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**SUBJECTIVE, DESCRIPTIVE AND INJUNCTIVE NORMS:
THREE SEPARATE CONSTRUCTS**

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**SUBJECTIVE, DESCRIPTIVE AND INJUNCTIVE NORMS:
THREE SEPARATE CONSTRUCTS**

By

Katherine Ann Klein

A THESIS

**Submitted to
Michigan State University
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ABSTRACT

SUBJECTIVE, DESCRIPTIVE, AND INJUNCTIVE NORMS: THREE SEPARATE CONSTRUCTS

By

Katherine Ann Klein

Subjective, descriptive and injunctive norms are often used synonymously in studies and are simply referred to as the social norms approach. This thesis examined the three types of norms to determine if they are alternate indicators of the same underlying construct or if they are three separate constructs. A survey measuring these types of norms and their influence on behavior was conducted. The results suggest that the three types of norms are, in fact, three separate constructs. This is evidenced by the low correlation between the three types of norms and by the different relationships each norm type has with behavior. The findings of this study have large implications for future studies and campaigns employing norms.

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INTRODUCTION

Because there is great debate about how much attitudes influence behavior, there have been numerous studies that attempt to offer a more precise estimate of the correlation between attitudes and behavior. One such attempt was a meta-analysis by Kim and Hunter (1993) that included 138 studies and found a strong link between attitudes and behavior. This study found the correlation between attitudes and behavior to be .47. This figure was attenuated by measurement error, and when corrected the correlation increased to .79 (Kim & Hunter, 1993). Therefore, empirical evidence points to a substantial correlation between attitudes and behavior.

Attitudes are not the only predictor of behavior. Researchers have found that other variables in conjunction with attitudes can increase the predictability of behavior. One such effort to determine other elements that influence behavior is Fishbein and Ajzen's Theory of Reasoned Action (1977).

The Theory of Reasoned Action

The Theory of Reasoned Action postulates that subjective norms and attitudes are predictors of behavioral intention, which is, in turn, a direct cause of behavior. Figure one depicts this model.

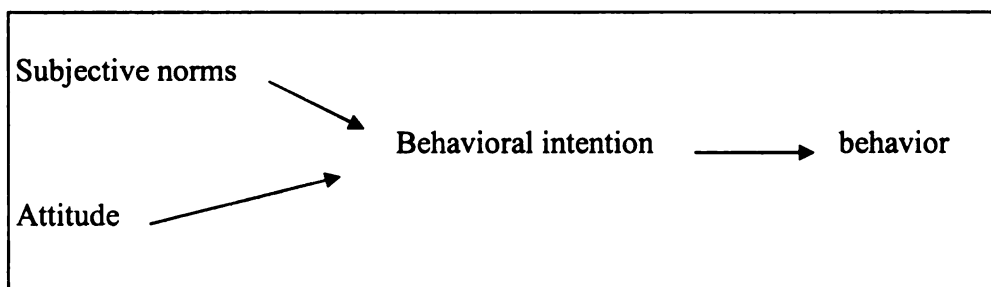


Figure 1: The Theory of Reasoned Action

Of increasing importance in social science, particularly health communication, is the subjective norms component of this model. Fishbein and Ajzen (1972) define subjective norms as beliefs about what others expect one to do in a given situation. In other words, social norms are the normative expectations of others (Ajzen, 2002). The subjective norm is based on the expectations of other important people and weighted by the motivation to comply with these others (Trafimow & Fishbein, 1994).

The TRA has been studied thoroughly, and subsequently a substantial amount of data consistent with the theory has been produced. Ajzen and Fishbein (1973) performed an analysis of 10 studies and found that the average correlation between behavioral intention and behavior was .63 and the mean multiple correlation between attitudes and norms with intentions was .76. These high correlations point to this model as a strong predictor of behavior and its immediate antecedent.

Albarracin, Johnson, Fishbein and Muellerleile (2001) conducted a meta analysis with a data set comprised of 96 studies to analyze this theory's ability to predict condom usage. The link between subjective norms and behavioral intention was found to be fairly strong with a weighted mean correlation of .39. However, attitudes were a stronger predictor of intentions with a weighted mean correlation of .58,

The Theory of Planned Behavior

Although the TRA has been tested extensively and has broad practical applications, it is not comprehensive. Thus, Ajzen added a new variable – perceived behavioral control. The successor to the Theory of Reasoned Action, the Theory of Planned Behavior includes perceived behavioral control and the original elements of the

Theory of Reasoned Action. Figure Two shows the inclusion of perceived behavioral control incorporated into this model.

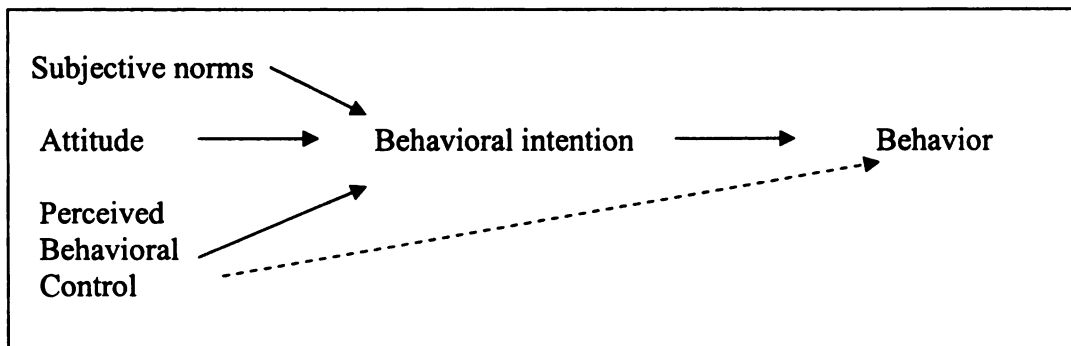


Figure 2: The Theory of Planned Behavior

The Theory of Planned Behavior maintains that the combination of attitude toward the behavior, subjective norms, and perceived behavioral control leads to a behavioral intention which leads to behavior (Ajzen, 2002). According to Ajzen (2002) the more favorable the attitude and subjective norm are, as well as the higher the level of perceived behavioral control, the more likely is the intention to act. When the behavior is in the person's control and is intended, it is expected to be enacted.

Studies have shown that the Theory of Planned Behavior provides an accurate depiction of the process by which action unfolds. A meta-analysis of 185 studies published before 1997 found that the theory of planned behavior accounted for 27% ($R=.52$) of the variance in behavior and 39% ($R=.63$) of the variance in intention (Armitage & Conner, 2001). This study also found that perceived behavioral control had a substantial effect on both intention and behavior, when controlling for the variables comprising the Theory of Reasoned Action (Armitage & Conner, 2001). Therefore, the study by Armitage and Conner (2001) points to the Theory of Planned Behavior as an improved version of the Theory of Reasoned Action. The meta analysis conducted by

Albarracin et al (2001), is consistent with this claim, reporting that perceived behavioral control has a high correlation with intention, the mean weighted correlation was .45. Thus, there is reason to believe that the Theory of Planned Behavior incorporates and expands the predictive power of the Theory of Reasoned Action.

Not only is there strong empirical evidence for the usefulness of both theories, but both the Theory of Planned Behavior and the Theory of Reasoned Action have numerous practical applications, particularly health communication. The theories have been used to examine such issues as condom usage (Albarracin et al, 2001), exercise frequency (Rhodes & Courneya, 2003), and adolescent drug use (McMillan & Conner, 2003). The Theory of Reasoned Action and the Theory of Planned Behavior are not limited to the health communication field; they have also been applied to a diverse range of issues including predicting the use of public transportation (Heath & Gifford, 2002), homeless people's intentions to leave the streets in favor of conventional housing (Wright, 1998), and attitudes toward teaching children with disabilities (Kozub & Lienert, 2003). Because the theories have such broad applicability, it is particularly important to understand both of them.

Although the Theory of Planned Behavior has received general acceptance as an extension of the Theory of Reasoned Action, the norm component has recently come under scrutiny. Ajzen (1971) notes that subjective norms are dynamic and depend on the person and the situation to which they are being applied. For example, different reference groups or individuals will be perceived to be more important and their opinions more relevant depending on the situation. For some situations an individual may consider one group of people as a reference group, and for a different situation, look to an

entirely different group of people. For this reason subjective norms are usually measured by asking respondents how they think important others would evaluate their behavior in a given situation. For example, in a study examining the application of the Theory of Planned Behavior to the decision of African-American students to complete high school (Davis, Ajzen, Saunders and Williams, 2002), participants completed a survey in which they were asked to indicate, on a 7-point scale that ranged from likely to unlikely, the extent to which they perceived that most people who are important to them think they should complete the present school year, would be disappointed if they did not complete the present school year, and expect them to complete the present school year. When measuring subjective norms, it is important to study them in specific contexts and to allow the participant to decide whom the important others are in their lives.

Despite Ajzen's definition and the empirical evidence, subjective norms are often considered the weakest link in the theory. A meta-analysis by Sheppard, Hartwick and Warshaw (1988) found that subjective norms were the weaker predictor of intentions. One of the possible reasons for this outcome lies in its measurement (Armitage & Conner, 2001). In a meta-analysis by Armitage and Conner (2001) the way in which norms were measured had an impact on the strength of norms as a predictor of intention. This meta-analysis found that studies which used multiple items to measure norms, found subjective norms to be stronger predictors of intention, than studies that employed a single item measure of the subjective norm component. Because studies often differ in the number of items used to measure norms, inconsistent results are obtained.

Another possible explanation for the weakness in the subjective norm as a predictor of intention lies in the need for a clearer conceptualization of the term. In

different studies and in different academic domains, the term “norm” has varying definitions. Often studies conceptualize norms in different ways but generically refer to all norms as “social norms.” Different ways of conceptualizing norms might lead to measures that predict behavior or behavioral intention more accurately. Also, these differing definitions confuse the social scientific literature, making it difficult to synthesize the effect of norms on behavior and behavioral intention. Although Ajzen defines subjective norms as beliefs about the normative expectations of others, the Theories of Planned Behavior and of Reasoned Action are not the only theories in which norms play a central role. In other social influence literature the social norms approach is used heavily and relies on an alternate definition of norms.

The Social Norms Approach

The social norms approach has become increasingly popular over the last decade. Research has revealed inconsistent results. This outcome might be due to a lack of a clear definition of the norm component. The differing definitions of norms and mixed results about the utility of norms have led to one of the most intensely contested areas in communication research. Binge drinking is one of the areas being studied that has produced a heated debate about the applicability and effectiveness of the norms approach.

With approximately 80 to 90% of college students drinking alcohol (Haines & Spear, 1996), and a large number of students classified as binge drinkers, binge drinking has become a very important social issue. Some studies report a reduction in binge drinking following the implementation of a social norms-based campaign. Haines and Spear (1996) reported an 8.8% drop in students who were self-identifying as binge drinkers after exposure to a social norms-based campaign. They also reported a greater

reduction in the perceived norm of how many students binge drink after a social norms campaign, compared with a traditional strategy. The traditional strategy included presentations in classrooms, at sororities and fraternities, and in residence halls. After the traditional strategy, 69.3% of students thought that binge drinking was the norm, as they believed that fellow students consumed six or more drinks when they partied. After the normative campaign this percentage was 57% (Haines & Spear, 1996).

These results were from 1990 and continued implementation of normative campaigns at this university has shown that a continued social norms program has an even greater impact on reducing binge drinking perceptions and behavior than traditional methods. In 1994, at this same school, the perceived proportion of students who engaged in binge drinking was 54.4%, and the number of students who self reported engaging in binge drinking had dropped to 33.3% (Haines, 1996). In 1995, the perceived proportion of students who were binge drinking dropped to 42.9% and the actual number of students who self reported binge drinking dropped to 27.7%. These data illustrate that the social norms approach has produced ongoing success at this university (Haines, 1996). This study reports not only a decrease in binge drinking, but also illustrates that social norm campaigns are more successful than alternate forms of drinking prevention campaigns (Haines & Spear, 1996).

Yet, other studies have reported different results. Werch et al. (2000) found that a social norm campaign targeting first year residential college students had no significant impact on reducing alcohol consumption or alcohol use risk factors. The social norms campaign consisted of three greeting cards that contained messages based on social norms and a definition of binge drinking. The social norms approach also consisted of a

follow up survey that reinforced the messages of the cards. The control group received the standard campus prevention program (Werch et al., 2000). Nonetheless, in this study the students in the social norms approach group were not found to be notably influenced, as no statistically significant differences in alcohol consumption were found between the experimental and the control groups.

Consistent with these findings Wechsler et al. (2002) reported that the social norms approach, which was being used by many college campuses across the nation, was producing little change in national binge drinking rates, which remained constant from 1993 to 2001. In 1993, 43.9% of college students were classified as binge drinkers and in 2001 that number was virtually the same, with 44.4% of college students classified as binge drinkers. Many consider these statistics an accurate estimate of binge drinking rates at campuses across the country, as they are based on the Harvard School of Public Health College Alcohol Study, which surveyed students at 119 four-year colleges that participated in the same studies in 1993, 1997, 1999 and 2001. Yet, it is difficult to tell from these studies how effective the social norms approach is, as Wechsler and his colleagues do not tease out which schools were employing a social norms based campaign and which were not. Wechsler et al. only report binge drinking rates, not methods used to combat binge drinking. Therefore, perhaps this study is evidence that the traditional strategies the colleges employ are not working.

Other studies by Wechsler have reported yet different findings and drawn different conclusions about the social norms approach. In a national study of 140 universities conducted by Perkins and Wechsler (1996), it was found that perceptions of campus alcohol use norms had the strongest effect on individual alcohol abuse, compared

to other types of drinking reduction campaigns. The authors went on to suggest that the social norms approach should be implemented at campuses across the nation in attempts to reduce binge drinking (Perkins & Wechsler, 1996). Therefore, the differing studies lead some to trumpet the social norms approach as effective, and lead others to dismiss it as fruitless.

Descriptive and Injunctive Norms

One of the problems with the social norms approach is the ambiguity of the definition of a social norm. Most studies lack a clear definition, and two types of norms have emerged – descriptive and injunctive norms.

Descriptive norms can be thought of as the perception of what people do. In other words, in the binge drinking literature this norm involves the consideration of the behavior in which one's peers are engaging. The descriptive norm would be the perception of "what is everyone else doing?" Alternatively, injunctive norms are the perception of what one should or ought to do (Borsari & Carey, 2003). Put differently, this norm involves the thought of what one should or ought to do based on peers' evaluations or moral considerations.

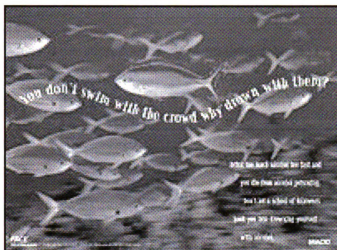
A meta-analysis by Borsari and Carey (2003) that examined 23 studies evaluating descriptive and injunctive norms found that focusing on descriptive norms was an effective way to influence perceptions of others' drinking. The results for injunctive norms were unclear. Therefore, different results may be found by focusing on either descriptive or injunctive norms.

In a series of three studies by Reno et al. (1993), examining the differential impact of norm type, it was found that injunctive norms had a greater impact across situations than descriptive norms did. 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 in the case of the descriptive norm the effects were only salient in that particular situation, but with the injunctive norm the effects generalized to other settings (Reno et al., 1993).

Thus, there is conflicting evidence about the impact that different types of norms have on behavior, and it is particularly unclear because most campaigns employ only messages based on descriptive norms (Borsari & Carey, 2001). Borsari and Carey (2001) indicate only two known published studies that target primarily injunctive norms, and these two produced mixed results. Barnett, Far, Mauss, and Miller (1996), using injunctive norms to indicate approval of peers, found a decrease in perceptions of peer approval of alcohol use. This reduction in perception led to a decrease in one's own alcohol use. On the other hand, Schroeder and Prentice's (1998) results did not concur with this finding; they found that injunctive norms produced no effect on student's perceptions of others' comfort with drinking alcohol.

Not only is there discrepant evidence on which type of norm is most effective, but social norms campaigns often further confuse the social norms literature by mixing the types of norms used in campaigns. For example, in both of the MADD posters that follow adolescents are urged not to conform to what their peers are doing. They are urged to reject peer pressure and not drink. These campaigns confuse the descriptive norm of what everyone else is doing with the discrepant injunctive norm that each

individual should abstain. Therefore, these posters are likely to be ineffective because the descriptive message is likely to produce an increase in drinking and the injunctive message is likely to produce a decrease in drinking.



The advertisement to the left states: "You don't swim with the crowd why drown with them? Drink too much alcohol too fast and you die from alcohol poisoning. Don't let a school of followers hook you into drowning yourself with alcohol."

Figure 3: MADD Advertisement 1



The advertisement to the left states: "Changing your colors to fit in? You're an individual, you like to stand out, which means you probably choose not to drink. You could care less about blending in. Hold on to your true colors. Being a chameleon sucks."

Figure 4: MADD Advertisement 2

MADD goes on to confuse the recipients of these messages by employing a more traditional norms-based message. In the subsequent poster MADD switches normative message, employing simply a descriptive norms message that “everybody doesn’t drink.” This message conflicts with the messages from the advertisements in Figures 3 and 4 which tell students not to do what their peers do.



The advertisement to the left states: “You can believe anything you want. But the truth is, more than one third of college students seldom or never drink alcohol. So what do they do instead? Why not ask them. Alcohol abuse hurts all of us.”

Figure 5: MADD Advertisement 3

With differing definitions and conflicting use of the different types of norms, it is difficult to gauge the success of norms-based campaigns. For these reasons further study is needed to determine whether different types of norm messages generate different results, and whether it is productive to stress one norm over another in social norms campaigns. Due to the conflicting evidence about the impact of norm type, and the

differing results that studies based on norms have produced, it is not clear if there is only one type of norm or if there are three types of norms. Put differently, it is uncertain if there are three separate norm types (descriptive, injunctive, and subjective) or if all three types of norms are alternative indicators of the same underlying construct. If the three different norm types are in fact independent constructs, a one-dimensional model will not fit the data across norm type. Alternately, if the three norm types are alternate indicators of the same underlying construct, then a unidimensional model will fit the data.

METHODS

Subjects

Subjects in this study were students from communication courses at a large Midwestern University. A convenience sample of approximately 200 subjects was obtained. Participation was voluntary and students were offered research credit in their courses for participation.

Instrumentation

In order to gauge the utility of the different norm types in different situations, three areas of behavior were examined. Each participant received the same survey with the same question ordering. The survey addressed three different situations in which norms may be applied. The first arena in which the three norms were studied is a social issue, more specifically gay marriage. Participants were asked a series of questions that measure each type of norm as well as their behavior, and behavioral intention in relation to the issue of gay marriage. See Appendix A for the specific list of questions asked.

The next area that was examined was binge drinking. As mentioned before, there is great confusion about the impact that social norm campaigns have had on binge drinking. Therefore, empirical clarity may be gained by examining this topic. Respondents were again asked about their behaviors, behavioral intentions, and perceived norms. See the Appendix for the specific list of questions asked.

The last area that was examined was facial piercings. Facial piercings include piercings in the nose, lips, eyebrows, etc. Again, respondents answered a series of questions about their behaviors, behavioral intentions, and perceived norms. See the Appendix for the specific list of questions asked.

The norm component for each of these areas was measured in three different ways. The first employed the traditional subjective norm measure. Participants were asked to name a person whose opinion mattered to them in relation to that topic. Then, participants were asked what that person would want them to do. Descriptive norms were measured by asking the participant what they think most of their peers, specifically MSU undergraduates, do. Injunctive norms were measured by asking participants what they think is expected of them, or what they should do. Behavior questions asked students direct questions about their behavior, such as “In the last month, on how many different occasions did you drink alcohol?”

Procedure

The survey was mass administered to a captive audience in a classroom at a university. The survey was administered on several different occasions with approximately 10 to 25 people attending each session. It took participants approximately 20 to 30 minutes to complete the survey.

RESULTS

Binge Drinking

Confirmatory factor analysis (CFA) was used to assess the fit of the three factor model. Inter-item correlations and descriptive statistics for the two descriptive norm items, two injunctive norm items, and three subjective norm items are presented in Table 1. The outcome of the CFA indicated that the data are consistent with the proposed three factor model. The obtained correlations approximated closely their predicted values (RMSE = .07). Additionally, the one factor model failed further illustrating that a three factor model is more appropriate. The RMSE error for the one factor model was .24 which illustrates that a three factor model is more appropriate for this data.

Consequently, the two items measuring descriptive norms were summed to form an index as were the two indicators of injunctive norms and the three items employed to measure subjective norms. Because the two measures of binge drinking behavior had different variances, each was transformed into a standard score and then summed.

The distribution of the descriptive norm index approximated closely the normal distribution with a mean of 100.33, a standard deviation of 45.14, and a reliability of $\alpha = .81$. The distribution of the injunctive norm index also approximated closely the normal distribution with a mean of 4.71, a standard deviation of 1.66, and a reliability of $\alpha = .56$. The subjective norm index was distributed normally with a mean of 30.10, a standard deviation of 7.01, and a reliability of $\alpha = .83$. Finally, the distribution of the self-reported behavior index evinced a slight positive skew with a mean of .01, standard deviation of 1.73, and a reliability of $\alpha = .63$.

Table 2 presents the correlations among these indices in the lower triangle with the correlations corrected for attenuation due to error of measurement in the upper triangle. This table shows that two of the normative measures, subjective norms and injunctive norms, correlated in a non-trivial manner with behavior, although the valence of the correlation of subjective norms with behavior was in the direction opposite of that expected. The correlation of descriptive norms with behavior was within sampling error of zero. Thus, all three normative measures correlated with behavior in substantially different ways.

In order to provide a more nuanced assessment of the relationships between behavior and the different types of norms, a multiple regression analysis was conducted, which regressed behavior on the three types of norms. The regression analysis indicates that injunctive norms had a substantial positive impact on behavior ($\beta = .27$, $\beta' = .45$, $t(250) = 4.54$, $p < .001$) and subjective norms had a non-trivial negative impact on behavior ($\beta = -.14$, $\beta' = -.19$, $t(250) = -2.30$, $p = .02$). The impact of descriptive norms, on the other hand, was within sampling error of zero ($\beta = .10$, $\beta' = .08$, $t(250) = 1.61$, *ns*). Multiple $R = .33$, $.52$ when corrected for attenuation due to error of measurement (adjusted multiple $R = .31$, $.51$ corrected for attenuation due to error of measurement) for this three predictor model ($F(3, 250) = 10.13$, $p < .001$).

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. These results are consistent with the previous analysis. There continues to be evidence that injunctive norms have a large positive impact on behavior ($\beta = .28$, $\beta' = .46$, $t(251) = 4.66$, $p < .001$) and that subjective norms have a negative impact on

behavior ($\beta = -.14$, $\beta^* = -.20$ $t(251) = -2.35$, $p = .02$). Multiple R for this two predictor model was .31, .51 when corrected for attenuation due to error of measurement (adjusted $R = .30$, .50 when corrected for attenuation due to error of measurement, $F(2, 251) = 13.81$, $p < .001$).

Facial Piercing

Confirmatory factor analysis (CFA) was used to assess the fit of the three factor model. Inter-item correlations and descriptive statistics for the two descriptive norm items, two injunctive norm items, and three subjective norm items are presented in Table 3. The outcome of the CFA indicated that the data are consistent with the proposed three factor model. The obtained correlations approximated closely their predicted values (RMSE = .04). Again, the one factor model did not fit the data. The RMSE for the one factor model was .22 which also illustrates that the one factor model is not a good fit for the data.

Subsequently, the two items measuring descriptive norms were standardized and then summed to form an index as were the two indicators of injunctive norms and the three items employed to measure subjective norms. There was a one item measure of behavior.

The distribution of the descriptive norm index approximated closely the normal distribution with a mean of 89.56, a standard deviation of 39.11, and a reliability of $\alpha = .60$. The distribution of the injunctive norm index evinced a slight positive skew with a mean of 3.37, a standard deviation of 1.48, and a reliability of $\alpha = .55$. The subjective norm index displayed a slight negative skew with a mean of 30.74, a standard deviation

of 8.93, and a reliability of $\alpha = .89$. Finally, the distribution of the self-reported behavior measure was skewed positively and leptokurtic with a mean of .24 and a standard deviation of .81. Because this measure was a single item the reliability is treated as if it were 1.00.

Table 4 presents the correlations among constructs in the lower triangle with the correlations corrected for attenuation due to error of measurement in the upper triangle. This table shows that only injunctive norms correlated in a non trivial manner with behavior. The correlations of both descriptive and subjective norms with behavior were within sampling error of zero. Thus, two of the three normative measures correlated with behavior differently.

In order to provide a more nuanced assessment of the relationships among behavior and the different types of norms, a multiple regression analysis was conducted. The regression analysis indicates that injunctive norms had a substantial positive impact on behavior ($\beta = .17, \beta' = .23, t(255) = 2.73, p = .01$). The impact of subjective norms was within sampling error of zero ($\beta = -.08, \beta' = -.09, t(255) = -1.26, ns$). The impact of descriptive norms was also within sampling error of zero ($\beta = .05, \beta' = .03, t(255) = .79, ns$). Multiple $R = .21, .26$ when corrected for attenuation due to error of measurement (adjusted multiple $R = .18, .24$ corrected for attenuation due to error of measurement) for this three predictor model ($F(3, 255) = 3.79, p = .01$). Thus, the single predictor model is the most accurate prediction of behavior.

Gay Marriage

Confirmatory factor analysis (CFA) was used to assess the fit of the three factor model. Inter-item correlations and descriptive statistics for the two descriptive norm

items, two injunctive norm items, and three subjective norm items are presented in Table 5. One of the injunctive norm items (“I often feel pressure to oppose gay marriage.”) correlated with other indicators in a manner inconsistent with the factor structure. Thus, it was deleted and the CFA was performed again. The outcome of this analysis indicated that the data were consistent with the proposed three factor model with the one factor model failing. The obtained correlations approximated closely their predicted values (RMSE = .11). Notably, descriptive and injunctive norms were correlated in a non-trivial fashion, unlike this correlation for the other topics. It is also notable that the one factor model failed. The RMSE for this model was .36. Therefore, the one factor model contains a lot of error and is not a good fit for the data.

Next, the two items measuring descriptive norms were summed to form an index as were the three items employed to measure subjective norms. Single item measures of injunctive norms and behavior were employed in subsequent analyses.

The distribution of the descriptive norm index approximated closely the normal distribution with a mean of 90.61, a standard deviation of 32.78, and a reliability of $\alpha = .65$. The distribution of the injunctive norm measure also approximated closely the normal distribution with a mean of 2.68, a standard deviation of 1.10. The subjective norm index was distributed normally with a mean of 27.94, a standard deviation of 8.55, and a reliability of $\alpha = .86$. Finally, the distribution of the self-reported behavior measure had a mean of .48 and a standard deviation of .50.

Table 6 presents the correlations between constructs in the lower triangle with the correlations corrected for attenuation due to error of measurement in the upper triangle. This table shows that two of the normative measures, descriptive norms and injunctive

norms, correlated in a non-trivial and positive manner with behavior. The correlation of subjective norms with behavior was within sampling error of zero.

In order to provide a more nuanced assessment of the relationships among behavior and the different types of norms, a multiple regression analysis was conducted. The regression analysis indicates that injunctive norms had a substantial positive impact on behavior ($\beta = .46, \beta' = .44, t(254) = 8.09, p < .001$). Descriptive norms had an effect on behavior that approached, but did not reach, conventional levels of statistical significance ($\beta = .11, \beta' = .15, t(254) = 1.89, p = .06$). The impact of subjective norms, on the other hand, was well within sampling error of zero ($\beta = -.03, \beta' = -.02, t(254) = -.46, ns$). Multiple $R = .50, .51$ when corrected for attenuation due to error of measurement (adjusted multiple $R = .49, .50$ when corrected for attenuation due to error of measurement) for this three predictor model, ($F(3, 254) = 28.86, p < .001$).

Because subjective norms had a trivial effect on behavior, subjective norms were eliminated from the regression equation and the analysis was conducted again. These results are consistent with the previous analysis. There continues to be evidence that injunctive norms have a large positive impact on behavior ($\beta = .46, \beta' = .43, t(255) = 8.10, p < .001$) and that descriptive norms continue to have a non-trivial effect on behavior, albeit not one that is statistically significant at the conventional .05 level ($\beta = .11, \beta' = .15, t(255) = 1.93, p = .055$). Multiple R for this two predictor model was .50, .51 when corrected for attenuation due to error of measurement (adjusted $R = .50, .50$ when corrected for attenuation due to error of measurement $F(2, 255) = 43.31, p < .001$).

DISCUSSION

The question was raised as to the dimensionality of various normative measures. CFA performed on the data indicate unambiguously that measures of descriptive norms, injunctive norms, and subjective norms are different dimensions of normative behavior. Put differently, the three types of norms are not alternate indicators of the same underlying construct but are, instead, three separate constructs.

Evidence for this claim can be seen by the fact that items tapping different normative constructs tended to correlate very modestly with one another, ensuring that the normative constructs' inter-item correlations were modest as well. Furthermore, each normative measure correlated differently with behavior. This outcome is particularly interesting as subjective norms have been referred to as "a form of injunctive norms," (Lapinski & Rimal, p. 132, 2005). The data from this study show that subjective norms are not actually a form of injunctive norms but draw on a separate motivation and must be considered as separate, independent constructs.

The difference between injunctive and subjective norms can be seen when examining each construct's correlation with behavior. Subjective norms correlated approximately zero with behavior for two of the topics, and negatively for binge drinking. The correlation of descriptive norms with support for gay marriage was non-trivial, but the correlation of descriptive norms with the other behavioral measures for binge drinking and facial piercing was well within sampling error of zero. Injunctive norms correlated positively, substantially, and consistently with all three of the behavioral measures.

Moreover, and notably, with few exceptions the results were quite consistent across topics. For all three topics, injunctive norms had a statistically significant and substantial positive relationship with binge drinking. Subjective norms did not correlate substantially with the behavioral measure for either facial piercing or gay marriage. For binge drinking, however, subjective norms correlated negatively and substantially with behavior. Descriptive norms, on the other hand, only correlated significantly with support for gay marriage as the correlation between descriptive norms and the other behavioral measures was trivial. Therefore, injunctive norms were the only normative measure that was associated consistently and positively with behavior. Because the three norm types correlate differently with each other and with behavior across topics, psychometric theory prescribes that they be treated as separate constructs.

Implications for Future Research

These results point to myriad implications for future research, the foremost having to do with descriptive norms. The data raise the point that descriptive norms may not be correlated strongly with behavior. Instead, the data indicate that injunctive norms might be better predictors of behavior. This point is an especially important consideration as most studies, especially those in health contexts, focus on the impact of descriptive norms on behavior.

Perhaps the popularity of employing descriptive normative information in health campaigns is a result of the ease of introducing this type of information into a PSA. This strategy is akin to looking where the light is best even when we know that what we seek is likely not there. Introducing injunctive normative information in an effective manner

provides a greater challenge. In this study injunctive norms were measured by asking participants what they thought they should or ought to do. These measures were related highly to behavior. Therefore, perhaps more social influence campaigns might benefit by focusing on what one should or ought to do instead of what most people do. Regardless of how injunctive norms are integrated into a campaign, the data indicate that researchers could profit by starting to look for more effective ways to use injunctive norms instead of relying heavily on descriptive norms. Injunctive norms, unlike any of the other normative measures, demonstrated a clear relationship with behavior in three very different topic areas. The potential for injunctive norms is, therefore, very broad ranging.

Another consideration is the utility of both descriptive and subjective norms. This study indicates that both descriptive and subjective norms have a tenuous relationship with behavior. If the practicality of descriptive and subjective norms is called into question, one must also question the theoretical importance of both of these normative measures. Perhaps, both of these types of norms are not useful practically for campaigns or theory.

Although there is much emphasis placed on the importance of normative forces as powerful determinants of behavior, these data are not the first to suggest that some normative measures are not strong predictors of behavior. A meta-analysis by Sheppard, Hartwick and Warshaw (1988) found that subjective norms were the weaker predictor of intentions in the Theory of Reasoned Action. This study provides further evidence that subjective norms may not be the most theoretically useful normative component to employ in the Theory of Reasoned Action or the refined Theory of Planned Behavior.

Perhaps injunctive norms would provide a more accurate prediction of behavioral intention in the Theory of Reasoned Action.

Limitations

The implications of this study are broad reaching; yet, there are some limitations that must be considered. There are several limitations of the sample. Because this sample is composed of college students, the age and education level of this sample may not be reflective of the population.

The fact that the behavior is self-reported should also be considered. Self-report behavior is not correlated perfectly with observed behavior. In some areas, self report behavior has been found to be a reliable measure (Sohler, Colson, Meyer-Bahlburg & Susser, 2000), but other studies have found self report measures to be inaccurate predictors of behavior (LaPiere, 1934; Lewontin, 1995).

Another possible limitation of this study is that there are a limited number of indicators for the constructs, and in some cases only one. This is a dilemma faces many investigators as it is often hard to create more than one behavioral measure, especially in a self-report format. Therefore, a replication of this study that included a different sample, contained more indicators for some of the constructs and that measured behavior in a different manner would further illuminate the relationship between the different normative measures and behavior. Despite these limitations, the results are clear, and if they replicate with other samples and improved measures, they are fertile with practical and theoretical implications.

APPENDIX A

Instrumentation

TESTING THE DIFFERENT TYPES OF NORMS STUDY

Please make sure to answer every question. There is a front and a back to each page. Thank you.

Sex: ☐ Male ☐ Female

Age: ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐ Other _____

Racial Identification: ☐ Black ☐ White ☐ Asian or Pacific Islander ☐ Hispanic or Latino
☐ American Indian or Alaskan Native ☐ Other _____

Year In School: ☐ 1st year undergraduate ☐ 2nd year undergraduate ☐ 3rd year undergraduate
☐ 4th year undergraduate ☐ 5th year or more undergraduate ☐ Graduate or professional ☐ Other _____

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, 12 ounce bottle or can of beer, a 12 ounce bottle or can of wine cooler and a shot of liquor straight or in a mixed drink. Also, please consider binge drinking to be five or more drinks in a row.

In the last month, on how many different occasions did you drink alcohol? _____

On a normal night out, how many drinks do you consume? _____

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? _____

Think of all MSU undergraduate students. What **percentage** do you think binge drink during a normal week? _____

Think of all MSU undergraduate students. What **percentage** do you think consider binge drinking to be an acceptable activity? _____

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

I find binge drinking to be a very acceptable activity.

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

I think that binge drinking is an activity that one should avoid.

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

I have ethical objections to binge drinking.

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

On a normal night out, my friends engage in binge drinking.

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

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

I seldom drink more than five drinks when I go out partying.

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

I drink moderately or not at all when I go out partying.

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

I often feel pressure to drink when I go out partying.

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

If my friends are drinking, I feel that I should keep up with them.

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

I feel pressured to drink more than I ought to drink.

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

On each line below, please list the first names of 3 people whose opinion on binge drinking matters to you the most. Also, please specify your relationship to them.

Name	Relationship
_____	_____
_____	_____
_____	_____

Now considering the first person that you listed, please answer the following questions:

On the issue of binge drinking, I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of binge drinking.

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

I use this person's beliefs about binge drinking to determine whether or not I will binge drink.

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

Now considering the second person that you listed, please answer the following questions:

On the issue of binge drinking, I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of binge drinking.

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

I use this person's beliefs about binge drinking to determine whether or not I will binge drink.

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

Now considering the third person that you listed, please answer the following questions:

On the issue of binge drinking, I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of binge drinking.

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

I use this person's beliefs about binge drinking to determine whether or not I will binge drink.

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

How many facial piercings (i.e. tongue, eyebrow, nose, etc) do you have? _____

Think of all MSU undergraduate students. What **percentage** do you think have facial piercings?

Think of all MSU undergraduate students. What **percentage** do you think consider facial piercings to be acceptable? _____

I find facial piercings to be very acceptable.

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

I think that facial piercings are something that one should avoid.

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

I have objections to facial piercings.

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

My friends have facial piercings.

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

I often feel pressure to get facial piercings.

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

I should get a facial piercing.

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

My friends think I should get a facial piercing.

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

On each line below, please list the first names of 3 people whose opinion on facial piercings matters to you the most. Also, please specify your relationship to them.

Name	Relationship
_____	_____
_____	_____
_____	_____

Now considering the first person that you listed, please answer the following questions:

On the issue of facial piercings I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of facial piercings.

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

I use this person's beliefs about facial piercings to determine whether or not I will get facial piercings.

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

Now considering the second person that you listed, please answer the following questions:

On the issue of facial piercings I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of facial piercings.

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

I use this person's beliefs about facial piercings to determine whether or not I will get facial piercings.

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

Now considering the third person that you listed, please answer the following questions:

On the issue of facial piercings I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of facial piercings.

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

I use this person's beliefs about facial piercings to determine whether or not I will get facial piercings.

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

Would you or have you ever signed a petition supporting gay marriage? (yes or no) -

Think of all MSU undergraduate students. What **percentage** do you think believe gay marriage is wrong? _____

Think of all MSU undergraduate students. What **percentage** do you think would sign or have signed a petition supporting gay marriage? _____

Think of all MSU undergraduate students. What **percentage** do you think are homosexual? _____

Think of all MSU undergraduate students. What **percentage** do you think consider gay marriage to be acceptable? _____

I find gay marriage to be very acceptable.

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

I think that gay marriage should not be legal.

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

I have objections to gay marriage.

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

My friends support gay marriage.

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

I often feel pressure to oppose gay marriage.

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

I should support gay marriage.

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

My friends think I should support gay marriage.

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

On each line below, please list the first names of 3 people whose opinion on gay marriage matters to you the most. Also, please specify your relationship to them.

Name	Relationship
_____	_____
_____	_____
_____	_____

Now considering the first person that you listed, please answer the following questions:

On the issue of gay marriage I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of gay marriage.

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

I use this person's beliefs about gay marriage to determine whether or not I will support gay marriage.

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

Now considering the second person that you listed, please answer the following questions:

On the issue of gay marriage I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of gay marriage.

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

I use this person's beliefs about gay marriage to determine whether or not I will support gay marriage.

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

Now considering the third person that you listed, please answer the following questions:

On the issue of gay marriage I very much want to comply with this person's wishes.

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

I care enough about this person's opinion that I want to do what he or she wants me to do when it comes to the matter of gay marriage.

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

I use this person's beliefs about gay marriage to determine whether or not I will support gay marriage.

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

APPENDIX B

Tables

Tables

Table 1: Binge Drinking Inter-Item Correlations and Descriptive Statistics

	DN1	DN2	IN1	IN2	SN1	SN2	SN3	FL	Mean	St. Dev
DN1								.82	49.01	23.23
DN2	.68**							.82	51.23	25.98
IN1	.15*	.14*						.62	2.47	1.05
IN2	-.06	.01	.39**					.62	2.24	.93
SN1	-.09	.14*	-.06	.07				.80	10.10	2.65
SN2	.03	-.06	-.08	.02	.63**			.79	10.01	2.66
SN3	.10	.00	-.06	.02	.63**	.62**		.79	10.03	2.78

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

*** Correlation is statistically significant at the .05 level (2-tailed)**

***N* = 258**

Table 2: Binge Drinking Norms Correlations with Behavior

	Descriptive	Injunctive	Subjective	Behavior	Mean	St. Dev
Descriptive		.13	-.06	.15	100.33	45.14
Injunctive	.09		-.03	.47	4.71	1.66
Subjective	-.05	-.02		-.21	30.10	7.01
Behavior	.11	.28**	-.15*		.01	1.73

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

* Correlation is significant at the .05 level (2-tailed)

Table 3: Facial Piercing Inter-Item Correlations and Descriptive Statistics

	DN1	DN2	IN1	IN2	SN1	SN2	SN3	FL	Mean	St. Dev
DN1								.66	30.90	21.01
DN2	.44**							.66	58.79	25.01
IN1	.11	.14*						.62	1.57	.80
IN2	.18**	.19**	.38**					.62	1.80	.97
SN1	.01	-.01	-.04	-.05				.84	10.65	3.38
SN2	-.02	-.05	-.05	-.04	.79**			.94	10.21	3.31
SN3	-.01	-.05	-.04	-.10	.64**	.72**		.76	9.90	3.21

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

*** Correlation is significant at the .05 level (2-tailed)**

***N* = 259**

Table 4: Facial Piercing Norms Correlations with Behavior

	Descriptive	Injunctive	Subjective	Behavior	Mean	St. Dev
Descriptive		.40	-.04	.12	89.56	39.11
Injunctive	.23**		-.04	.24	3.37	1.48
Subjective	-.03	-.03		-.10	30.74	8.93
Behavior	.09	.18**	-.09		.24	.81

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

Table 5: Gay Marriage Inter-Item Correlations and Descriptive Statistics

	DN1	DN2	IN	SN1	SN2	SN3	FL	Mean	St. Dev
DN1							.69	48.97	18.37
DN2	.48**						.69	41.71	19.74
IN	.18**	.33**					1	2.68	2.00
SN1	-.08	.02	-.01				.86	9.55	3.31
SN2	-.10	-.02	.01	.77**			.89	9.34	3.17
SN3	-.13	-.07	-.07	.61**	.63**		.71	9.04	3.21

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

* Correlation is significant at the .05 level (2-tailed)

$N = 260$

Table 6: Gay Marriage Norms Correlated with Behavior

	Descriptive	Injunctive	Subjective	Behavior	Mean	St. Dev
Descriptive		.37	-.11	.31	90.61	32.78
Injunctive	.30**		-.03	.49	2.68	1.10
Subjective	-.08	-.03		-.05	27.94	8.55
Behavior	.25**	.49**	-.05		.48	.50

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

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