

COGNITIVE DISSONANCE THEORY AND ALCOHOL AWARENESS MESSAGES:
COLLEGE STUDENT REACTIONS

By

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Abstract of Thesis

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Communication

Cognitive Dissonance Theory and Alcohol Awareness Messages:
College Student Reactions

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Cognitive Dissonance Theory and Alcohol Awareness Messages: College Student Reactions

College students spend more money on alcohol than they do on books, coffee, tea, juice and soda, combined (Wechsler & Wuerthrich, 2002). Recent studies have shown that binge drinking rates range from 34 to 44% of college students (Douglas et al., 1997; Wechsler, Davenport, Dowdall, Moeykens & Castillo, 1994; Wechsler, Lee, Kuo, Seibring, Nelson & Lee, 2002). Alcohol is so prevalent in the college environment, that students, parents and even professors link the college experience with excessive drinking (Butler, 1993; Lederman, Stewart & Russ, 2007).

Yet, the risks of binge drinking (Lederman, Stewart, Goodhart & Laitman, 2003) are serious. Research has identified a wide variety of harmful consequences as a result of excessive drinking among college students. These risks include: unprotected sexual behavior (Desiderato & Crawford, 1995), blackouts (Perkins, 2002), and even death (Hingson, Heeren, Zakocs, Kopstein & Wechsler, 2002). Perhaps even more alarming is the annual frequencies of these negative consequences, identified by Hingson et al. (2002), including 600,000 student assaults, 500,000 accidental injuries and 1,400 deaths.

In an attempt to deal with this alarming information campus administrators have developed campaigns and programs designed to curb college drinking. However, results have been elusive, as dangerous drinking has not declined over the past decade (Faden & Fay, 2002; Wechsler et al., 2002; Hingson et al., 2005; Larimer & Crone, 2002; Peele, 2006; Wechsler, Lee, Kuo & Lee, 2000). In order to craft the most effective message, one must consider the reaction of the intended audience.

Festinger's (1957) Cognitive Dissonance Theory provides insight into the cognitive processes individuals experience when they receive information that is counter to their beliefs. Festinger states that information that challenges the beliefs or behavior an individual already has will create psychological discomfort. The theory continues to suggest there are predictable responses that form individuals experience that discomfort, or dissonance: they will accept the information as accurate but make no changes, accept the information as accurate and make changes, they will attack the messenger as incredible or they will rationalize the information in some way to relieve the discomfort.

The present study applied Festinger's (1957) Cognitive Dissonance Theory to alcohol public service messages. Participants were measured to determine whether they were currently in a state of dissonance concerning their alcohol use. The participants then viewed three alcohol public service announcements, concerning alcohol poisoning, date rape and drunk driving. The researcher captured responses the participants had in order to determine if particular dissonance-reducing strategies were utilized.

Three conclusions are offered. College students appear to be utilizing "attack the messenger" regarding messages of binge drinking and drunk driving, while utilizing rationalization when viewing messages of date rape. Additionally, for all message contents, the students responded that they did not intend to change their behaviors based on the information presented. The results of this study can be illuminating` to alcohol educators, campus administrators and future scholars.

Alcohol use among college students is perhaps one of the most prevailing aspects of college culture. We know that college students spend more money on alcohol than they do on books, coffee, milk, soda, juice or tea, combined (Wechsler & Wuerthrich, 2002). Several recent studies have indicated that the levels of dangerous drinking among college students ranges from 34 to 44% (Douglas et al., 1997; Wechsler, Lee, Kuo, Seibring, Nelson & Lee, 2002; Wechsler, Davenport, Dowdall, Moeykens & Castillo, 1994). While the behaviors of college students have been well studied, it is important to consider the beliefs college students hold about alcohol consumption. In doing so, scholars, campus administrators and alcohol educators can open the door to the possibility that there is a conflict between the beliefs and behaviors of college students, as it pertains to alcohol consumption.

This potential conflict is appropriate for analysis utilizing Cognitive Dissonance Theory, developed by Festinger (1957). The theory predicts that if an individual has two thoughts that are in conflict with each other, such as their beliefs and their knowledge of their behaviors, a psychological discomfort exists that must be resolved. This intrapersonal communication theory has been applied to explain a vast array of phenomena, and can be appropriately applied to alcohol use. More specifically, if there is disagreement between an individual's beliefs and behaviors, cognitive dissonance theory draws the road map to exploit that difference to persuade an individual to make alternate behavioral choices.

The present study will examine three public service announcements pertaining to alcohol use. The subject matter includes alcohol poisoning, date rape

and drunk driving. In each case, participants responded to a series of questions designed to determine if cognitive dissonance is altering their perception of these messages. The results serve an illuminating role in guiding alcohol educators, campus administrators and future scholars.

Alcohol Use among College Students

Rates and Frequencies of Alcohol Consumption

An issue of great concern to many campus administrators is the current rate of alcohol consumption among college students. Through media portrayals, word-of-mouth and personal experiences, many people believe excessive alcohol consumption is an essential part of the college experience (Lederman, Stewart & Russ, 2007). A large portion of the student body chooses to drink at dangerous levels, despite many of their peers abstaining completely. Alcohol is so engrained in the college experience that students spend \$5.5 billion annually on it, which is more than they spend on soda, tea, milk, juice, coffee and books (Wechsler & Wuerthrich, 2002). However, recent scholarly studies have produced a less clear vision of the role alcohol plays among today's college students. The actual use of alcohol ranges from frequent binge drinkers, to abstention, with large portions of the student population rejecting alcohol completely, by abstaining. The experience of alcohol abstainers is often overlooked in the media, but the experience of dangerous drinkers has not been. This is likely due to the fact that students tend to overestimate the alcohol consumption rate of their peers, which distorts the actual alcohol consumption rates.

There is surprising agreement among scholars as to the actual frequencies of alcohol consumption. O'Malley and Johnston (2002) compressed the data from several independent survey studies to determine that approximately 70% of college students self-reported alcohol use in the past month. This is supported by Wechsler, Lee, Kuo & Lee (2000) who reported that a clear majority of college students self-reported alcohol use in the past month. This range is higher than the rates reported by non-college students of the same age group (O'Malley & Johnston, 2002). This suggests college students are more likely to consume alcohol than they would be if they did not attend college. However, it is important to keep in perspective that the rates of alcohol consumption exist on a range, and that dangerous drinking does not accurately describe the entire college population.

During the first year of college, approximately 25% of college students choose to abstain from alcohol use (Lindsay, 2006). However, during the same time period, approximately 20% of college students started consuming alcohol (Lindsay, 2006). This number may appear low, because it is only identifying students who previously did not consume alcohol. When these figures are combined, we learn that slightly more than half of college freshmen who previously did not consume alcohol, decided to begin consuming alcohol. Lindsay (2006) reported that social acceptability and a misperception of peer norms account for a portion of the students who decide to begin drinking alcohol in college. The National Advisory Council on Alcohol Abuse and Alcoholism (2002) reported that other explanatory factors include: price of alcohol, advertising saturation, parental attitudes toward

alcohol, peer attitudes toward alcohol, the prevalence of a Greek system on campus and a student's individual living arrangements. Researchers have argued that these factors encourage students who previously did not drink, to begin drinking. This is a natural concern, as there is the possibility that students who begin drinking upon entering college may develop dangerous drinking habits.

The term "dangerous drinking" refers to alcohol consumption behaviors that leave individuals increasingly prone to negative consequences. The term is advocated as a more appropriate and effective alternative to the term "binge drinking" by Lederman, Stewart, Goodhart and Laitman (2003). Characteristics of this behavior include frequent weekend binges, drinking to get drunk and drinking quickly (Glindemann, Geller & Ludwig, 1996).

The rates of dangerous drinking (or binge drinking) among college students have also produced a surprising level of agreement. Hingson, Heeren, Zakocs, Kopstein and Wechsler (2002) report that within the previous month, 42% of students had self-reported dangerous drinking behaviors (specifically, consuming five or more drinks on a single occasion). Several studies have reported results of dangerous drinking behaviors within a range of 34-44% (Douglas et al., 1997; Wechsler et al., 2002; Wechsler, Davenport, Dowdall, Moeykens & Castillo, 1994). Perhaps even more concerning is a report that identified 19% of students who could be classified as frequent binge drinkers (Wechsler et al., 1994). While the percentage of students who consume alcohol to a dangerous level is substantially

larger than those who abstain from alcohol, students view the difference between the two groups as larger than it actually is.

College students over-estimate both the frequency and amount of alcohol that their peers consume. Makela (1997) suggests that this may be a way of reducing an individual's cognitive dissonance resulting from her or his own choices. Nearly three-quarters (73.8%) of students believe that they consumed alcohol less frequently, and in smaller amounts, than their peers (Lederman & Stewart, 1998, Lederman & Stewart, 2005). Additionally, the American College Health Association (2004) reported that students overestimated the drinking behaviors of their peers by 17% to 19%. This documented over estimation of peer drinking habits can have a clear impact on the amount of alcohol consumed, as well as the frequency of drinking occasions, through the desire to fit in.

The statistics found from a large amount of scholarly research (Douglas et al., 1997; Wechsler et al., 2002; Wechsler, et al., 1994) raise several red flags, and elevates patterns of alcohol consumption among college students to a level of serious concern for administrators, as well as researchers. While it is clear the actual rates and frequency of consumption ranges on a scale from abstention to dangerous drinking, more students are making risky decisions than those who are not. However, what may be more concerning than the rates and frequencies of alcohol consumption are the potential risks these students may face from their choices.

Risks of Alcohol Consumption

The risks of alcohol consumption, especially to the level of dangerous drinking, must be kept at the forefront of the discussion when considering the alcohol consumption habits of college students. As discussed earlier, the decisions students make may put them at risk for negative effects that they did not anticipate. The Centers for Disease Control (2004) identifies risky behavior as any actions a person takes that will increase negative health-related outcomes. This definition can be expanded in the case of alcohol use to expand beyond negative health-related outcomes. For the purposes of alcohol consumption among college students, risky behavior will be defined as any action a person takes that will increase negative outcomes, including health, safety or legal consequences. This expanded definition more appropriately fits the consequences outlined by previous researchers.

To better understand the negative effects an individual might experience as the result of dangerous drinking, it is important to first discuss the risk factors that have already been identified. It is important to know that an individual's alcohol use, as well as alcohol-related problems, peak during young adulthood (Grant et al., 2004; Wechsler & Isaac, 1992). Additionally, we must understand that the short-term consequences of dangerous drinking will be most likely to affect an individual during the college-aged years. Risk factors have been identified on individual and environmental levels.

Risk factors that will affect each individual include: being male (O'Malley & Johnston, 2002), exhibiting lower levels of academic preparedness (Wood, Sher &

Bartholow, 2002) and drinking heavily before college (Wechsle, Dowdall, Davenport & Castillo, 1995). The housing a student selects also serves as a risk factor. Specifically, individuals who live at home will consume less alcohol, while students who live in greek housing experience the highest drinking rates, followed by students who live in on-campus dormitory housing (Wechsler et al., 2002; Wechsler, Lee, Nelson & Kuo, 2002). Students also experience risk factors resulting from the environment in which they surround themselves. The availability and cost of alcohol in a certain community serves as a risk factor (Chaloupka & Wechsler, 1996; Wechsler et al., 2000). The college a student attends also mediates their level of risk for negative alcohol consequences. Specifically, the type of school (Presley, Meilman & Leichliter, 2002), social environment on campus (Maggs, 1997) and even geographic region (Wechsler et al., 1994) are environmental risk factors for dangerous drinking. Taken together, the risk for potential health, safety or legal consequences can be very serious.

Research identified several sub-groups of a college campus that report levels of dangerous drinking that exceeds that of their peers. Specifically, students who are members of athletic or Greek organizations report levels of binge drinking that exceed the national average of 44%. Nearly half of female athletes (47%) report binge drinking, while over half of male athletes (58%) also report the same behavior (Wechsler & Weurthrich, 2002). However, students in Greek organizations report numbers that are even more concerning, with 57% of sorority members and 73% of fraternity members reporting behavior that can be classified as binge drinking.

Clearly, any negative consequences of dangerous drinking are likely to affect these groups disproportionately.

The health consequences a student may experience as a result of dangerous drinking have an expected range, from manageable situations to potentially fatal outcomes. Researchers identified negative health consequences to include: hangovers (Perkins, 2002), unprotected sexual behavior (Desiderato & Crawford, 1995), alcohol dependence (Knight et al., 2002), blackouts (Perkins, 2002), assault (Hingson, Heeren, Winter & Wechsler, 2005; Presley & Cashin, 1996) and even death (Hingson, Heeren, Zakocs, Kopstein & Wechsler, 2002). Perhaps even more alarming is the annual frequencies of these negative consequences, including 600,000 student assaults, 500,000 accidental injuries and 1,400 deaths (Hingson et al., 2002). The health consequences alone are jarring enough to garner the attention of campus administrators, and students themselves. However, the broader category of overall safety, beyond an individual's physical health, is of concern as well.

Every campus community has some level of concern regarding student safety. Unfortunately, the alcohol-related decisions of students may be negatively impacting the safety on campus. Dangerous drinking can lead to driving under the influence (Presley & Cashin, 1996), which, Hingson et al. approximate to happen 2.1 million times annually, or about 25% of all reported cases of drunk driving. Female students who drink are at an increased risk of being victims of date rape, unwanted sex, harassment and physical assault (Lindsay, 2006). Further, the more an individual drinks, especially in a public forum (Rossow, 1996), the more likely

she or he are to be victims of violence (Swahn & Donovan, 2005; Wells & Graham, 2006; Bonomo et al., 2001). The seriousness of all of these situations is only highlighted when we consider the amount of time local police departments spend involved in them. All of these safety consequences could pull police away from other aspects of campus safety not related to alcohol. While these sub-groups represent higher-than-average drinking rates, all students who consume alcohol at dangerous levels are at risk of a variety of consequences.

The legal consequences of dangerous drinking naturally include issues of safety, since society has opted to legislate consequences to endangering public safety. Of course, college students who are under the age of 21 have the potential consequences of citations for violating a societal prohibition on drinking under age. Beyond that, research has shown that being intoxicated increases aggression (Graham, Bernards, Osgood & Wells, 2006; Leonard, Quigley & Collins, 2003). Additionally, nearly one in four documented cases of driving under the influence involves a college student (Hingson et al., 2002). One must factor in the time and stress spent dealing with any legal impacts of college student drinking is time and energy not spent on academic inquiries.

Yet, the negative impact of dangerous drinking extends beyond those who are consuming the alcohol themselves, as researchers have found a variety of “second-hand” effects of alcohol use. Second-hand alcohol effects can be defined as situations or scenarios that impact other people who have not been drinking, such as loud noise, vandalism, etc. Wechsler, Lee, Kuo and Lee (2000) found that nearly

three out of four students have dealt with at least one second-hand consequence of alcohol use. According to the scholars, this includes 58% of students who have been interrupted studying or sleeping due to someone else's alcohol use, 50% of students who have had to take care of a drunk student, and over one-fourth (29%) of students who claim they have been insulted or humiliated by someone who had been drinking. This unique perspective on the effects of alcohol use should be taken into account when considering the different ways alcohol impacts a campus community.

A review of the existing literature makes clear that students who engage in dangerous drinking are putting themselves at risk for a wide variety of negative consequences (Hingson et al., 2002; Leonard, Quigley & Collins, 2003; Graham, Bernards, Osgood & Wells, 2006). Scholars need to continue to join campus administrators in attempting to find effective solutions to reduce dangerous drinking among college students. While the health, safety and legal consequences a student faces as a result of risky behaviors may appear to be an appropriate punishment for poor choices, we should not lose sight of the bigger picture. Specifically, there are large amounts of resources being spent on responding to alcohol-related incidents. Additionally, with 1,400 annual student deaths involving alcohol (Hingson et al., 2002), the lives of students and the psychological wellness of their peers are at risk. Vigorously researched and effective solutions can be called upon to help reduce the frequencies of dangerous drinking and the consequences of it.

Alcohol Consumption Beliefs

Along with the wide range of behaviors concerning alcohol use comes a wide array of messages about alcohol consumption. In today's society, there is no lack of visibility of alcohol messages viewed by students. These messages range from alcohol company sponsored messages encouraging the use of their product to public awareness campaigns encouraging the disuse of alcohol. While each category of messages can and should be measured for success rates, what is already clear is that these messages have helped college students to develop a set of beliefs about appropriate alcohol use. How these beliefs affect an individual's choices concerning alcohol use can be examined for both intuitive and counter-intuitive relationships.

It is only logical to assume that the social environment of a college campus will have an impact on an individual's beliefs and behaviors concerning alcohol use. Rabow and Duncan-Schill (1995) followed students through a month-long diary of their alcohol usage, revealing four major findings. First, the researchers claim there is a weekly pattern of college drinking, which peaks during the weekend. Second, the scholars determined the students felt they were under a great deal of stress and pressure, with alcohol serving as a release. According to the authors, alcohol was used socially to celebrate various events, mark an occasion, or express group solidarity. Finally, Rabow and Duncan-Schill highlighted that the beliefs and behaviors regarding student alcohol consumption is both reinforced and enforced in

the social environment of a college campus. This goes on, even if the information that is considered accurate via group consensus is factually wrong.

Wechsler and Wuerthrich (2002) produced work designed to confront the environment in which college students find themselves in. According to the authors, certain myths have become engrained in the college drinking environment, despite being untrue. One myth is that if you work hard, you should play hard. Wechsler and Wuerthrich claim this is untrue, because research indicates that the more you drink (the harder you play), the less you end up working. Another myth they identify is that virtually everybody on a college campus drinks dangerously. However, according to the authors, the majority of students (56%) do not binge drink, and one in five students does not drink at all, as addressed previously. They identify the myth that most college students are opposed to efforts by university administrators to curb alcohol consumption, yet nearly three-quarters of students who don't binge drink want stricter alcohol enforcement.

The surrounding community is also going to naturally impact the beliefs and behaviors of college students, as it pertains to alcohol use. Wechsler and Wuerthrich (2002) claim that most college campuses have dozens of drinking establishments, whether they are bars or liquor stores, within two miles of the campus. Naturally, there is a range of the number of drinking establishments within a college town; however three schools were identified as having the most. The authors reported that Florida State University, in Tallahassee, had 185 alcohol establishments within two miles from the campus. They acknowledge that tied for

second, both with 156 alcohol establishments were the University of Vermont, in Burlington and the University of Wisconsin, in Madison. This adds to both the availability of alcohol and the prevalence of alcohol messages a student faces from corporations advocating more alcohol use.

As was previously discussed, college students over-estimate the frequency and amount of alcohol consumed by their peers by approximately 18% (American College Health Association, 2004; Thombs, Wolcott & Farkash, 1997). While this incorrect view of the norms within a peer group has a number of issues, one to be concerned about is how this belief may impact an individual's decisions regarding how much alcohol is appropriate to consume. Parish and Parish (1991) determined that individuals with lower levels of self-esteem were more likely to consume alcohol in an attempt to fit in with what they mistakenly believe is the norm. The logical inference is that those with higher levels of self-esteem may find they are better able to resist peer pressure. However, regardless of their levels of self-esteem, it appears that one powerful factor in the decision to consume alcohol is the outcomes students expect from their decisions.

An individual's expectancies can be understood as the anticipated outcomes from an action or behavior. Students are likely to anticipate expectancies that are both positive and negative, especially in the case of alcohol consumption behaviors. Researchers have examined the link between an individual's expectancies, and how it might impact their decisions regarding alcohol consumption. Consistently, researchers have determined there is a positive correlation between positive

expectancies and increased alcohol use (Burden & Maisto, 2000; Leigh, 1989; Stacy, Bentler & Flay, 1994). However, the reverse has not been found to be true. According to Noar, Laforge, Maddock & Wood (2003), there is an inconsistent correlation between an individual's alcohol consumption decisions and negative expectancies. Essentially, Noar et al. contend that anticipating negative outcomes from alcohol consumption is not powerful enough to prevent alcohol consumption. While negative expectancies do not appear to prevent an individual from drinking, they do appear to have an impact by reducing the amount of alcohol consumed (Jones, Corbin & Fromme, 2001). That these expectancies exist, and are salient enough to have some impact on a student's alcohol consumption choices leaves an open door for researchers.

If an individual has negative expectancies for her or his alcohol use, but she or he still decide to consume alcohol, one could predict that the individual would experience conflicted feelings. Specifically, that individual would be engaging in a behavior that they expect will negatively impact them. This internal conflict would still exist, even if there were positive expectancies concurrent with the negative ones.

Societal Involvement In Alcohol Reduction

Currently, a majority of campus administrators report that drinking is a problem on their campus (Wechsler, Seibring, Liu & Ahl, 2004). While these administrators are clearly responding to the concerning statistics of dangerous drinking, we are seeing our society choose to actively engage in the challenge of

reducing drinking among college students, through programs, interventions, counseling resources and awareness campaigns. There exists a large number of environmental causes to be addressed, including the norms of a society that says college students will drink heavily.

Lederman, Stewart and Russ (2007) reported that currently, the college experience is linked with the expectation of excessive alcohol consumption. Not just the students believe this idea, many of whom do not engage in dangerous drinking, but also by parents and professors (Butler, 1993). That this idea has permeated all aspects of a college society (students, staff and parents) is concerning enough. However, it also creates a unique challenge for campaigns or programs designed to reduce the rates of dangerous drinking among college students. Yet, despite the difficulty, there are serious risks to the current drinking habits that call for innovative risk reduction programs (Sugarman & Carey, 2007).

The two main types of interventions that have been utilized in an attempt to alter college student drinking patterns are education and “force of law” (Rothschild, 1999). The force of law techniques that have been used include raising the federal drinking age in 1988 (Wagenaar & Toomey, 2002), to individual police programs, such as “Operation Sting” in Madison, Wisconsin (Deshpande, 2004). Larimer and Crone (2002) identify sub-categories of educational programs regarding dangerous drinking: traditional information (knowledge-based campaigns), values clarification and norms correcting. Lu (2005) reports that previous researchers have found high

levels of success for programs designed to correct college drinking norms (Barnett, Far, Mauss & Miller, 1996; Haines & Spear, 1996).

The ways our society has opted to actively work toward reducing drinking rates are both expensive and expansive. There is a large variety of programs being offered, including a wide array being offered as early as fifteen years ago (Hansen, 1992). As Peele (2006) pointed out, dangerous drinking among youth has long been an area of public health interventions, and this is increasingly becoming a global concern (Hughes, Anderson, Morley & Bellis, 2007). Many of the interventions targeted at young people have focused on nightclubs (Hughes et al., 2007). Other communities would be wise to address accessibility and affordability of alcohol, as one study has shown that those may affect the drinking rates of college students (Kuo, Wechsler, Greenberg & Lee, 2003). However, many of these programs have proven to be very expensive and difficult to maintain (Barnett, Far, Mauss & Miller, 1996).

Despite the huge amounts of work and money that have been spent on attempting to reduce college drinking rates, consistent results showing their effectiveness may be elusive. Youthful dangerous drinking has not declined over the past decade (Faden & Fay, 2002; Wechsler et al., 2002; Hingson et al., 2005; Peele, 2006; Wechsler, Lee, Kuo & Lee, 2000; Larimer & Crone, 2002). In fact, a deeper analysis reveals that dangerous drinking may be getting worse. Wechsler, Lee, Kuo and Lee (2000) report that between 1993 and 1999, the rates of binge drinking among college students remained steady at 44% . However the researchers

showed that students who could be classified as frequent binge drinkers rose from 20% in 1993 to 23% in 1999. An interesting note is that during the same time period, students who report abstaining from alcohol completely rose from 15% to 19%, according to the scholars.

Yet, additional research has been done on a more local basis, which illuminates the issue among the students on college campuses. Crown (2000) produced results that show the University of Wisconsin, Madison is far outside the national average. Crown shows that at the University of Wisconsin, Madison, students who could be classified as frequent binge drinkers rose from 31% in 1993 to 43% in 1999, compared to 20% and 23% during the same time period. In fact, that percentage of frequent binge drinkers at the University of Wisconsin, Madison (43%) is nearly identical to the national average of frequent and infrequent binge drinkers (44%). Crown's research also produced disappointing numbers concerning those students who choose to abstain from alcohol completely. In 1993, according to Crown, just six percent of students at the University of Wisconsin, Madison claimed to abstain from alcohol completely. In 1999, Crown shows that this number only increased to eight percent, while the national averages for the same time period went from 15% to 19%. Clearly, the drinking behaviors of students at the University of Wisconsin, Madison are more dangerous than those of their peers nationally.

It is unclear if the information concerning the University of Wisconsin, Madison is more fitting for the students here at the University of Wisconsin,

Whitewater. As has been discussed, drinking beliefs and behaviors will be impacted by the campus climate and surrounding areas. As stated earlier the University of Wisconsin, Madison has the second-highest number of alcohol establishments within a two-mile radius of campus in the country. Yet, the environment in the state of Wisconsin would also have an impact on the campus climate. As such, it is important to examine the behaviors of incoming students at the University of Wisconsin, Madison, as they may be similar to those at the University of Wisconsin, Whitewater. Approximately three out of five incoming students at the University of Wisconsin, Madison can be classified as non-binge drinkers (ranging from abstainers to moderate drinkers) (Brower, Rothschild & Saur, 2000). However, by the end of their first year, less than one-third of students are still classified as non-binge drinkers, (Brower, Rothschild & Saur, 2000), showing a dramatic shift in consumption behaviors. Further research is required to determine if this change would be consistent at smaller campuses around the University of Wisconsin, Madison, or if their unique campus climate attracts students with different behavioral patterns.

These concerns naturally call researchers to explore a variety of different alternatives to the current methods. If huge levels of spending at virtually all levels of government are not creating the desired results, then the methods may need to be revisited. The present paper intends to help answer that call by applying Festinger's (1957) Cognitive Dissonance Theory to the current problem. By learning how to harness the potential for behavioral change inherent with an individual in a state of

dissonance, alcohol reduction programs could begin to experience improved rates of success.

Applying Cognitive Dissonance to Reduce College Student Alcohol Consumption

Today's college students are very knowledgeable about alcohol and its side effects (Lederman, Stewart, Goodhart & Laitman, 2003). In fact, nearly 80% of students have received some form of alcohol education, with two-thirds reporting they have read signs, posters or articles regarding alcohol use (Wechsler, Nelson & Weitzman, 2000). Awareness campaigns may be, at some level, ineffective if they are merely trying to inform college students about the basic facts about alcohol, as they have been hearing those messages since high school, or earlier. Despite knowing these facts, many students begin to drink, or drink excessively, because of peer pressure or an incorrect view of social norms (Lindsay, 2006). Instead of attempting to reeducate students about the same facts, there appears to be a great deal of promise in the theory of Cognitive Dissonance. Specifically, programs which give students information that will create psychological discomfort, by challenging their pre-existing beliefs, may be the most effective. In fact, researchers have already identified an example of this approach producing positive results.

Makela (1997) reported on a phenomenon known as the majority fallacy, or the false consensus. This phenomenon essentially occurs when people incorrectly assume that their belief or behavior is shared by a majority of their peers. In regard to alcohol consumption, the majority fallacy exists (Lederman & Stewart, 1998;

2005; Makela, 1997; American College Health Association, 2004; Lederman, Stewart & Russ, 2007) when students over-exaggerate the amount and frequency of alcohol consumption among their peer group. Makela suggests this exaggeration may be a way of reducing cognitive dissonance, or the psychological discomfort of having an accurate perspective of how much they drink compared to their peers. The author reported support for this assertion by producing results that show the majority fallacy is stronger in communities that take a restrictive stance toward alcohol, when compared to those that are more permissive. Essentially, this means that in permissive communities, where students feel freer to engage in alcohol consumption, they do not need to convince themselves that they drink less than their peers.

In contrast, those in restrictive communities experience psychological discomfort, or dissonance when they consume alcohol, and utilize the majority fallacy to rationalize their behavior. However, Makela's results continue beyond community norms, as the majority fallacy is stronger among participants who possess views about alcohol consumption that would be classified as negative. Makela's results are not unique, as many scholars have shown that programs aimed at correcting the majority fallacy are successful (Haines, 1993; 1996; Jeffrey & Negro, 1996; Perkins, 2003). A logical follow-up question would be if the effects of this cognitive dissonance could be recreated in other aspects of alcohol knowledge, beyond just correcting misinformation about peer norms.

Armed with the theory of Cognitive Dissonance, a logical goal in developing programs or campaigns aimed at reducing alcohol consumption among college students would be to present information that challenges the belief system that encourages them to drink at the rates they do now. This is supported by Markowitz (2000), who studied tobacco cessation messages and determined that merely providing information about the health risks of cigarettes was not effective in convincing smokers they were personally vulnerable. Translating this information to alcohol use among college students would imply that simply presenting information about the risks of alcohol consumption would not be effective in getting them to believe that they themselves were at risk. Messages meant simply to inform may be too easily responded to with a student's rationalization of her or his own risk level.

An alternative perspective is offered, as research has found another caution when attempting to create dissonance. Another study on tobacco use showed that messages that were "very discrepant" from the information smokers had already accepted as accurate since they created an attitude change opposite of what was intended (McKennell and Thomas, 1967). It appears that, in this case, the intended goal was to produce dissonance to alter an individual's beliefs about tobacco use. However, since the information was too far removed from what they had already accepted, the respondents were able to quickly discredit the information, thereby maintaining their consonance. These two examples clearly suggest that messages

need to moderately challenge an individual's preconceived beliefs in order to be most effective.

The challenge in creating messages regarding alcohol consumption is preparing for the potential reaction of rationalization, as predicted by Festinger's (1957) theory. Specifically, upon dissonance arousal, individuals may rationalize the new information as being inapplicable to their own lives. We know from Burns and Goodstadt (1989) that students often don't personalize media messages about the risks of alcohol consumption. We also know that students are not likely to find information about being at an increased risk of negative consequences at some distant point in the future to be personally relevant. (Nisbett & Ross, 1980). Thus, in order to produce the most effective messages, creators need to be aware of the ability students have to disregard the message as not applicable to them, and attempt to overcome that reaction before it happens.

Using alcohol consumption messages to create dissonance for students holds great promise, and has already produced results in the area of the majority fallacy (Lederman & Stewart, 1998; 2005; Makela, 1997; American College Health Association, 2004; Lederman, Stewart & Russ, 2007). Once this dissonance has been created, there is the potential, and documented occurrences, that students will actively alter their behavior (Elliot & Devine, 1994) or alter their beliefs (Draycott & Dabbs, 1998) in order to resolve the conflicting information. We can also recognize that the absence of any dissonance regarding excessive alcohol use is concerning, as Gaher and Simons (2007) identified that students who were most

ambivalent about the risks of alcohol use produced the highest results of dangerous drinking. After reviewing all of this information, scholars have a clear opportunity to guide administrators of alcohol reduction programs, by better understanding the role of Cognitive Dissonance Theory in the alcohol consumption decisions students make.

Cognitive Dissonance Theory

According to Festinger's (1957) Cognitive Dissonance Theory, people are exposed to new information in the context of their pre-existing knowledge. Festinger continues that if the new events or information support the previously held beliefs, then the individual feels supported as the new stimuli are in harmony with the individual's prior knowledge. This creates what Festinger referred to as a state of consonance. However, Festinger also discussed a state of dissonance, or discomfort, which would occur when new information or events stood in opposition to previously held beliefs.

When the new information creates a sense of dissonance, there are four reactions we could expect, based on Festinger's (1957) theory. First, the individual may choose to attack the messenger as a way of discrediting the new information. Second, she or he may choose to rationalize the information, or essentially modify the new stimuli in a fashion that it is no longer in opposition to previously held beliefs. Third, the individual may accept the new information as accurate, yet refuse to change her or his original beliefs, which would create a continuing, or

unresolved state of dissonance. Lastly, the individual may accept the new information as accurate, and alter her or his original beliefs accordingly.

It is important to note that a state of dissonance can impact an individual's behavior, as she or he attempts to regain consonance. For example, most smokers are fully aware of the health risks caused by their tobacco consumption (Fischer, Haire-Joshu, Morgan, Rehberg & Rost, 1990; Greening & Dollinger, 1991). However, they are more likely to perform the act of admitting these risks if they are intending to quit smoking (Swinehart & Kirscht, 1966). This is an example of how cognitive dissonance can impact the behavior of an individual. As our society looks for ways to reduce the rate and amount of alcohol consumption, specifically among college students, Festinger's (1957) theory of Cognitive Dissonance could serve a valuable role.

To better understand how Cognitive Dissonance Theory works, it is important to understand the environment within which it was created. This section will also explore the basic components of the theory. The next step is to review the alterations the theory has undergone to reach its current form, after five decades of research. In conclusion, an expansive consideration of theoretical criticisms and responses will wrap up a comprehensive view of one of the most enduring and heuristic theories that exist in the academic field of communication.

The Creation of a Cognitive Consistency Theory

In a comprehensive review of Cognitive Dissonance Theory, Harmon-Jones and Harmon-Jones (2007) identify the environment in which the theory was created.

The authors point out that Festinger (1957) proposed the theory at a time when a large number of cognitive consistency theories were being created in the field of psychology. Other researchers have recognized that Festinger's theory was unique among the cognitive consistency theories, as it compared both consonant and dissonant cognitions in relation to a primary cognition (Beauvois & Joule, 1996; 1999; Mills, 1999). Harmon-Jones and Harmon-Jones accurately recognize that the primary cognition in the equation typically relates to some form of behavior, creating another element that separates Cognitive Dissonance Theory from theories attempting to explain similar phenomena. After the introduction of Festinger's theory, a great deal of research was generated (Jones, 1985). Harmon-Jones and Harmon-Jones point out that the theory was most used until the 1970s, and in the 1990s, when the theory re-emerged.

The most basic element of Cognitive Dissonance Theory is that people engage in "psychological work" when they hold multiple related elements of knowledge that are in conflict with each other (Harmon-Jones & Harmon-Jones, 2007). This can be seen in one of the most often-cited and replicated experimental tests of Cognitive Dissonance Theory. Festinger and Carlsmith (1959) developed a boring task that a participant was asked to perform for some time. Following that, the researchers asked the participant to recommend a confederate perform the task, despite the participant not enjoying the task. When the researchers rewarded the participant with a reward of one dollar, they subsequently reported less negative feelings of the task than did the students they offered a reward of twenty dollars.

Festinger and Carlsmith contend that this is a clear example of Cognitive Dissonance Theory at work. Specifically, the scholars suggested that students who were offered a higher financial reward could easily justify their deceit as necessary to obtain a valuable reward. However, they say that the students who only received one dollar would be less likely to justify their deceit in exchange for just one dollar, and thus, they needed to alter their perception of task enjoyment. This experiment has come to serve as the cornerstone example of Cognitive Dissonance Theory.

Festinger (1957) recognized an important cognitive reaction occurs when an individual finds two pieces of information, or cognitions, are in conflict with each other. He points out that this can occur because of new events or information, but that even in the absence of new cognitions, dissonance is likely an everyday psychological reality. However, in order to trigger cognitive dissonance, Festinger points out that the multiple cognitions must both be related to each other, as well as in conflict. When multiple related and conflicting pieces of information exist, an individual can be expected to be in a state of dissonance.

A mathematical equation was created in Festinger's original theory to measure the level, or magnitude, of dissonance an individual is in. Specifically, Festinger says that the total level of dissonance an individual is under can be viewed in the following equation:

$$D / (D+C)$$

when D equals the number of cognitions that are dissonant, and C equals the number of cognitions that are consonant with a primary, or focal cognition. Subsequent

researchers have produced similar equations, which account for the weight an individual gives to each cognition (Sakai, 1999; Shultz & Lepper, 1999), which creates a mathematical allowance for a portion of Festinger's original work that suggested that the magnitude of dissonance is determined by the importance of the cognitions that are in conflict with each other (Sarup, 1981). The present paper utilizes a method of dissonance measurement that is similar to the original equation, but giving more focus on the magnitude of dissonant cognitions.

By viewing the magnitude of an individual's level of dissonance in a quantitative perspective, we can better understand the original ways Festinger (1957) suggested that people would attempt to reduce the magnitude of dissonance they were experiencing. It is important to note that Festinger did suggest that a natural reaction to the arousal of dissonance would be to engage in the psychological work of reducing it. In the initial version of the theory, Festinger contended that there are four ways to reduce the magnitude of dissonance: add consonant cognitions, subtract dissonant cognitions, increase the importance of consonant cognitions or decrease the importance of dissonant cognitions (Harmon-Jones and Harmon-Jones, 2007). Future researchers have produced a substantial list of specific activities individuals engage in to reduce dissonance, which will be discussed more in depth further on. However, whether it is viewed in mathematical or literal methods of reducing dissonance, there does appear to be some resistance to dissonance reduction.

Even in the initial draft of the theory, Festinger (1957) recognized that individuals may be resistant to reducing dissonance. While he believed individuals will naturally begin attempting to reduce their dissonance, there are potential issues that would prevent the successful completion of this psychological work. First, Festinger recognized that reducing dissonance may be painful or involve a loss. In the example of dangerous drinking, an individual may feel dissonance due to knowing the risks of their drinking levels, but would be resistant to change their behavior due to the potential loss of a social outlet. Another reason an individual might resist dissonance reduction, according to Festinger, is that the present behavior may be satisfying.

Applying this through the lens of dangerous drinking behaviors, an individual may feel the benefits of dangerous drinking are satisfying enough to continue in a state of dissonance. Finally, Festinger suggested that change may not be possible. This could apply to addictive behaviors, effecting alcoholics, smokers, drug users, etc. Festinger proposed that if an individual is unable to successfully reduce the existence of dissonance, they will then attempt to avoid the triggers that arouse dissonance, and minimize the magnitude of it.

Areas of Study with Cognitive Dissonance Theory

Cognitive Dissonance Theory has been the source of a wide variety of different research projects (Harmon-Jones & Harmon Jones, 2007), with several research themes+. Throughout the fifty years since Festinger (1957) initially published the theory, it has been applied to a wide variety of areas. These areas of

study focus on the relationship between dissonance and personal development (Chow & Thompson, 2003), guilt (Stice, 1992), marketing (Oshikawa, 1969) and motivation (Brehm, 1956; Festinger & Carlsmith, 1959; Aronson & Mills, 1959). Each of these areas offers additional insight into the actual workings of cognitive dissonance.

Just before the debut of Festinger's (1957) theory, Maslow (1954) put forward a hierarchy of needs. According to Maslow's theory, a person develops by meeting needs in a pyramid-like sequence, unable to attain higher levels of "self-actualization" without first meeting the more fundamental needs, such as food, shelter and safety. Maslow suggests that this is the ultimate goal of human development. Chow and Thompson (2003) applied Cognitive Dissonance Theory to determine if it would impact an individual's ability to thrive in their environment. The researchers measured subjects level of personal development, followed by a measure of dissonance, which they operationalized as a measure of problems in their life. The scholars produced results which showed a negative relationship between the amount of dissonance an individual measured and her or his measure of thriving. Essentially, the results indicate that the more dissonance or psychological discomfort between opposing beliefs or behaviors an individual has, the less likely she or he is to advance toward self-actualization, according to Maslow's hierarchy of needs.

Work has also been done to compare the arousal of dissonance to the psychological concept of guilt. Specifically, Stice (1992) developed a test to

determine the similarities between an individual experiencing guilt and an individual experiencing dissonance arousal. Stice reported a great deal of similarities, suggesting that Festinger's (1957) Cognitive Dissonance Theory may simply be a model of the concept of guilt. Specifically, Stice reports that both guilt and dissonance can be defined as negative emotional arousals that require the individual feel personally responsible for some action. It is clear that this concept of dissonance may be the most appropriate conceptualization to apply to college student's reactions to their own dangerous drinking behaviors. Additionally, Stice found both guilt and dissonance could be relieved through memory distortion, performing a self-affirming act or consuming alcohol. However, it appears as though Stice may be over-extending the results of the research. The similarities do indicate that our common concept of guilt may be a form of dissonance, with similar definitions, requirements and reduction techniques. However, the results do not indicate that all previously documented examples of dissonance arousal to be guilt. A primary example is that people experience dissonance after making a large purchase (Festinger, 1957; Oshikawa, 1969), but there is no evidence that this phenomenon could best be described as guilt.

The dissonance described in Festinger's (1957) theory was quickly picked up by the marketing profession, as they noticed the possibility that Cognitive Dissonance Theory may impact people's decisions to purchase or recommend various products. Festinger's theory states that after making a decision between multiple choices, a person must handle the cognitions that highlighted the potential

benefits of the choice they rejected. These cognitions could be supported by research conducted prior to the theory's development, which showed evidence that supported the existence of post-purchase dissonance (Ehrlich, Guttman, Schonbach & Mills, 1947). Oshikawa (1969) determined that the marketing of a product serves not just to encourage individuals to purchase a product, but to help them reduce post-purchase dissonance, by reassuring them of the positive attributes of the choice they made. All of this stands in contrast to Janis (1959), who contends that there is little to no difference in the cognitive processes after a purchasing decision. Yet, follow-up work by both Festinger (1964) cites an unpublished study that showed evidence that individuals would alter their evaluations of accepted and rejected options differently once a decision had been made (Brehm, Cohen & Sears, 1960).

While marketers focused on the post-decision thought processes and the motivation to purchase, other researchers focused their efforts on the role cognitive dissonance might play in motivation. Brehm (1956) produced work just before Cognitive Dissonance Theory was published which analyzed the main components. Specifically, Brehm focused on the dissonance one would feel when she or he had absolutely free choice between two alternatives. Brehm found that cognitive dissonance had no role in the overall evaluation of their decision when there was an easy choice to make. However, evidence of cognitive dissonance was prevalent when the participants were analyzing a difficult decision. This is in line with Festinger's (1957) forthcoming claim that individuals would need to reduce dissonance after making a choice between two positive options. Festinger and

Carlsmith's (1959) cornerstone study, where students induced dissonance to justify deceiving a confederate for a reward of one dollar, but not for a reward of twenty dollars, examines the role of dissonance in a situation of induced compliance. Specifically, the researchers were able to determine that individuals could prevent the arousal of dissonance if they were acting for a worthwhile reward. At the same time, Aronson and Mills (1959) examined cognitive dissonance through the lens of effort justification. Specifically, they produced a study where women were initiated into a group utilizing either a severe, embarrassing initiation method, or a mild, non-embarrassing initiation method. Women who were embarrassed to be initiated into the group rated the group higher than women who were not. This is a paradigm that says, when an individual's decision to act required a great deal of effort, dissonance was induced to justify that effort.

Revisions of Cognitive Dissonance Theory

Any social science theory that survives for over 50 years is bound to undergo a series of revisions and alterations. Cognitive Dissonance Theory is no exception, and many researchers have added perspectives to the theory that have better described the intrapersonal communication phenomenon in question. Two main theory revisions have emerged, as identified by Harmon-Jones and Harmon-Jones (2007), as well as the development of a dissonance scale, and a series of specific activities that have been shown to reduce dissonance. This section will seek to explore and explain those revisions, to provide a fuller picture of the current perspective on Cognitive Dissonance Theory.

Festinger (1957) claimed that individuals would engage in psychological work to reduce dissonance. However, Dietrich (1990) collected information from several scholars concerning specific activities individuals engage in as a form of dissonance reduction. The nine activities Dietrich reported are: a) value affirmation (Steele, 1988), b) re-assessing decision more positively (Steele, 1988), c) drinking alcohol (Steele, Southwick & Crichtlow, 1981), d) listening to a comic routine (Kidd & Berkowitz, 1976), e) helping someone (Kidd & Berkowitz, 1976), f) attitude change (Steele & Liu, 1983), g) discounting the merit of an alternative (Scheier & Carver, 1980), h) misattribution (Zanna & Cooper, 1974) and i) receiving flattering information (Dietrich, 1990). The list compiled by Dietrich is a solid compilation of researched activities that serve to reduce dissonance for people. The scholar goes on to suggest that all of the items on this list serve as ego-enhancement, to respond to the negative impact dissonance has on one's self-esteem. With the exception of drinking alcohol, it is logical to see each activity as an example of ego enhancement. However, the example of alcohol can be viewed as ego-enhancement, since alcohol consumption reduces an individual's self-awareness (Hull, Lerenon, Young & Sher, 1983), and that individuals in dissonance are motivated to avoid self-awareness (Greenberg & Musham, 1981). This compilation by Dietrich serves to enhance the theory by providing concrete examples of the theoretical example of dissonance reduction.

The application of Cognitive Dissonance Theory has also been enhanced with the creation of a scale to measure the phenomenon of cognitive dissonance.

The test designed by Cassel and Chow (2000) measures the amount of dissonance an individual feels in his or her own life. This conceptualization of cognitive dissonance is similar to the conceptualization utilized in the present study. This perspective focuses on Festinger's (1957) view of dissonance in a long-term fashion. While dissonance is certainly stimulated by new events or information, much dissonance will exist for extended periods of time. Cassel and Chow attempt to have created a quantifiable measurement tool to do that. The test created by the scholars is intended to highlight subconscious areas of dissonance, so that the individual taking the test may make intentional decisions to resolve the dissonance they feel (Chow & Thompson, 2003). Yet, the creation of a measurable cognitive dissonance scale exists only in the sphere of theoretical revisions to the theory.

The perspective that dissonance is aroused due to a threat to an individual's self concept has been advocated by Aronson (1968, 1999). The scholar claims that each individual has her or his own "sense of self", which serves as the primary cognition to arouse dissonance if the individual's behavior is inconsistent with their own self-image. Since most people have a positive self-image, Aronson's theoretical revision supposes that negative behaviors will usually be the stimuli for dissonance arousal. All of this leads to the main argument made by Aronson, that self-esteem interacts with levels and frequency of dissonance arousal. Specifically, he claims that individuals with lower levels of self-esteem will have fewer incidents of dissonance, as they will not be as subconsciously bothered by negative behaviors. The inverse is that he claims that individuals with higher levels of self-esteem will

have higher rates and incidents of dissonance arousal, as they will have more psychological discomfort resulting from negative behaviors. It is important to note however that many scholars have produced results that contradict the claims made by Aronson (Beauvois & Joule, 1996, 1999), and specifically in the realm of recidivist smokers (Gibbons, Eggleston & Benthin, 1997). Thus, it appears as though Aronson's revision is open to continued discussion and further research.

Steele (1988) added a revision to Festinger's (1957) theory by focusing on Festinger's claim that individuals are personally motivated to resolve their dissonance. Building on this portion of the theory, Steele connects dissonance theory to the argument that individuals are also motivated to regulate their self-image as morally and adaptively adequate. The scholar claims that individuals utilize attitude change as a dissonance reduction strategy when the aroused dissonance challenges their views of themselves as morally or adaptively adequate. More simply, Steele claims that an individual will utilize attitude change if dissonance threatens a positive view of her or his integrity. These claims were supported by Steele's research that showed that an individual would not utilize attitude change to resolve laboratory-induced dissonance when they took an opportunity to affirm an important personal value to themselves. However, there are critics of this revision who have produced results that fit Steele's research into the scope of Festinger's original theory (Simon, Greenberg & Brehm, 1995) and scholars who produce results that they claim are difficult to fit within the scope of Steele's revisions (Aronson, Cohen & Nail, 1999). While there are critics of

individual revisions to Cognitive Dissonance Theory, there are also criticisms of the entire theory to examine.

Criticisms of Cognitive Dissonance Theory

Critics of Festinger's (1957) Cognitive Dissonance Theory have come from two main argument lines. First, researchers claim that the theory has been overextended (Lord, 1992; Bem & McConnell, 1970; Converse, 1970). Secondly, a host of researchers have challenged the theory outright, claiming that there are alternate explanations for the phenomenon predicted in Festinger's theory (Bem, 1972; Zanna & Cooper, 1974; Fazio, Zanna & Cooper, 1977; Sarup, 1981). While the present study utilizes Festinger's original theory, this section will be focused on giving a voice to those who have raised concerns about the theory.

As indicated, there are scholars who claim that researchers have overextended Festinger's (1957) original theory beyond the scope it can be appropriately applied. The most well-laid argument suggesting dissonance theory has been overextended was produced by Lord (1992), who reports that research has shown individuals who have supposedly resolved dissonance do not report that they recalled this process (Bem & McConnell, 1970). In his argument against the extension of Cognitive Dissonance Theory, Lord argues that researchers should not be insisting that participants are engaging in psychological processes that they do not report doing. Going further, Lord cites Converse (1970), who claims that most college-aged students do not hold strong attitudes toward most issues, which would make it unlikely that they would feel psychological discomfort if one of those

attitudes was challenged. Lord's main claim is that many examples of attitude change resulting from dissonance arousal has a much simpler explanation, which is that participants merely changed their attitudes, without psychological work being necessary.

Perhaps of more concern is the claim by some Cognitive Dissonance Theory researchers (Bem, 1972; Zanna & Cooper, 1974; Fazio, Zanna & Cooper, 1977; Lord, 1992) that there are other explanations to explain the attitude change described by Festinger's (1957) theory. Many critics have challenged the most well-known example of dissonance in action, the work done by Festinger and Carlsmith (1959) which found that individuals who were paid one dollar to recruit a confederate to a very boring task rated the task higher than those who were paid 20 dollars. Bem (1972) claims this could be explained merely through self-attribution.

Misattribution was utilized to avoid dissonance reduction in several studies (Zanna & Cooper, 1974; Fazio, Zanna & Cooper, 1977), whereas participants who were suspected of going through dissonance were offered an alternate explanation for their negative feelings. Those who were given an alternate explanation for their discomfort (such as external environmental factors) did not produce attitude change, whereas those who were not given an alternate reason did produce attitude change (Zanna & Cooper, 1974). The suggestion made by Lord (1992) is that since misattribution resolves the theoretical dissonance an individual feels, perhaps the dissonance is not strong enough to alter an attitude. While these criticisms warrant

notation, the theory does remain strong enough to apply to the previously stated problems of dangerous alcohol use among college students.

Cognitive Dissonance Theory And Alcohol Use

As was previously discussed, college students are engaging in alcohol use patterns that have the potential for seriously negative consequences. Cognitive Dissonance Theory can be effectively applied to better understand the reasons college students begin, and continue, these practices, even after they become informed of the possible consequences. Research has identified clear links between alcohol use and the predictions evident in Festinger's (1957) theory. This section will focus on providing insight into scholarly research showing a link between alcohol behaviors and the three of the four main responses to inconsistent cognitions: rationalization, attack the messenger and accept with changes. A vast review of the extant literature does not reveal evidence of researched examples of individuals accepting new information with no behavioral or belief changes. These research examples will lead to the hypotheses utilized in the present study.

There are clear links between the two substances that make the connection valid. We will consider examples of alcohol research alongside examples of tobacco research, for the purposes of understanding the processes of cognitive dissonance and substance use. For example, Eiser and Harding (1983) found that smokers viewed alcohol consumption more positively than non-smokers. Another study reported the inverse interaction effect, that adolescents who consumed alcohol were more likely to start smoking than adolescents who did not consume alcohol

(Paavola, Vartiainen & Haukkala, 2004). We also know that men are more likely than women to drink heavily, smoke, and drink and drive (Fennell, 1997), suggesting a behavioral link between the dangerous behaviors that creates a logical link. Markowitz (2000) concluded that smokers perceive themselves to be exempt from smoking and non-smoking health risks, presumably to include alcohol use. Considering this information, it is fair to utilize the vast amount of research concerning tobacco use and cognitive dissonance to gain a better understanding of the theory's interaction with college students' use of substances, most specifically alcohol.

Research has produced some link between substance use and cognitive dissonance. McMaster and Lee (1991) determined that smokers and non-smokers may process information differently, with the implication that information concerning the dangers of tobacco use should be presented in different ways to the different groups. It is appropriate to consider that the same may be true for students who use alcohol and those who abstain. Steele, Southwick and Critchlow (1981) produced information that was concerning when comparing Cognitive Dissonance Theory to alcohol consumption. Festinger's (1957) original theory listed attitude change as a dissonance reduction technique. However, according to Steele and colleagues, attitude change was easily replaced with drinking beer as an effective technique to reduce dissonance. Seeking to answer criticisms in advance, the authors reported that the same was not found for heavy coffee drinkers, leaving the potential that an effective way to reduce dissonance is to consume alcohol.

However, Steele et al. reported that increases in dissonance did not actually produce an increase in the amount of alcohol consumed. What remains unclear is if the induction of dissonance will make it more likely for students to consume alcohol in any amount, as opposed to abstaining. However, generally speaking, Festinger's theory can be applied well to the drinking habits of college students.

Researchers have produced a large amount of evidence that individuals who use alcohol or tobacco rationalize their behavior as a form of reducing dissonance. One example is that smokers will minimize the estimation of their own smoking in comparison to their peers (Tagliacozzo, 1979). Additionally, adolescent smokers incorrectly estimate the number of their peers who smoke, while adult smokers are able to correctly identify that information (Sherman, Presson, Chassin, Corty & Olshavsky, 1983). This implies that the age group in question, college students, may be more susceptible to over-estimating the substance use habits of their peers than older people will. Similarly, McMaster and Lee (1991) reported that smokers were more likely to utilize logical distortions concerning the risks of smokers, even though there was no significant difference in the knowledge level. This research is supported by a plethora of scholars who report results indicating that individuals who smoke tobacco were more likely to alter information concerning smoking risks than non-smokers (Dawley, Fleischer & Dawley, 1985; Loken, 1982; Worden, Waller, Ashiyako & Sweeney, 1980; Weinstein, 1982; 1987). This information supports that suggestion that individuals will rationalize information received in order to resolve dissonance concerning the negative implications of their behavior.

Another well-researched dissonance reduction strategy is to attack the messenger. McKennell and Thomas (1967) were among the first to recognize that smokers were utilizing this cognitive process and to suggest that health educators respond accordingly. In addition, there have been several researchers who determined that smokers challenged health risk information as potentially invalid (Feather, 1962; Pervin & Yatko, 1965; Swinehart & Kirscht, 1966; Dawley, Fleischer & Dawley, 1985). This would explain why approximately 43 million Americans started smoking within two decades of the 1965 Surgeon General's Report on Smoking and Health (USDHHS, 1989), which warned everyone about the dangers of smoking. These examples can all clearly be viewed through the realm of attack the messenger, which Aronson, Turner and Carlsmith (1963) called a change in source credibility.

While the research has produced fewer results, there are still examples of individuals accepting discrepant information, and making behavioral changes as a result (Gibbons, Eggleston & Benthin, 1997; Viscussi, 1992). For example, smokers who were beginning an attempt to quit smoking reported the highest levels of risk perception when compared to those who had already quit, or were not attempting to quit (Gibbons, Eggleston & Benthin, 1997). Viscussi (1992) reported that the higher an individual's risk perception was, the more committed they were to a smoking cessation program. These are both examples of information that aroused dissonance resulting in a change of behavior. The individuals who decided to quit smoking as a result of that information could have easily attacked the messenger or

rationalized their behavioral choices. Instead, the individuals accepted the information, and made changes because of it. This represents the fourth major facet of predicted responses based on Cognitive Dissonance Theory.

As a result of the research on each of these facets, research questions were developed to determine if dissonance would result in the responses predicted. To gain a fuller understanding, research questions were developed to determine student responses to messages concerning three different topics: binge drinking, drunk driving and date rape. We can examine the results of each facet of dissonance within each predicted response, generating the following twelve research questions:

RQ1: Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning binge drinking?

RQ2: Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning binge drinking?

RQ3: Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning binge drinking?

RQ4: Will dissonant alcohol users be more likely to make behavioral changes than consonant alcohol users, when viewing a message concerning binge drinking?

RQ5: Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning drunk driving?

RQ6: Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning drunk driving?

RQ7: Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning drunk driving?

RQ8: Will dissonant alcohol users be more likely to make behavioral changes than consonant alcohol users, when viewing a message concerning drunk driving?

RQ9: Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning date rape?

RQ10: Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning date rape?

RQ11: Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning date rape?

RQ12: Will dissonant alcohol users be more likely to make behavioral changes than consonant alcohol users, when viewing a message concerning date rape?

Methodology

Participants

Participants (N=230) were students at the University of Wisconsin – Whitewater. The researcher attended ten different classes to recruit participants, six of which were in the Communication department, with the remaining four from the Safety Studies department. There were no surveys rejected due to incomplete data, or other disqualifying information. All participants received the same statement of informed consent, survey, videos, and accompanying information. Table one displays the demographic information of the entire sample set.

Table 1 Demographic information of participants

| <i>SEX</i> | | | <i>YEAR IN SCHOOL</i> | | |
|-------------|-----|---------|------------------------|-----|--------|
| Males | 109 | (47.4%) | Freshman | 2 | (0.9%) |
| Females | 121 | (52.6%) | Sophomore | 28 | |
| No Response | 0 | (0.0%) | Junior | 72 | |
| | | | Senior | 122 | |
| <i>AGE</i> | | | 5 th Year + | 6 | (2.6%) |
| 18 | 1 | (0.4%) | No Response | 0 | (0.0%) |
| 19 | 12 | (5.2%) | | | |
| 20 | 44 | (19.1%) | <i>RACE</i> | | |
| 21 | 74 | (32.2%) | African-American | 15 | (6.5%) |
| 22 | 53 | (23.0%) | Asian-American | 5 | (2.2%) |
| 23 | 26 | (11.3%) | Caucasian | 200 | |
| 24 | 8 | (3.5%) | Hispanic | 4 | (1.7%) |
| 25+ | 12 | (5.2%) | Native-American | 1 | (0.4%) |
| No Response | 0 | (0.0%) | Other | 3 | (1.3%) |
| | | | No Response | 2 | (0.9%) |

An analysis of the demographics of the survey sample reveals several items of note. First, the sample had slightly more females than males. Second, the study consisted of students predominantly aged 20 to 23, as they represent 86% of respondents. Over half of participants (53%) classify themselves as Seniors, with nearly an additional one-third of respondents self-identifying as Juniors (31.3%). Lastly, the overwhelming majority (87%) of respondents were Caucasian students, with just 6.5% self-identifying as African-American, 2.2% self-identifying as Asian-American, and less than two percent in every other categorization (Hispanic, Native American, “other” and no response).

Survey Design

The research instrument utilized was a survey designed by the researcher. The survey contained several questions designed to focus on the beliefs participants

had about alcohol use, as well as their alcohol consumption behaviors. The descriptive statistics for each of these questions will be discussed in the results section. However, within the survey were three questions which will be used to group participants for statistical analysis.

Each participant was asked two questions designed to determine if they were in a state of dissonance concerning their alcohol use. First, individuals were asked to identify how many drinks they consumed during an average week, in an open-ended question. Second, participants quantified the “greatest number of drinks the average UWW student could consume, while still being a healthy drinker.” By comparing these figures, the researcher was able to determine if an individual’s beliefs were in conflict with her or his behaviors.

The completion of the survey occurred after each of three videos was played for the participants. The students were given the same four statements requiring a response on a likert-type scale concerning each video. The statements were designed to correlate with the four typical responses individuals have to dissonance arousal: accept the message with no behavioral changes, accept the message with behavioral changes, rationalize the information or attack the messenger. The survey includes a place for students to respond to each of the four statements, in a scrambled order, after each survey. The four statements were:

I – I believe the information is accurate. (Accept the message)

II – The information presented applies to me (Rationalize)

III – The creator of this video was credible (Attack the messenger)

IV – I am likely to change my behaviors because of this information
(Behavioral changes)

Videos Utilized

Participants were shown three videos available through an online website, pertaining to different topics. The researcher selected a video concerning binge drinking, date rape and drunk driving. The videos were selected primarily for their message content, with attention to quality and length.

Drunk driving. The video pertaining to drunk driving was 30-seconds long, and was professionally produced by the Ad Council. The video begins with loud music, and two young women who appear to be visibly drunk dancing. While dancing, one of the women accidentally hits her teeth with a beer bottle, causing two of them to fall out. The women begin laughing while a narrator says, “It’s easy to tell if you’ve had way too many.” As the scene cuts to the doorway, we see another young woman drinking a sip of beer, and leaving with keys in her hand. The narrator continues by saying, “but what if you’ve had just one too many? Buzzed driving is drunk driving.”

Date rape. The video pertaining to date rape was 25-seconds long, and produced by a college student as a class assignment. The video plays dramatic music, while a scene plays out backwards. Specifically, the video plays as though it is being rewound, as a man guides a clearly drunk woman into a bedroom, after picking her up from a chair. As the video continues, we see that she appears to be passed out in the chair, because earlier in the night, the man had slipped a pill in her drink. Throughout the video, text-based messages are displayed. First, we learn

that, “somewhere in America, a woman is raped every two minutes.” The next message reads, “the majority of rapes among college women involve alcohol or date rape drugs.” The video concludes with a warning stating, “party safe! Watch your drink and stick with your friends.”

Binge Drinking. The video pertaining to binge drinking was 29-seconds long, and produced by a college student as a class assignment. The video plays upbeat dance music, while a person is seen pouring themselves four shots of alcohol. As the man drinks the shots, a text-based message is displayed on the screen. The video reports that a large percentage of college students binge drink. As the man consumes all four shots, he is shown stumbling to reach another one, before falling over, with the shot glass falling on top of him. The video concludes with the individual appearing to be passed out, with the text-based warning that “over 30,000 students are hospitalized each year for alcohol poisoning.” Finally, a text-based message covers another image of the individual passed out, reading “If you drink, drink responsibly.”

Procedure

Survey data was collected in a uniform fashion to minimize resulting variance from each group of participants. In each instance, the professor introduced the student researcher, who introduced the research project. After a brief explanation of the research project, each participant received and signed a statement of informed consent. The blank surveys were then distributed, and participants filled out the information regarding their own beliefs and behaviors, as well as their

demographic information, before the videos were presented. Once the entire group had completed the first portion of the surveys, the videos were played, in a random order. After each video, the researcher paused to allow students time to respond to four statements on a likert-type scale. After the final video, the surveys were collected, and the researcher answered any questions participants may have had.

Results

Descriptive Statistics

The survey instrument utilized asked a series of questions designed to better understand both the beliefs, as well as the behaviors concerning the alcohol use among participants. These questions provided several items of insight that do not directly relate to the research questions posed. As such, those results will be reported in this section.

Healthy drinking. On a likert-type scale, participants were asked to respond to the following statement: “the level of alcohol I drink per week is healthy.” Participants were given the options of strongly agree, agree, disagree and strongly disagree. The results were converted numerically, with four representing “strongly agree”, three representing “agree”, two representing “disagree” and one representing “strongly disagree”. Overall, the students reported that they believe the amount of alcohol they consume per week is healthy ($n=229$, $M=3.02$, $SD=.89$), and the frequencies can be seen in table two.

Table 2 – Frequencies of responses to “The level of alcohol I drink per week is healthy.”

| <i>Healthy Drinking</i> | |
|-------------------------|------------|
| Strongly Agree | 81 (35.2%) |
| Agree | 83 (36.1%) |
| Disagree | 54 (23.5%) |
| Strongly Disagree | 11 (4.8%) |
| No Answer | 1 (0.4%) |

An area of potential concern for future researchers, as well as alcohol educators, is that over one-fourth (28.3%) of respondents do not feel that the amount of alcohol they drink per week is healthy. That is a large number of college students who classify their drinking as unhealthy. The number becomes even more concerning when you consider that many college students who consume alcohol at unhealthy levels may have already rationalized their alcohol consumption behaviors as healthy. For comparison, table three lists the frequency of answers to the open-ended question, “how many drinks do you consume on an average week”, split equally into four groups for scores ranging from zero to 60.

Table 3 – Frequencies of responses to “How many drinks do you consume on an average week?”

| <i>Drinks Consumed Per Week</i> | |
|---------------------------------|------------|
| 0 to 1 | 58 (25.2%) |
| 2 to 6 | 59 (25.7%) |
| 7 to 12 | 54 (23.4%) |
| 13 to 60 | 54 (23.4%) |
| No Answer | 5 (2.2%) |

Drunk driving. On a likert-type scale, participants were asked to respond to the following statement: “it is sometimes okay to drive under the influence of alcohol.” Participants were given the options of strongly agree, agree, disagree and strongly disagree. The results were converted numerically, with four representing

“strongly agree”, three representing “agree”, two representing “disagree” and one representing “strongly disagree”. Overall, the students reported that they do not believe it is acceptable to drive under the influence of alcohol ($n=230$, $M=1.54$, $SD=.74$), and the frequencies can be seen in table four.

Table 4 – Frequencies of responses to “It is sometimes okay to drive under the influence of alcohol.”

| <i>Drunk Driving</i> | | |
|-----------------------------|-----|---------|
| Strongly Agree | 0 | (0.0%) |
| Agree | 35 | (15.2%) |
| Disagree | 54 | (23.5%) |
| Strongly Disagree | 141 | (61.3%) |
| No Answer | 0 | (0.0%) |

The results indicate a potential success in the area of alcohol education. Specifically, a majority of students (61.3%) strongly disagree with the sentiment that it is sometimes okay to drive under the influence of alcohol, while the overwhelming majority (84.8%) strongly disagree or disagree. However, a potential cause for concern amongst alcohol educators and future researchers is the comparison of that information with the self-reported distances participants have driven under the influence of alcohol. In an open-ended question, students responded to the following question, “what is the longest distance (in miles) you have driven under the influence of alcohol. (You believe your driving may have been impaired.” The responses indicate that students have driven an average of over 10 miles ($n=226$, $M=10.77$, $SD=19.06$) under the influence of alcohol. Table five offers the frequencies of that question, split into four groups, utilizing the best available median split. What the data makes clear is that only a small minority

(15.2%) of students believe there are acceptable situations in which to drive a car under the influence of alcohol, yet nearly two-thirds of students (63.2%) have done so.

Table 5 – Frequencies of responses to “What is the longest distance you have driven while under the influence of alcohol?”

| <i>Miles Driven Drunk</i> | |
|---------------------------|------------|
| 0 | 80 (34.8%) |
| 1 to 3 | 49 (21.3%) |
| 4 to 15 | 50 (21.7%) |
| 20 to 120 | 47 (20.2%) |
| No Answer | 4 (1.7%) |

Responsible drinking. On a likert-type scale, participants were asked to respond to the following statement: “I am a responsible drinker.” Participants were given the options of strongly agree, agree, disagree and strongly disagree. The results were converted numerically, with four representing “strongly agree”, three representing “agree”, two representing “disagree” and one representing “strongly disagree”. Overall, the students reported that they do believe that they are responsible drinkers ($n=228$, $M=3.27$, $SD=.65$), and the frequencies can be seen in table six.

Table 6 – Frequencies of responses to “I am a responsible drinker”

| <i>Responsible Drinking</i> | |
|-----------------------------|-------------|
| Strongly Agree | 86 (37.4%) |
| Agree | 120 (52.2%) |
| Disagree | 20 (8.7%) |
| Strongly Disagree | 2 (0.9%) |
| No Answer | 0 (0.0%) |

The results indicate that students are comfortable with their level of drinking, and that only a small minority (9.6%) believes that their alcohol consumption is not

responsible. It is important to remember that these responses are self-reported, which makes it necessary to compare the results to other information. Specifically, students were asked to respond to the following statement, “my drinking has interfered with my academic or personal life at least once” on a likert-type scale. The responses can be seen in table seven. The results indicate that overall, students believe alcohol has interfered in their academic or personal life to some degree ($n=229$, $M=2.28$, $SD=1.04$), with just over half (50.5%) of students disagree with that statement, while 49.1% agree.

Table 7 – Frequencies of responses to “my drinking has interfered with my academic or personal life at least once.”

| <i>Drinking Interfered</i> | |
|-----------------------------------|------------|
| Strongly Agree | 26 (11.3%) |
| Agree | 87 (37.8%) |
| Disagree | 42 (18.3%) |
| Strongly Disagree | 74 (32.2%) |
| No Answer | 1 (0.4%) |

Descriptive analysis. A careful review of the descriptive statistics reported offers guidance for both future researchers, as well as alcohol education practitioners. Alcohol education practitioners can also utilize these results to understand what areas students may be most receptive to new information. Future researchers can utilize the results offered to craft a deeper measurement of cognitive dissonance, as it pertains to the alcohol consumption beliefs and behaviors of college students.

Measurement of Dissonance

In order to best answer research questions one through twelve, it was necessary to group participants into levels of dissonance. This was determined utilizing the answers to two specific, open-ended questions. “How many drinks do you consume on an average week?” and “What is the greatest number of drinks per week the average UWW student could consume, while still being a healthy drinker.” The application of Festinger’s (1957) Cognitive Dissonance Theory occurs when assuming that individuals who drink more than they believe is healthy would be in a state of psychological discomfort, or dissonance. Table eight shows the frequency of responses to the question “how many drinks do you consume on an average week?” while table nine shows the frequency of responses to the question, “what is the greatest number of drinks per week the average UWW student could consume, while still being a healthy drinker?”

Table 8 – Frequencies of responses to “how many drinks do you consume on an average week?”

| <i>Drinks Consumed Per Week</i> | | | | | |
|---------------------------------|------------|-----|------------|----|----------|
| 0 | 32 (12.9%) | 10 | 29 (12.6%) | 23 | 2 (0.9%) |
| 1 | 26 (11.3%) | 11 | 1 (0.4%) | 24 | 1 (0.4%) |
| 2 | 14 (6.1%) | 12 | 4 (1.7%) | 25 | 6 (2.6%) |
| 3 | 11 (4.8%) | 13 | 3 (1.3%) | 29 | 1 (0.4%) |
| 4 | 15 (6.5%) | 15 | 8 (3.5%) | 30 | 7 (3.0%) |
| 5 | 11 (4.8%) | 16 | 2 (0.9%) | 40 | 3 (1.3%) |
| 6 | 8 (3.5%) | 17 | 1 (0.4%) | 47 | 1 (0.4%) |
| 7 | 3 (1.3%) | 20 | 14 (6.1%) | 58 | 1 (0.4%) |
| 8 | 17 (7.4%) | 21 | 1 (0.4%) | 60 | 3 (1.3%) |
| | | N/A | 5 (2.2%) | | |

Table 9 – Frequencies of responses to “what is the greatest number of drinks per week the average UWW student could consume, while still being a healthy drinker?”

| <i>Healthy Amounts Of Consumption</i> | | | | | |
|---------------------------------------|------------|----|------------|-----|----------|
| 0 | 2 (0.9%) | 10 | 29 (12.6%) | 30 | 8 (3.5%) |
| 1 | 3 (1.3%) | 12 | 6 (2.6%) | 33 | 1 (0.4%) |
| 2 | 17 (7.4%) | 13 | 1 (0.4%) | 35 | 2 (0.9%) |
| 3 | 17 (7.4%) | 14 | 4 (1.7%) | 40 | 2 (0.9%) |
| 4 | 17 (7.4%) | 15 | 8 (3.5%) | 45 | 1 (0.4%) |
| 5 | 29 (12.6%) | 18 | 3 (1.3%) | 50 | 4 (1.7%) |
| 6 | 12 (5.2%) | 20 | 16 (7.0%) | 65 | 1 (0.4%) |
| 7 | 22 (9.6%) | 21 | 1 (0.4%) | 75 | 1 (0.4%) |
| 8 | 9 (3.9%) | 24 | 1 (0.4%) | | |
| 9 | 2 (0.9%) | 25 | 2 (0.9%) | N/A | 9 (3.9%) |

While the results offer a wide spread of results, it is important to view the overall picture of these results, by examining the average scores. On average, students say they drink less than ten drinks per week ($n=225$, $M=9.46$, $SD=11.28$). As table 9 shows, over half of students (58.8%) consider the average number of drinks consumed per week (9.46) to be unhealthy. However, this is within the range of what students overall consider to be unhealthy ($n=221$, $M=11.06$, $SD=11.36$). Yet, these results are most valuable, when each participant’s answers are compared together.

The researcher was able to develop a range of dissonance concerning their alcohol use by comparing their beliefs about a healthy amount of alcohol consumption with their actual alcohol consumption behaviors. To develop this score, the researcher subtracted how much an individual reportedly drinks per week, from the amount of drinks per week that they believe to be healthy. Table ten reports the results of this computation. A positive score indicates than the participant believes a healthy level of drinking is more than they believe they

consume per week. A negative score indicates that the participant believes they consume more alcohol in a given week than they believe to be healthy. Thus, a score of zero or above represents individuals who are consonant about their level of alcohol consumption. Participants with a negative score indicate that they are in a state of dissonance as their behavior of alcohol consumption is at a level that they personally believe is not healthy. Descriptive statistics indicate that students are consonant about their level of alcohol consumption, overall ($n=219$, $M=1.548$, $SD=10.636$).

Table 10 – Computed difference between self-reported belief of what constitutes “healthy drinking”, and individual behaviors.

| <i>Healthy Drinking – Beliefs and Behaviors Difference</i> | | | | | |
|--|----------|----|------------|----|----------|
| -42 | 1 (0.4%) | -6 | 8 (3.5%) | 9 | 2 (0.9%) |
| -40 | 1 (0.4%) | -5 | 4 (1.7%) | 10 | 7 (3.0%) |
| -35 | 1 (0.4%) | -4 | 4 (1.7%) | 14 | 1 (0.4%) |
| -25 | 2 (0.9%) | -3 | 7 (3.0%) | 15 | 1 (0.4%) |
| -20 | 2 (0.9%) | -2 | 8 (3.5%) | 16 | 1 (0.4%) |
| -18 | 2 (0.9%) | -1 | 6 (2.6%) | 17 | 3 (1.3%) |
| -17 | 2 (0.9%) | 0 | 23 (10.0%) | 18 | 1 (0.4%) |
| -15 | 2 (0.9%) | 1 | 16 (7.0%) | 20 | 3 (1.3%) |
| -14 | 1 (0.4%) | 2 | 17 (7.4%) | 24 | 1 (0.4%) |
| -13 | 2 (0.9%) | 3 | 13 (5.7%) | 25 | 1 (0.4%) |
| -12 | 1 (0.4%) | 4 | 12 (5.2%) | 28 | 1 (0.4%) |
| -10 | 5 (2.2%) | 5 | 29 (12.6%) | 30 | 1 (0.4%) |
| -9 | 1 (0.4%) | 6 | 5 (2.2%) | 34 | 1 (0.4%) |
| -8 | 3 (1.3%) | 7 | 10 (4.3%) | 48 | 1 (0.4%) |
| -7 | 1 (0.4%) | 8 | 4 (1.7%) | 50 | 1 (0.4%) |

The respondents were divided into three categories, based on the above-listed results. Individuals with a score of zero or above ($n=155$) are classified as consonant alcohol users. Individuals with a score of -1 to -5 ($n=29$) are classified

as dissonant alcohol users. Individuals with a score ranging from -6 to -42 ($n=35$) are classified as very dissonant alcohol users.

Measurement of Drinking Levels

The survey was also designed to capture the amount of alcohol participants consume on an average night of drinking. Specifically, participants were asked to respond to the following open-ended question, “In an average night of drinking, how many drinks do you consume?” The results indicate high levels of drinking in one night, with average scores that are considered to be binge drinking ($n=228$, $M=5.80$, $SD=4.01$). The frequencies of responses to this question are reported in table 11, with results ranging from zero to 20.

Table 11 – Frequencies of responses to “in an average night of drinking, how many drinks do you consume?”

| <i>Drinks Consumed In One Night</i> | | | |
|--|------------|-----|------------|
| 0 | 21 (9.1%) | 10 | 26 (11.3%) |
| 1 | 11 (4.8%) | 11 | 3 (1.3%) |
| 2 | 19 (8.3%) | 12 | 4 (1.7%) |
| 3 | 20 (8.7%) | 13 | 3 (1.3%) |
| 4 | 22 (9.6%) | 14 | 1 (0.4%) |
| 5 | 31 (13.5%) | 15 | 7 (3.0%) |
| 6 | 18 (7.8%) | 17 | 1 (0.4%) |
| 7 | 10 (4.3%) | 18 | 1 (0.4%) |
| 8 | 23 (10.0%) | 20 | 1 (0.4%) |
| 9 | 6 (2.6%) | N/A | 2 (0.9%) |

The respondents were divided into three categories, based on the above-listed results. Individuals with a score of zero to three ($n=71$) are classified as moderate alcohol users. Individuals with a score of four to nine ($n=110$) are classified as high alcohol users. Individuals with a score above ten ($n=47$) are classified as excessive alcohol users.

Research Questions One Through Twelve

As was discussed earlier, there are two sets of research questions. The twelve research questions focused specifically on dissonance-reducing reactions to various messages, with an independent variable of the amount of dissonance each participant had between the amount of alcohol they consumed on an average week, versus how much they believed was a healthy level. The participants were then grouped into three categories, and their reactions to each of the three videos were statistically analyzed.

Binge drinking and attack the messenger. Research question one asked, “Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning binge drinking?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “the creator of this video was credible” between very dissonant, dissonant and consonant alcohol users. The responses varied significantly between the groups, $F(2, 212) = 3.622, p = .028$. Scheffe post-hoc comparisons of the three groups indicate that very dissonant alcohol users ($M = 2.314$) were less likely than dissonant alcohol users ($M = 2.793$) to say that the messenger was credible. Thus, the lower score for users who were very dissonant indicates that they were attacking the messenger more than dissonant alcohol users. Comparisons between the consonant alcohol users ($M = 2.589$) and the other two groups were not statistically significant at $p < .05$. The mean scores are also indicated in table 12.

Table 12 – Differences in responses to “the creator of this video is credible”, after viewing the binge drinking video.

| <i>Binge Drinking and Attack the Messenger</i> | | |
|--|--------------------------|--------------------------|
| Very Dissonant $M = 2.314$ | Dissonant $M = 2.793$ | Consonant $M = 2.589$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

The research question specifically sought a difference between individuals who are consonant or dissonant, which the results did not find at a level of statistical significance. Thus, the answer to the research question is no, there is not a statistically significant difference between individuals who are consonant or dissonant concerning their alcohol use. However, the results indicate that participants were significantly more likely to attack the messenger if they were very dissonant, as opposed to individuals who are dissonant. This data set indicates that individuals who are moderately dissonant are more willing to consider messages concerning binge drinking credible than individuals who are very dissonant.

Binge drinking and rationalization. Research question two asked, “Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning binge drinking?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “the information presented applies to me” between very dissonant, dissonant and consonant alcohol users. The responses varied significantly between the groups, $F(2, 215) = 4.940, p = .008$. Scheffe post-hoc comparisons of the three groups indicate that very dissonant alcohol users ($M = 2.543$) were more likely than

consonant alcohol users ($M=2.033$) to say that the information applied to them. Thus, the higher score for users who were very dissonant indicates that they are more likely to consider the information applicable than consonant alcohol users. Comparisons between the dissonant alcohol users ($M=2.414$) and the other two groups were not statistically significant at $p < .05$. The mean scores are also indicated in table 13.

Table 13 – Differences in responses to “the information presented applies to me”, after viewing the binge drinking video.

| <i>Binge Drinking and Rationalization</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 2.543$ | Dissonant $M = 2.241$ | Consonant $M = 2.033$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

The research question specifically sought a difference between individuals who are consonant or dissonant, which the results did find at a level of statistical significance. However, the results do not indicate that the participants were using rationalization, as individuals who believe they drink beyond a healthy level were more likely to accept that a message concerning binge drinking applied to them. This data set indicates that individuals who are very dissonant in their alcohol use are more willing to consider messages concerning binge drinking as being applicable to themselves.

Binge drinking and accepting the message. Research question three asked, “Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning binge drinking?” To answer

this, a one-way ANOVA was used to test the differences among responses to the statement “I believe the information is accurate” between very dissonant, dissonant and consonant alcohol users. The responses varied significantly between the groups, $F(2, 214) = 3.504, p = .032$. Scheffe post-hoc comparisons of the three groups indicate that very dissonant alcohol users ($M = 2.686$) were less likely than consonant alcohol users ($M = 2.994$) to say that the message was accurate. Thus, the lower score for users who were very dissonant indicates that they were not accepting the message as much as consonant alcohol users. Comparisons between the dissonant alcohol users ($M = 2.931$) and the other two groups were not statistically significant at $p < .05$. The mean scores are also indicated in table 14.

Table 14 – Differences in responses to “I believe the information is accurate”, after viewing the binge drinking video.

| <i>Binge Drinking and Accepting the Message</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 2.686$ | Dissonant $M = 2.931$ | Consonant $M = 2.994$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

The research question specifically sought a difference between individuals who are consonant or dissonant, which the results did find at a level of statistical significance. Thus, the research does tell us that there is a difference between individuals who are very dissonant, and individuals who are consonant concerning their alcohol use. Specifically, very dissonant alcohol users are less likely than consonant users to accept the message as accurate when viewing a message pertaining to binge drinking.

Binge drinking and behavioral changes. Research question four asked, “Will dissonant alcohol users be more likely to make behavioral changes than consonant alcohol users, when viewing a message concerning binge drinking?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “I am likely to change my behaviors because of this information” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant $F(2, 213) = 1.049, p = .352$. While the differences are not significant, the means scores are noteworthy. Individuals who were consonant ($M = 1.915$) were most likely to report that they would change their behaviors after viewing the message. Dissonant users ($M = 1.793$) were more likely than very dissonant users ($M = 1.743$) when indicating an intention to change their behaviors after viewing a message concerning binge drinking. The mean scores are also reported on table 15.

Table 15 – Differences in responses to “I am likely to change my behaviors because of this information”, after viewing the binge drinking video.

| <i>Binge Drinking and Behavioral Changes</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 1.743$ | Dissonant $M = 1.793$ | Consonant $M = 1.915$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question four specifically asked if a difference would be found between consonant and dissonant users intentions to change their behaviors after viewing a message concerning binge drinking. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be

claimed. However, the results for each group are all low, indicating a lack of effectiveness for the message shown. In each group, the mean score falls below a 2.0, which is a response of “disagree” when asked if the information presented will likely cause them to change their behaviors. This may indicate that among all groups, their personal drinking habits are resistant to change after viewing a message concerning binge drinking.

Drunk driving and attack the messenger. Research question five asked, “Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning drunk driving?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “The creator of this video was credible” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant, $F(2, 214) = 0.298, p = .743$. However, the results are also not practically significant, as the differences among the means scores are minimal. In fact, individuals who were very dissonant ($M = 3.057$) almost equal to individuals who were consonant alcohol users ($M = 3.057$). Individuals who were dissonant ($M = 2.931$) produced results that were slightly below the other groups. The mean scores are also reported on table 16.

Table 16 – Differences in responses to “The creator of this video was credible”, after viewing the drunk driving video.

| <i>Drunk Driving and Attack the Messenger</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 3.057$ | Dissonant $M = 2.931$ | Consonant $M = 3.026$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question five specifically asked if a difference would be found between consonant and dissonant users use of attacking the messenger after viewing a video concerning drunk driving. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the results indicate that all three groups were similar in their level of accepting the creator of the video as credible. It is important to note that this was the only video shown that was produced professionally, having been created by the Ad Council.

Drunk driving and rationalization. Research question six asked, “Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning drunk driving?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “the information presented applies to me” between very dissonant, dissonant and consonant alcohol users. The differences between the groups approached, but were not statistically significant, $F(2, 214) = 3.018, p = .051$. Individuals who were consonant ($M = 2.364$) were least likely to report that the information presented applies to them. Additionally, dissonant users ($M = 2.448$) were less likely than

very dissonant users ($M = 2.771$) to indicate that the message pertaining to drunk driving was applicable to them. The mean scores are also reported on table 17.

Table 17 – Differences in responses to “The information presented applies to me”, after viewing the drunk driving video.

| <i>Drunk Driving and Rationalization</i> | | |
|--|--------------------------|--------------------|
| Very Dissonant $M = 2.771$ | Dissonant $M = 2.448$ | Consonant 2.364 |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question six specifically asked if a difference would be found between consonant and dissonant users attempts at rationalization after viewing a video concerning drunk driving. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. However, it is important to consider that rationalization does not appear to be in use as a dissonance-reducing strategy. Instead, this data set suggests that individuals in a state of dissonance are willing to accept that the information applies to them.

Drunk driving and accepting the message. Research question seven asked, “Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning drunk driving?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “I believe the information is accurate” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant, $F(2, 215) = 0.408, p = .666$. Not only does the data lack statistical significance, but it also lacks practical significance, as the difference

between the groups is minimal. Individuals who were consonant ($M = 3.162$) were only slightly more likely than individuals who were dissonant ($M = 3.103$) or very dissonant ($M = 3.057$) to accept the message as accurate. The mean scores are also reported on table 18.

Table 18 – Differences in responses to “I believe the information is accurate”, after viewing the drunk driving video.

| <i>Drunk Driving and Accepting the Message</i> | | |
|---|--------------------------|----------------------|
| Very Dissonant $M = 3.057$ | Dissonant $M = 3.103$ | Consonant 3.162 |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question seven specifically asked if a difference would be found between consonant and dissonant users in their acceptance of the message, after viewing a video concerning drunk driving. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the statistically insignificant difference that does exist is minimal, suggesting that all participants were almost equally as likely to accept the drunk driving message as accurate.

Drunk driving and behavioral changes. Research question eight asked, “Will dissonant alcohol users be more likely to change their behavior than consonant alcohol users, when viewing a message concerning drunk driving?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “I am likely to change my behaviors because of this information ” between very dissonant, dissonant and consonant alcohol users. The differences

between the groups were not statistically significant, $F(2, 216) = 0.480, p = .619$. Not only does the data lack statistical significance, but it also lacks practical significance, as the difference between the groups is small. Individuals who were consonant ($M = 2.039$) were only slightly more likely than individuals who were very dissonant ($M = 2.000$) to intend to change their behavior, and slightly less likely than individuals who were dissonant ($M = 2.172$). The mean scores are also reported on table 19.

Table 19 – Differences in responses to “I am likely to change my behaviors because of this information”, after viewing the drunk driving video.

| <i>Drunk Driving and Behavioral Changes</i> | | |
|--|--------------------------|--------------------------|
| Very Dissonant $M = 2.000$ | Dissonant $M = 2.172$ | Consonant $M = 2.039$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question eight specifically asked if a difference would be found between consonant and dissonant users in their intention to change their behaviors after viewing a video concerning drunk driving. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the statistically insignificant difference that does exist is minimal, suggesting that all participants were almost equally as likely to intend to make behavioral changes.

Date rape and attack the messenger. Research question nine asked, “Will dissonant alcohol users be more likely to attack the messenger than consonant alcohol users, when viewing a message concerning date rape?” To answer this, a

one-way ANOVA was used to test the differences among responses to the statement “The creator of this video was credible” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant, $F(2, 213) = 0.222, p = 0.801$. Not only does the data lack statistical significance, but it also lacks practical significance, as the difference between the groups is small. Individuals who were consonant ($M = 2.667$) were only slightly more likely than individuals who were very dissonant ($M = 2.629$) to intend to change their behavior, and slightly less likely than individuals who were dissonant ($M = 2.750$). The mean scores are also reported on table 20.

Table 20 – Differences in responses to “The creator of this video was credible”, after viewing the date rape video.

| <i>Date Rape and Attack the Messenger</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 2.629$ | Dissonant $M = 2.750$ | Consonant $M = 2.667$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question nine specifically asked if a difference would be found between consonant and dissonant users in frequency that they would attack the messenger, after viewing a video concerning date rape. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the statistically insignificant difference that does exist is minimal, suggesting that all participants were almost equally as likely to attack the messenger that created a video regarding date rape.

Date rape and rationalization. Research question ten asked, “Will dissonant alcohol users be more likely to rationalize than consonant alcohol users, when viewing a message concerning date rape?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “The information presented applies to me” between very dissonant, dissonant and consonant alcohol users. The differences between the groups was statistically significant, $F(2, 214) = 3.381, p = 0.036$. The results indicate that the middle group, those who are dissonant exhibited the most rationalization, by negatively responding to the statement. Specifically, dissonant users ($M = 1.621$) were drastically more likely to rationalize than consonant users ($M = 2.092$) or very dissonant users ($M = 2.143$). The mean scores are also reported on table 21.

Table 21 – Differences in responses to “The information presented applies to me,” after viewing the date rape video.

| <i>Date Rape and Rationalization</i> | | |
|--------------------------------------|--------------------------|--------------------------|
| Very Dissonant $M = 2.092$ | Dissonant $M = 1.621$ | Consonant $M = 2.143$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question ten specifically asked if a difference would be found between consonant and dissonant users in frequency that they would rationalize after viewing a video concerning date rape. The results provide intriguing results, as the group that is simply dissonant is more likely than all others to rationalize their behavior. The difference between users who are very dissonant and consonant are nearly equal, indicating those groups are similarly willing to claim that the

information applied to them. This provides strong evidence that individuals use rationalization to resolve dissonance pertaining to their alcohol use if there is a moderate difference between their beliefs and behaviors.

Date rape and accept the message. Research question 11 asked, “Will dissonant alcohol users be more likely to accept the message than consonant alcohol users, when viewing a message concerning date rape?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “I believe the information is accurate” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant, $F(2, 215) = 1.413, p = 0.246$. Not only does the data lack statistical significance, but it also lacks practical significance, as the difference between the groups is small. Individuals who were consonant ($M = 3.114$) were only slightly less likely than individuals who were very dissonant ($M = 3.253$) to intend to accept the message, and slightly more likely than individuals who were dissonant ($M = 3.103$). The mean scores are also reported on table 22.

Table 22 – Differences in responses to “I believe the information is accurate”, after viewing the date rape video.

| <i>Date Rape and Accept the Message</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 3.114$ | Dissonant $M = 3.103$ | Consonant $M = 3.253$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question 11 specifically asked if a difference would be found between consonant and dissonant users in frequency that they would accept the

message after viewing a video concerning date rape. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the statistically insignificant difference that does exist is minimal, suggesting that all participants were almost equally as likely to accept the message regarding date rape.

Date rape and behavioral changes. Research question nine asked, “Will dissonant alcohol users be more likely to make behavioral changes than consonant alcohol users, when viewing a message concerning date rape?” To answer this, a one-way ANOVA was used to test the differences among responses to the statement “I am likely to change my behaviors because of this information” between very dissonant, dissonant and consonant alcohol users. The differences between the groups were not statistically significant, $F(2, 214) = 1.248, p = 0.289$. Not only does the data lack statistical significance, but it also lacks practical significance, as the difference between the groups is small. Individuals who were consonant ($M = 2.078$) were only slightly more likely than individuals who were very dissonant ($M = 2.000$) and individuals who were dissonant ($M = 1.828$) to intend to change their behavior. The mean scores are also reported on table 23.

Table 23 – Differences in responses to “I am likely to change my behaviors because of this information,” after viewing the date rape video.

| <i>Date Rape and Behavioral Changes</i> | | |
|---|--------------------------|--------------------------|
| Very Dissonant $M = 2.000$ | Dissonant $M = 1.828$ | Consonant $M = 2.078$ |

Note: judgments were made on a 4-point scale
(1 = strongly disagree, 4 = strongly agree)

Research question 12 specifically asked if a difference would be found between consonant and dissonant users in frequency in stating that they would make behavioral changes after viewing a video concerning date rape. Since the results are statistically insignificant, the answer to the research question must be no, a difference cannot be claimed. Additionally, the statistically insignificant difference that does exist is minimal, suggesting that all participants were almost equally as likely to make behavioral changes after viewing a video regarding date rape.

Discussion

The twelve research questions posed can be seen in a matrix, as each question examined one of four dissonance-reducing strategies after viewing one of three videos of alcohol awareness. The results achieved statistical significance in four areas, and approached significance ($p = .051$) in one additional area. Some of the significant results indicate that cognitive dissonance is at work, while others suggest that individuals are not utilizing dissonance-reducing strategies. Yet, the data from this study provides insights into how college students are responding to message concerning their alcohol use.

Conclusions

Rationalization. The results indicate that students rejected an opportunity to invoke rationalization after viewing both the drunk driving and binge drinking video. The participants were asked whether the information presented was applicable to them, and those who would utilize rationalization could be expected to say it did not. However, the results indicate that participants were more likely to

claim the video applied to them when their level of dissonance was larger. Thus, consonant users were least likely to claim that the information applied to them, which is what should be expected. Thus, with statistical significance being achieved, students did not invoke rationalization after viewing messages concerning binge drinking and drunk driving.

However, the results do indicate rationalization was at work when viewing messages concerning date rape. Individuals who were very dissonant and consonant were similar in the frequency to which they claimed the message applied to them. However, individuals who were in the middle group, which can be seen as those who are moderately dissonant reported a score much lower than the rest of their peers. Specifically, individuals who had a moderate difference between their beliefs about alcohol consumption and their actual consumption behaviors were more likely to take advantage of an opportunity to rationalize their behavior. This information provides an opening for future researchers, who can gain a fuller understanding of this information by offering multiple forms of rationalization for participants.

It is important for practitioners of alcohol education to note these results. Students who have larger amounts of dissonance do report that alcohol awareness messages apply to them more than their peers, with the exception of date rape messages. When crafting messages concerning drunk driving and binge drinking, practitioners can feel confident that members of their target population are not dismissing the messages through rationalization. It is also important to note that members of their target population may be dismissing messages of date rape through

rationalization. When the time an individual will watch or read a message concerning alcohol is limited, this can help practitioners not spend precious time trying to overcome an objection that is not there for college students.

Binge drinking. Students reported the most significant results relating to binge drinking. Specifically, statistical significance was achieved when comparing responses to the binge drinking video with accepting the message, attacking the messenger and rationalization. In each of these cases, the results can offer future researchers and practitioners a better understanding of how college students are responding to messages that may challenge their existing behaviors.

As discussed earlier, it does not appear that college students are utilizing rationalization to reduce dissonance caused by a video about binge drinking. Those who have the largest amount of dissonance are those who are most likely to say the message is applicable to them, which is what one would expect without rationalization. A potential explanation is that the behaviors surrounding binge drinking are too blatant to rationalize. It might be more challenging to deny to themselves that they drink more than five drinks in one night than compared to other behaviors, such as not practicing safe habits at parties. However, practitioners can be confident that messages concerning binge drinking will not be dismissed due to rationalization.

Individuals with the highest levels of dissonance are also the least likely to accept the message as accurate. This is a predicted dissonance-reducing strategy that is supported by the present research. Specifically, individuals who are

consonant and dissonant are similar in their responses to “I believe the information is accurate.” However, participants with the highest levels of dissonance were much less likely to accept the message as accurate. This is important for practitioners of alcohol awareness messages to be aware of, as the population that may need the information the most is most likely to reject the accuracy of a message concerning binge drinking.

It is also clear that individuals with the highest levels of dissonance are most likely to attack the messenger. This is another predicted dissonance-reducing strategy that is supported by the present research. Specifically, individuals who are consonant and dissonant are similar in their responses to “the creator of this video was credible.” Again, the individuals who are most dissonant are most likely to report that the messenger is not credible. This is also important for practitioners of alcohol awareness messages, as the population that may need the information the most is the group most likely to attack the messenger in order to reject the information.

This information combines to provide support that when viewing messages of binge drinking, college students are invoking attack the messenger that allows them to refuse to accept the message in order to resolve the dissonance created. Practitioners are likely to be attempting to alter student behaviors with their messages. When their target population is utilizing these dissonance-reducing strategies, it becomes unlikely that they will alter their behaviors as a result. Thus,

although time and space is limited in alcohol awareness messages, it is appropriate to attempt to establish credibility of both the message and the messenger.

Behavioral changes. For all three videos, students were unlikely to report that they intended to make behavioral changes after viewing the messages. The results are even more striking after viewing a video regarding binge drinking, which is a behavior that the data suggests the students are defensive of. Although each of these videos were brief, none of them produced results of students overall indicating an intention to alter their behaviors. This information can be helpful to practitioners who are considering continuing the current messages, or experimenting with new ones. This information can also be helpful to future researchers, who can help explain this phenomenon.

Limitations

There are three significant limitations to be discussed. Each of these limitations should be considered with the conclusions, as they represent potential confounding variables, delivery errors or research design flaws. Future researchers who may benefit from the present research project will need to consider the following flags when designing follow-up studies.

Abstainers. A flaw in the research design was a lack of clear answers for individuals who decide to abstain from alcohol completely. An improvement to the research design would have been to specifically ask participants if they considered themselves to be abstaining from alcohol. Since this was not asked, it was impossible to remove this group from data analysis, as there were no clear

delineations between individuals who never use alcohol and those who use alcohol infrequently. Future research designs should explicitly seek out individuals who consider themselves to be abstainers.

Video messages. The pivotal piece of the current project was to determine how people's status as consonant or dissonant would impact their interpretation of various messages about alcohol use. The researcher determined that the three videos selected would be best able to effectively garner the existence of reactions predicted by Cognitive Dissonance Theory. However, each video had drawbacks to be considered. First, the drunk driving video was designed to be humorous, and in several classes drew laughter from the students, which may have dulled the seriousness of the message. The binge drinking video was produced by a college student, as the description published with the video explains that it was for a college project. Additionally, the video focused on alcohol poisoning as well. The focus on alcohol poisoning is logical, considering its root cause is binge drinking. However, taking both the overlap with alcohol poisoning, as well as the light humor included in this video, it is also possible that the information was not as powerful as it could have been. Finally, the date rape video that was shown was selected because it was among the least offensive, but not the most powerful, videos available. This was done in specific response to concerns by the governing body that approved the research design. However, by softening the message, it may have also softened the reaction.

Survey design. The survey tool utilized produced limitations in the data analysis. Specifically, participants were classified as dissonant or consonant based on the difference between how much alcohol they reported to consume in a week and the amount of alcohol they thought would be healthy to consume in a week. A more thorough design could have dug deeper to create a more comprehensive understanding of an individual's dissonance. It is possible that students feel their weekly level of alcohol consumption is healthy, but they are dissonant about the fact that they regularly drive under the influence of alcohol, or they consume too much in one sitting. Not only are these examples of dissonance that were not measured in the current project, but they are unique situations of dissonance, which could produce different dissonance-reducing strategies than those found in the present study.

Final Comments

After reviewing the limitations, the results found in the present study remain illuminating and useful for both practitioners and future researchers. We can say that college students respond to date rape videos with a form of rationalization, by claiming that the video does not apply to them. The data also shows that college students reject the accuracy of messages concerning both drunk driving and date rape by attacking the messenger. Practitioners can utilize this information to craft messages that are more likely to overcome those objections. Future researchers can utilize this information to answer continuing questions, such as why rationalization is a strategy utilized for date rape, while attack the messenger is utilized for binge

drinking and drunk driving. However, as a result of the present study, it can be said that Festinger's (1957) Cognitive Dissonance Theory can be used to explain, predict, and ultimately control the alcohol consumption behaviors of college students.

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APPENDIX A: Statement of Informed Consent

The purpose of this research study is to examine your beliefs and opinions about your alcohol use. If you agree to participate in this survey, the survey will take approximately twenty minutes to complete. A series of short videos pertaining to alcohol use will be played. Please respond to each question by giving your most honest response.

Participation in this study may cause psychological distress, however steps have been taken to minimize the impact and harm this may cause. Any participant who feels this distress may contact the University of Wisconsin – Whitewater Health and Counseling Center at (262) 472-1305. There are no other foreseeable risks associated with your participation in this study.

It is anticipated that you may benefit from participation in today's session by learning more about alcohol related issues.

Your responses to this questionnaire are anonymous. Your names will not be requested, and no attempt will be made to connect you to the answers that you provide. These surveys will be used by the researcher only, for purposes of data analysis and report production.

Your participation is entirely voluntary, and there will be no penalty or loss of benefits for opting to not participate.

If you have questions regarding your participation in this study, please contact:

Dr. S.A. Welch
Assistant Professor
Department of Communication
University of Wisconsin – Whitewater
welchs@uww.edu
(262) 472-5722

OR

Denise Ehlen
IRB Administrator
Office of Research and Sponsored Programs
University of Wisconsin – Whitewater
ehlend@uww.edu
(262) 472-5214

I have read the informed consent form, and agree to participate in this study.

Signature

Date

APPENDIX B: ALCOHOL DISSONANCE SURVEY

Please identify if you strongly agree, agree, disagree or strongly disagree to each of the following statements.

- | | | | | |
|----|---|---|----|--|
| SA | A | D | SD | 1 – The level of alcohol I drink per week is healthy. |
| SA | A | D | SD | 2 – It is sometimes okay to drive under the influence of alcohol. |
| SA | A | D | SD | 3 – I am a responsible drinker. |
| SA | A | D | SD | 4 – When I drink alcohol, I do so in moderation. |
| SA | A | D | SD | 5 – I can recognize the signs of alcohol poisoning. |
| SA | A | D | SD | 6 – It is possible that me, or one of my friends or I may have suffered from alcohol poisoning. |
| SA | A | D | SD | 7 – My drinking has interfered with my academic or personal life at least once. |
| SA | A | D | SD | 8 – I am aware of the long-term health effects of alcohol use. |
| SA | A | D | SD | 9 – I have exhibited some of the signs of alcohol dependence. |
| SA | A | D | SD | 10 – I can identify some of the signs of alcohol dependence. |
| SA | A | D | SD | 11 – I abstain from alcohol use, or take steps to avoid the long-term health effects of excessive alcohol use. |

Please answer the following questions with a number.

- ____ 12 – How many drinks do you consume on an average week?
- ____ 13 – How many drinks do you think the average UWW student consumes on an average week?
- ____ 14 – What is the greatest number of drinks per week the average UWW student could consume, while still being a healthy drinker.
- ____ 15 – What is the longest distance (in miles) you have driven while under the influence of alcohol. (You believe your driving may have been impaired.)
- ____ 16 – In an average night of drinking, how many drinks do you consume?

Please supply the following demographic information. (Circle one)

- | | | | | | | | | |
|------------------|------------------|-----------------|--------------|--------|-------|----|----|-----|
| Sex - | Male | Female | | | | | | |
| Race/Ethnicity - | African-American | Asian | Caucasian | | | | | |
| | Hispanic | Native American | Other: _____ | | | | | |
| Age - | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25+ |
| Year In School - | Freshman | Sophomore | Junior | Senior | Other | | | |

APPENDIX B: ALCOHOL DISSONANCE SURVEY

VIDEO ONE - _____

Please identify if you strongly agree, agree, disagree or strongly disagree to each of the following statements.

- | | | | | |
|----|---|---|----|---|
| SA | A | D | SD | 1 – I believe the information is accurate. |
| SA | A | D | SD | 2 – The information presented applies to me. |
| SA | A | D | SD | 3 – The creator of this video was credible. |
| SA | A | D | SD | 4 – I am likely to change my behaviors because of this information. |

VIDEO TWO - _____

Please identify if you strongly agree, agree, disagree or strongly disagree to each of the following statements.

- | | | | | |
|----|---|---|----|---|
| SA | A | D | SD | 1 – I am likely to change my behaviors because of this information. |
| SA | A | D | SD | 2 – I believe the information is accurate. |
| SA | A | D | SD | 3 – The creator of this video was credible. |
| SA | A | D | SD | 4 – The information presented applies to me. |

VIDEO THREE - _____

Please identify if you strongly agree, agree, disagree or strongly disagree to each of the following statements..

- | | | | | |
|----|---|---|----|---|
| SA | A | D | SD | 1 – The creator of this video was credible. |
| SA | A | D | SD | 2 – The information presented applies to me. |
| SA | A | D | SD | 3 – I believe the information is accurate. |
| SA | A | D | SD | 4 – I am likely to change my behaviors because of this information. |