive Statistics

Note: Factor Loading is abbreviated as FL

All means and standard deviations are shown prior to standardization

** Correlation is statistically significant at the .01 level (2-tailed)

	1	2	3	4	FL	Mean	St. Dev
1					.60	46.235	23.117
2	.410**				.74	3.302	.908
3	.491**	.593**			.78	3.321	.917
4	.444**	.544**	.513**		.70	3.092	.866

Table 8: Injunctive Norm Perception Inter-Item Correlations, Factor Loadings, and Descriptive Statistics

Note: Factor Loading is abbreviated as FL

All means and standard deviations are shown prior to standardization ** Correlation is statistically significant at the .01 level (2-tailed)

			Descriptive Norm	1
		Moderate	No Message	Heavy Drinking
		Drinking		
	Moderate Drinking			
	DN Perception	-1.428 (2.651)	-1.473 (3.81)	.097 (2.892)
	IN Perception	622 (2.856)	769 (3.620)	040 (2.966)
	No Message			
Injunctive	DN Perception	221(3.344)	.195 (2.948)	.536 (3.160)
Norm	IN Perception	512 (2.783)	.138 (3.174)	.112 (3.290)
	Heavy Drinking			
	DN Perception	.307 (4.052)	1.420 (2.877)	.536 (3.160)
	IN Perception	-3.29 (3.825)	1.267 (2.854)	.837 (2.699)

Table 9: Normative Perception Means

		Descrip	otive Norm	Mean
		Moderate	Heavy	
		Drinking	Drinking	
Injunctive	Moderate	23.607	23.633	23.140
Norm	Drinking	(8.029)	(8.771)	(8.363)
	Heavy	24.032	27.103	25.517
	Drinking	(9.871)	(7.451)	(8.848)
	Mean	23.356	25.339	24.348
		(8.996)	(8.266)	(8.659)

Table 10: Norm Type and Post-Test Attitude Measure Means

	β		t	р	R	Adjusted	F	р
						R ²		
Attitude					.914	.832	193.842	<.001
IN		.107	2.816	.006				
DN		.084	2.204	.030				
Behavioral					.946	.892	323.740	<.001
Intention								
IN		.071	2.347	.021				
DN		.028	.908	.366				
Behavioral					.946	.892	484.941	<.001
Intention								
(without DN)								
IN	.(070.	2.317	.022				

Table 11: Summary of Regression Findings for Multiple Normative Message Conditions

		Descript	ive Norm	Mean
		Moderate	Heavy	
		Drinking	Drinking	
	Moderate	-0.643	0.727	0.066
Injunctive	Drinking	(3.506)	(3.644)	(3.613)
Norm	Heavy	0.618	0.955	0.781
	Drinking	(3.785)	(3.318)	(3.541)
	Mean	0.020	0.839	0.429
		(3.679)	(3.459)	(3.579)

Table 12: Norm Type and Post-Test Behavioral Intention Means

		Injunctive Norm			Mean
		Moderate	None	Heavy	
		Drinking			
	Moderate	22.607	22.594	24.032	23.088
Descriptive	Drinking	(8.029)	(7.910)	(9.871)	(8.593)
Norm	None	22.964	25.179	24.571	24.238
		(7.584)	(8.287)	(6.17)	(7.369)
	Heavy	23.633	23.071	27.103	24.609
	Drinking	(8.771)	(7.702)	(7.451)	(8.115)
	Mean	23.081	23.568	25.216	23.962
		(23.568)	(7.955)	(8.068)	(8.053)

Table 13: Norm Type and Post Test Attitude Measure Means for all Nine Conditions

		injuitou ve i vorini			
		Moderate	None	Heavy	Mean
		Drinking			
	Moderate	-2.500	-2.438	-1.387	-2.100
Descriptive	Drinking	(4.308)	(4.247)	(3.667)	(4.069)
Norm	None	-2.107	-0.036	-0.857	-1.000
		(3.563)	(3.574)	(1.860)	(3.185)
	Heavy	-1.800	-1.357	0.690	-0.828
	Drinking	(2.696)	(3.058)	(3.496)	(3.250)
	Mean	-2.128	-1.330	-0.534	-1.324
		(3.534)	(3.784)	(3.230)	(3.569)

Injunctive Norm

		Injunctive Norm			Mean
		Moderate	None	Heavy	
		Drinking			
	Moderate	-0.643	-0.901	0.618	-0.304
Descriptive	Drinking	(3.506)	(3.612)	(3.785)	(3.662)
Norm	None	-1.012	0.390	0.252	-0.123
		(3.234)	(3.946)	(3.779)	(3.677)
	Heavy	0.727	-0.410	0.955	0.437
	Drinking	(3.644)	(4.139)	(3.318)	(3.714)
	Mean	-0.285	-0.334	0.612	0.000
		(3.512)	(3.884)	(3.605)	(3.684)

 Table 15: Norm Type and Behavioral Intention Means for all Nine Conditions

 Injunctive Norm
 Mean

Note: Numbers in parentheses are standard deviations.

.

		Message Type		
		Incongruent	Congruent Message	
		Message		
Advertisement	No	59.02	35.71	
Believability	Yes	40.98	64.29	

 Table 16: Percentage of Participants Who Find Each Advertisement Believable by

 Congruency

		Message Condition			Mean
<u> </u>		Congruous	Incongruous	Congruous	
		Moderate		Heavy	
Advertisement	No	23.769	25.611	26.857	25.339
Believability		(5.718)	(9.421)	(6.594)	(25.339)
	Yes	21.600	21.280	26.905	23.295
		(9.694)	(8.595)	(7.930)	(8.911)
	Mean	22.607	23.836	26.893	24.274
		(8.029)	(9.270)	(7.500)	(8.659)

 Table 17: Post-Test Attitude Means based on Message Type and Advertisement

 Believability

		Message Condition			Mean
		Congruous	Incongruous	Congruous	
		Moderate		Heavy	
Advertisement	No	-0.160	1.840	0.375	1.193
Believability		(3.300)	(-1.012)	(.956)	(3.527)
	Yes	-1.061	-1.012	0.956	-0.347
		(3.737)	(3.300)	(3.265)	(3.475)
	Mean	-0.643	0.671	0.811	0.390
		(3.506)	(3.685)	(3.285)	(3.569)

Table 18: Post-Test Behavioral Intention Means based on Message Type and Advertisement Believability

APPENDIX B

Experimental Measures

Main Study Pre-Test
Note: Items marked with a * were used in the analysis

We are in the process of evaluating a series of public service announcements (PSAs) about topics that are pertinent to college students. We are interested in your opinion about potential messages for these PSAs. You will be supplied with sample advertisements and then answer questions about them. Please answer every question honestly as your input is valued. There is a front and back to each page.

Before you evaluate advertisements, we'd like to collect some background information.

Demographics

*1. Sex: Male Female
*2. Age: 18 19 20 21 22 23 24 Other
*3. Racial Identification: Black White Asian or Pacific Islander
Hispanic or Latino American Indian or Alaskan Native Other
*4. Year in School: 1^{st} year undergraduate 2^{nd} year undergraduate 3^{rd} year
undergraduate $\Box 4^{th}$ year undergraduate $\Box 5^{th}$ year or more undergraduate \Box Graduate
or professional 🗌 Other
*5. Are you a member of a social fraternity or sorority? (National Interfraternity
Conference, National Panhellenic Conference, or National Pan-Hellenic Council)
Yes No
For the next few questions, please consider one drink as approximately a 4 ounce glass of wine, a 12 ounce bottle or can of beer, a 12 ounce bottle or can of wine cooler or a shot of liquor straight or in a mixed drink.
Behavior
6. In the last month, on how many different occasions did you drink alcohol? -
7. On a normal night out, how many drinks do you consume?
8. Thinking back to the last time that you partied/socialized, how many drinks did you have, if any

9. On average how long do you usually party when you go out, i.e., how many hours is it from the time that you start drinking until the time you stop drinking for the night?

10. I often pace my alcohol consumption when I go out partying (1 per hour).

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

- 11. I seldom drink 4 or fewer drinks when I go out partying. (Recoded)
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 12. I drink moderately or not at all when I go out partying.
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 13. I often drink excessive amounts of alcohol (Recoded)
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 14. I usually drink 4 or fewer drinks when I socialize with friends.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

15. When I go out, I usually drink heavy amounts of alcohol. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Descriptive Norm Perceptions

16. Think of all MSU undergraduate students. What percentage do you think have 5 or more drinks in one sitting at least once during a normal week?

Frequency of Drinking

17. Within the last 30 days, how often do you think the typical MSU student drank alcohol? _____

Descriptive Norm Perceptions

18. Most MSU students have 5 or more drinks when they party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

19. Most MSU students have 4 or fewer drinks on one occasion when they party.

20. On a normal night out, most MSU students have 5 or more drinks when they socialize. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Personal Approval

21. I find heavy drinking to be a acceptable activity. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

22. I think that excessive drinking is an activity that one should avoid.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

23. I have ethical objections to binge drinking.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Injunctive Norm Perceptions

24. Think of all MSU undergraduate students. What percentage do you think consider drinking 5 or more drinks in one sitting at least once during a normal week to be an acceptable activity?

25. Most MSU students would approve of me limiting my alcohol consumption to 4 or fewer drinks when I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

26. Most MSU students would endorse my decision to have 5 or more drinks when I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

27. Most MSU students would approve of drinking 5 or more drinks in one sitting. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

28. Most MSU students think that I should have 4 or fewer drinks when I party.

Attitudes

Please place a check mark (\checkmark) on the line that bests corresponds to your opinion.

29. I think that drinking 5 or more alcoholic drinks in one sitting is

* A Good Thing	 A Bad Thing (Recoded)
*Acceptable	 Unacceptable (Recoded)
*Not Fun	 Fun
*Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible
Not Relaxing	 Relaxing
Necessary	 Not Necessary
*Good	 Bad (Recoded)
Unwise	 Wise
*Unfavorable	 Favorable (Recoded)
*Beneficial	 Not Beneficial (Recoded)

30. I think that drinking 4 or fewer alcoholic drinks in one sitting is

* A Good Thing	 A Bad Thing (Recoded)
*Acceptable	 Unacceptable (Recoded)
*Not Fun	 Fun
*Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible
Not Relaxing	 Relaxing
Necessary	 Not Necessary
*Good	 Bad (Recoded)
Unwise	 Wise
*Unfavorable	 Favorable (Recoded)
*Beneficial	 Not Beneficial (Recoded)

Please place a check mark (\checkmark) next to your response.

Behavioral Intention

*31. The next time that you party/socialize with friends, how many drinks do you think you will have _____.

*32. I intend to limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*33. I plan to drink 5 or more drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*34. I will limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Perceived Behavioral Control

35. It will be easy to limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree	Agree	Don't	t agree or	disagree	Disagree	Strongly o	lisagree
	L · · · · · · · ·						

36. I am confident that I will drink 5 or more drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

37. I can limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

38. Even if I wanted to, I do not think that I could limit my alcohol consumption to 4 or fewer drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

39. Sometimes I go out and drink more than I really want to. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

40. I often feel pressure to drink when I go out partying. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

41. If my friends are drinking, I feel that I should keep up with them.(Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

42. I feel pressured to drink more than I ought to drink. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Fake Questions

- 43. I plan to donate blood in the next few months. (Recoded)
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

44. I think that donating blood is something that everyone should do.

45. Donating blood is not very important.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

46. I have a lot of respect for people who donate blood.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

47. I think that donating blood is

A Good Thing	 A Bad Thing (Recoded)
Acceptable	 Unacceptable (Recoded)
Not Fun	 Fun
Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible

48. I plan to wear my seatbelt the next time that I ride in a car.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

49. I think that wearing your seatbelt is something that everyone should do.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

- 50. Wearing a seatbelt is not very important.
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 51. I have a lot of respect for people who always wear their seatbelt.

52. I think that wearing a seatbelt is

A Good Thing		A Bad Thing (Recoded)
Acceptable	· · · · · · · · · · · · · · · · · · ·	Unacceptable (Recoded)
Not Fun		Fun
Something that people should do		Something that people should not do (Recoded)
Responsible		Irresponsible

Experimental Stimulus Questions

You are now going to see a few advertisements on the screen in the front of the room. After each ad is placed on the screen please answer the following questions.

Advertisement 1: Please consider the advertisement on the screen.

Advertisement Believability

*I	found	this ad	to	be	believab	ole 🗌	yes		no
----	-------	---------	----	----	----------	-------	-----	--	----

Message Characteristics

This advertisement presents new information
yes
no

The message that said "23% of MSU students drink 4 or fewer drinks when they party" seems believable.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

The message that said "72% of MSU students disapprove of drinking 5 or more drinks when they party" seems believable.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

It seems reasonable that 23% of MSU students drink 4 or fewer drinks when they party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

It seems reasonable that 72% of MSU students disapprove of drinking 5 or more drinks when they party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Advertisement 2: Please consider the advertisement on the screen.

Fake Questions

I found this ad to be believable ves no

This advertisement presents new information
yes no

It is believable that one pint of blood can save up to 3 lives.

I think donating blood is something that everyone should do.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

I donate blood as often as I can remember.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

How many times did you donate blood in the last year?

Advertisement 3: Please consider the advertisement on the screen.

I found this ad to be believable \Box yes \Box no

This advertisement presents new information _ yes _ no

The message made me think that I should wear my seatbelt.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

I always wear my seatbelt.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

It is believable that if you do not wear your seatbelt then there may be dangerous consequences.

Post – Test

Descriptive Norm Perceptions

*1. Think of all MSU undergraduate students. What percentage do you think have 5 or more drinks in one sitting at least once during a normal week?

Frequency of Drinking

2. Within the last 30 days, how often do you think the typical MSU student drank alcohol? _____

Descriptive Norm Perceptions

*3. Most MSU students have more than 5 drinks in when they party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*4. Most MSU students have 4 or fewer drinks in one occasion when they party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*5. On a normal night out, most MSU students have 5 or more drinks when they socialize. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Personal Approval

6. I find heavy drinking to be a acceptable activity.(Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

7. I think that excessive drinking is an activity that one should avoid.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

8. I have ethical objections to binge drinking.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Injunctive Norm Perceptions

*9. Think of all MSU undergraduate students. What percentage do you think consider drinking 5 or more drinks in one sitting at least once during a normal week to be an acceptable activity?

10. Most MSU students would approve of me limiting my alcohol consumption to 4 or fewer drinks when I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*11. Most MSU students would endorse my decision to have 5 or more drinks when I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*12. Most MSU students would approve of drinking 5 or more drinks in one sitting. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*13. Most MSU students think that I should have 4 or fewer drinks when I party.

Attitudes

Please place a check mark (\checkmark) on the line that bests corresponds to your opinion.

14. I think that drinking 5 or more alcoholic drinks in one sitting is

* A Good Thing	 A Bad Thing (Recoded)
*Acceptable	 Unacceptable (Recoded)
*Not Fun	 Fun
*Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible
Not Relaxing	 Relaxing
Necessary	 Not Necessary
*Good	 Bad (Recoded)
Unwise	 Wise
*Unfavorable	 Favorable (Recoded)
*Beneficial	 Not Beneficial (Recoded)

15. I think that drinking 4 or fewer alcoholic drinks in one sitting is

* A Good Thing	 A Bad Thing (Recoded)
*Acceptable	 Unacceptable (Recoded)
*Not Fun	 Fun
*Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible
Not Relaxing	 Relaxing
Necessary	 Not Necessary
*Good	 Bad (Recoded)
Unwise	 Wise
*Unfavorable	 Favorable (Recoded)
*Beneficial	 Not Beneficial (Recoded)

Behavioral Intention

Please place a check mark (\checkmark) next to your response.

*16. The next time that you party/socialize with friends, how many drinks do you think you will have _____.

*17. I intend to limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*18. I plan to drink 5 or more drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

*19. I will limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

Perceived Behavioral Control

20. It will be easy to limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

21. I am confident that I will drink 5 or more drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

22. I can limit my alcohol consumption to 4 or fewer drinks the next time that I party.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

23. Even if I wanted to, I do not think that I could limit my alcohol consumption to 4 or fewer drinks the next time that I party. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

24. Sometimes I go out and drink more than I really want to. (Recoded)

25. I often	feel pressure t	o drink when	I go out p	oartying. ((Recoded)
-------------	-----------------	--------------	------------	-------------	-----------

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

26. If my friends are drinking, I feel that I should keep up with them. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

27. I feel pressured to drink more than I ought to drink. (Recoded)

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

28. I plan to donate blood in the next few months.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

29. I think that donating blood is something that everyone should do.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

30. Donating blood is not very important.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

31. I have a lot of respect for people who donate blood.

Strongly agree Agree Don't agree or disagree Disagree Strongly disagree

32. I think that donating blood is

A Good Thing	 A Bad Thing (Recoded)
Acceptable	 Unacceptable (Recoded)
Not Fun	 Fun
Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible

33. I plan to wear my seatbelt the next time that I ride in a car.

- 34. I think that wearing your seatbelt is something that everyone should do.
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 35. Wearing a seatbelt is not very important.
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 36. I have a lot of respect for people who always wear their seatbelt.
- Strongly agree Agree Don't agree or disagree Disagree Strongly disagree
- 37. I think that wearing a seatbelt is

A Good Thing	 A Bad Thing (Recoded)
Acceptable	 Unacceptable (Recoded)
Not Fun	 Fun
Something that people should do	 Something that people should not do (Recoded)
Responsible	 Irresponsible

APPENDIX C

Study Advertisements

Figure 1: Condition 1 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 2: Condition 2 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 3: Condition 3 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 4: Condition 4 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 5: Condition 6 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 6: Condition 7 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

Figure 7: Condition 8 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."

-

Figure 8: Condition 9 Advertisement



Note: The fine print above states, "National Health Assessment; MSU 2006. N = 1005, margin of error 3%."





Figure 10: Seatbelt Advertisement



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ⁱ The Journal of Studies on Alcohol and Drugs has adopted a policy in which the term binge can only be used to describe a prolonged period of alcohol consumption (usually two or more days) and a withdrawal from usual activities and obligations in order to continue alcohol consumption (http://www.jsad.com/jsad/static/binge.html, 2007).

ⁱⁱ An ANOVA was also conducted with attitude change as the dependent variable. Again, the two main effects were statistically significant. The results show a statistically significant effect of normative messages on attitude change, F(8, 253) = 2.825, p = .005, $\eta^2 = .082$, r = .286, d = .572. Both the descriptive norm, F(2, 253) = 3.583, p = .029, $\eta^2 = .028$, r = .170, d = .341 and the injunctive norm messages, F(2, 253) = 4.713, p = .010, $\eta^2 = .036$, r = .190, d = .379 affected attitude change. The interaction between descriptive and injunctive norms on attitude change was not statistically significant, F(4, 253) = 1.505, p = .201, $\eta^2 = .023$, r = .152, d = .303. These results show that the type of norm message received has an impact on attitude change but that the normative messages do not interact with each other. The means for this analysis are presented in Table 14.
