TESTING THE EFFECTIVENESS OF E-MAILED BASICS

FEEDBACK WITH COLLEGE STUDENTS

Except where reference is made to the work of others, the work described in this dissertation is my own or was done in collaboration with my advisory committee. This dissertation does not include propriety or classified information.

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TESTING THE EFFECTIVENESS OF E-MAILED BASICS FEEDBACK WITH COLLEGE STUDENTS

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DISSERTATION ABSTRACT

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FEEDBACK WITH COLLEGE STUDENTS

Zachary Earl Bryant

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This study was conducted to test the effectiveness of the Brief Alcohol Screening and Intervention for College Students (BASICS) when delivered to students via e-mail. Participants (N = 191) enrolled in Introduction to Psychology courses completed baseline measures of their use of alcohol and related consequences. Students were then randomly assigned to one of two conditions: e-mailed BASICS feedback or generic feedback. Students who received e-mailed BASICS feedback reported at a 6-week follow-up that they had significantly reduced the typical number of drinks they consumed in a given week, as well as the number of days they reported being drunk in the previous 30 days. They also exhibited a significant reduction in the number of days they perceived the typical student of their gender to have drunk alcohol, as well as a reduction in the amount of alcohol they perceived the typical student of their gender to consume per drinking

occasion. Although non-significant, a trend in the lessening of the number of days that participants felt light-headed or high from drinking in the 30 days prior to follow-up was observed. Similar non-significant trends in the number of alcohol-related consequences experienced by those who received e-mailed personalized feedback were also observed. E-mailed personalized feedback appears to help students become more aware of normative drinking behavior and reduce the quantity of alcohol they consume. The low cost associated with generating electronic feedbacks and ease with which e-mailed feedback can be delivered makes this an appealing intervention if nested within a larger alcohol prevention effort.

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I. INTRODUCTION

College student drinking is a significant public health concern that negatively impacts both the students that participate in the drinking behavior and the people with whom they interact. Studies have indicated that while approximately 20% of college students abstain from alcohol, 20% drink frequently (i.e., 10 or more of the past 30 days), and 28% report being drunk three or more times in the past month (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). The National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2006) indicated that people between the ages of 18-25 accounted for the highest rate of binge drinking (defined as five or more drinks on the same occasion at least in the past 30 days for men and four or more drinks on the same occasion at least in the past 30 days for women) and heavy drinking (defined as five or more drinks on the same occasion on at least 5 different days in the past 30 days for both men and women). The researchers also found that people 21 years of age were more likely than any other group to binge drink or be considered heavy users. Research on binge drinking by Nelson, Naimi, Brewer, and Wechsler (2005) reported consequences of binge drinking to include acute impairment, motor vehicle crashes, assaults, domestic violence, rape, unintended pregnancy, vandalism, alcohol poisoning, alcohol dependence, and other unintentional injuries.

Other recent research suggests that almost half (44%) of college students report having had a binge drinking episode within the last two weeks (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Lee, Kuo, & Lee, 2000). Vik, Carrello, Tate, and Field (2000) found that as many as 84.25% of college students reported heavy drinking or a binge drinking episode in the past 90 days. National studies suggest that approximately two in five students are binge drinkers (O'Malley & Johnson, 2002; Wechsler et al., 1998). As excessive drinking impacts student development, academic matriculation, one's ability to learn, and overall psychological well being both in college, and possibly later in students' lives, interventions geared towards addressing this population are necessary.

Alcohol Prevention

Prevention efforts must be pursued because excessive drinking on college campuses creates significant risk for those who attend these schools, regardless of whether or not they actually participate in the excessive drinking behaviors. Various prevention programs have been implemented. Efforts include social norm campaigns, educational seminars, mandatory alcohol education classes, online alcohol tutorial classes, and brief personalized feedback interventions in different forms. Some schools require that all students participate in alcohol education while others only require participation from those who commit alcohol-related infractions. The variance in terms of program choice and implementation is large and can be a function of administrators' attitudes about alcohol use, their perception of the problem, sources of funding, and severity of the problem on campus, among other variables. Obviously, some universities

are in need of more aggressive action plans to address this problem than others. The former are in great need of programs that are proven to be effective.

Program Effectiveness

Outcome studies published on alcohol education efforts indicate that education alone is not an effective intervention with college-age students (Larimer & Cronce, 2002; Walters & Bennett, 2000). It appears that while students may gain knowledge about alcohol use and the consequences associated with heavy alcohol consumption, this does not lead to behavioral change. Additionally, while research supports the use of some skills-based, attitudinal, and motivational interventions, the implementation of such approaches seems to be restricted due to substantial costs (NIAAA, 2002). There is, however, an expansive body of literature to support the effectiveness of brief personalized interventions among the college population (Walters & Neighbors, 2005). The type of information covered in the intervention varies, along with the way in which the feedback is delivered. One brief intervention (Neighbors, Larimer, & Lewis, 2004) included only consumption and social norms information, and found that students responded positively to this information, while other interventions have included more extensive information including percentile ranks of students' weekly drinking compared to other students, blood alcohol content (BAC) estimates, rates and frequency of heavy drinking, alcohol-related consequences, risk based on family history, students' weekly time allocation, and caloric intake in terms of alcohol, along with a harm reduction advice sheet (Murphy et al., 2004). One specific intervention that has been researched and found

to be effective is the Brief Alcohol Screening and Intervention for College Students, or BASICS (Dimeff, Baer, Kivlahan, & Marlatt, 1999).

A Brief History of BASICS

Several studies in the 1990s were conducted to evaluate the effectiveness of brief skills-based interventions for college students (e.g., Baer, Marlatt, Kivlahan, Fromme, Larimer, & Williams, 1992; Marlatt et al. 1998). The findings from these studies lead to the publication of the Brief Alcohol Screening and Intervention for College Students (BASICS) manual (Dimeff et al., 1999). Opposed to a universal program, or programs that are directed at all college students, BASICS is an indicated prevention program that is most effective when used with individuals who are experiencing slight yet detectable problems from their alcohol use. With the aim of appealing to students, BASICS was designed to be flexible, affordable, user-friendly and, most importantly, easily personalized.

BASICS is usually conducted over two hour-long sessions. The first session consists of a clinical interview and self-report assessment battery, which together provide personal information on various alcohol-related variables including average quantity of alcohol used in a given week, number of alcohol-related consequences in the previous month, amount of money spent on alcohol, and number of binge-drinking episodes in the past month. In the second session, the clinician provides the client with value-free, non-confrontational feedback about their alcohol use with the intent of helping the client clarify ambivalence, build discrepancy, and increase motivation for change. This is achieved by using motivational interviewing techniques (Miller & Rollnick, 1991). In the

original studies with BASICS, personalized feedback included information regarding frequency and quantity of alcohol consumption during the student's first college fall semester, frequency and quantity from the spring semester of their senior year in high school, the student's perceived drinking norms and actual student drinking norms, a summary of reported alcohol related problems, family history for alcohol problems, indices of alcohol dependence, and information regarding the student's beliefs about alcohol and its effects (Dimeff et al., 1999). More recent studies using feedback modeled after BASICS (Borsari & Carey, 2000; Murphy et al., 2001, 2004) have provided feedback that includes information about the student's perceived drinking norms and actual student drinking norms, a description of the student's actual drinking pattern, a description of the student's risk factors for alcohol problems, information regarding the student's typical BAC, the student's self-reported alcohol related consequences, a breakdown of how the student spends their time, and how many calories the student consumes in the form of alcohol in a given week.

History of Feedback Interventions

Brief interventions with college students have taken many forms. Studies in the last 10 years have tested delivering personalized feedback in a one-on-one motivational interviewing session (Baer et al., 1992; Borsari & Carey, 2000; Murphy et al., 2001, 2004), by way of mail (Agostinelli, Brown, & Miller, 1995; Collins, Carey, & Sliwinski, 2002; Walters, 2000; Walters, Bennett, & Miller, 2000), and via the computer (Kypri et al., 2004; Neighbors et al., 2004). All methods mentioned have some evidence to support them as effective in terms of facilitating reductions in drinking, although the extent to

which the different forms have a lasting impact varies. Students who received feedback delivered via motivational interviews have been shown to maintain reductions in drinking at a 2-year follow up (Baer et al., 1992), while students who received mailed feedback have demonstrated drinking reductions at a 6-week follow-up, but not at six months (Collins et al., 2002). Finally, recent research using the Internet as one component of the delivery of feedback (Neighbors et al., 2004) found that, at a 6-month follow-up, students who received personalized feedback reported reductions in the average number of drinks they consumed per week (DPW) in comparison to the control group.

Limitations of the Current Research

While BASICS appears to be an effective intervention among students, researchers and practitioners are curious about what mechanisms in this kind of feedback are facilitating drinking reductions in the students who receive such feedback (Walters & Neighbors, 2005). In their review of the literature, Walters and Neighbors (2005) posit that providing students with normative information about their drinking alone may be enough to lead students to reduce the amount of alcohol they consume. They speculate, however, that it appears feedback interventions that cover a broader range of material, including information regarding BAC, alcohol-related consequences, caloric intake in terms of alcohol, and money, in addition to drinking norms, could increase the impact of the interventions. Tied to the question of what components of the feedback are responsible for facilitating the reductions is the generalizability of the current research on brief interventions. One argument is that there is inconsistency in terms of what components of feedback are offered in studies conducted at different sites. Thus, while

brief interventions seem to be promising in terms of being helpful to those who receive them, more research is needed utilizing the same feedback in multiple settings, delivered in numerous ways (i.e. in a motivational interview, via the postal service, via e-mail, and via the telephone). Such research would provide information about not only how to implement feedback interventions among different populations, but also what feedback components to include in the interventions.

There are also questions about the extent to which professionals are necessary in order to deliver BASICS (or other feedback for that matter) to students, as research has suggested that paraprofessionals can be just as, if not more, effective than graduate-level trained individuals (Larimer et al., 2001). These researchers conducted a study of the efficacy of BASICS when used with the Greek system. In this study, undergraduate students were trained in delivering BASICS feedback and providing feedback to fraternity members. Findings of this study indicated that students who received feedback from the undergraduate students improved as much, if not more, than the students who received feedback from graduate-level trained students in terms of reductions in the typical number of drinks these students consumed.

There are additional questions about the most effective mechanisms to deliver BASICS feedback, including the efficacy of delivering feedback to students without in-person contact. While researchers have begun to address this issue by studying the effects of feedback delivered via the postal service, no research has been conducted to date employing e-mail as a feedback delivery mechanism. Given that most college students are connected to the Internet, a unique opportunity exists to examine the utility of this tool to intervene with students.

Purpose of the Study

The purpose of the present study was to determine the effectiveness of delivering BASICS feedback to students via e-mail at a 6-week follow-up. Determining the effectiveness of BASICS delivered via e-mail and testing the efficacy of the intervention six weeks later can have a significant impact on the way universities address college student drinking on campus. Feedback delivered in this way could reach an extensive number of students in a cost-effective manner. As mentioned earlier in this chapter, studies have been done to test the effectiveness of mailed feedback, but these studies were conducted by delivering feedback through the postal service (Agostinelli et al., 1995; Walters, 2000; Walters, Bennett, & Miller, 2000). Furthermore, by assessing students at a 6-week follow-up, comparisons can then be made with other projects that have used similar follow-ups when no face-to-face interaction has taken place (Agostinelli et al., 1995; Walters, 2000; Walters, Bennett, & Miller, 2000).

Hypotheses

After reviewing the literature, the following hypotheses were developed:

1. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days they report consuming alcohol in the 30 days prior to taking the survey.
2. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the typical number of drinks they report consuming in a given week as measured by the *Daily Drinking Questionnaire*.

3. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days that they report feeling a little lightheaded or high from drinking in the 30 days prior to taking the survey.
4. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days they report feeling drunk in the 30 days prior to taking the survey.
5. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days that they report binge drinking in the 30 days prior to taking the survey.
6. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in their AUDIT scores as measured by the *Alcohol Use Identification Test*.
7. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of alcohol-related consequences they experienced in the month prior to completing the survey as measured by the *Rutgers Alcohol Problem Index*.
8. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the frequency with which they think the typical college student of their gender drinks.
9. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the quantity of

alcohol they believe the typical college student of their gender drinks per drinking occasion.

Operational Definitions

Alcohol-related consequences refers to negative or aversive experiences that are the result of or associated to one's use of alcohol.

Binge drinking refers to consumption of five or more drinks in a given setting for men and four or more drinks in a given setting for women.

Brief Alcohol Screening and Intervention for College Students (BASICS) refers to an empirically supported brief intervention developed by researchers at the University of Washington (Dimeff et al., 1999).

Feedback delivered without in-person contact refers to feedback delivered without an interpersonal interaction between two or more people. Feedback delivered via postal mail or e-mail are examples of feedback delivered without personal contact.

Personalized feedback refers to feedback about one's use of alcohol.

II. REVIEW OF THE LITERATURE

Studies of College Student Drinking

Research supports that college student drinking has been an ongoing problem, worthy of extensive investigation. Several large-scale, nationally representative studies have been conducted and are currently being conducted to gather information on the prevalence of college student drinking, the consequences associated with drinking among this population, and demographic information about at-risk students, among other things. The Harvard College Alcohol Study (Wechsler, 1996), the Monitoring the Future Study (Johnston, O'Malley, Bachman, & Schulenberg, 2004), the CORE Institute Study (O'Malley & Johnston, 2002), the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2006), and the National College Health Risk Behavior Survey (Centers for Disease Control and Prevention [CDC], 1997) have each been conducted independently, and have asked about related information, in sum providing a broad overview of college student drinking. What follows in this section is an overview of these studies with selected findings.

College Alcohol Study

The College Alcohol Study (CAS) is an ongoing study of college student drinking that began in 1993. This large-scale, nationally representative study has examined the drinking behavior of roughly 14,000 students from 120 four-year colleges in 40 states in

1993, 1997, 1999, and 2001 (CAS, 2005). This ongoing study has provided some of the most cutting-edge information about college student drinking. Numerous articles have been published as a result of the CAS on topics including: alcohol-related mortality (Hingson, Heeren, Winter, & Wechsler, 2005; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002), implications for prevention (Weitzman & Nelson, 2004), study habits and alcohol use (Powell, Williams, & Wechsler, 2004), methods of reducing binge drinking (Wechsler, Seibring, Liu, & Ahl, 2004), the effects of college demographic variables on alcohol use of high-risk groups (Wechsler & Kuo, 2003), social influences on substance use behaviors of sexual minority students (Eisenberg & Wechsler, 2003), and the efficacy of social norms marketing (Wechsler et al., 2003). Additionally, the CAS has led to widespread use of the five/four measure of what constitutes binge drinking (Wechlser et al., 1994). Below are some relevant findings from the studies conducted by Wechsler and his colleagues.

Binge drinking. In the early 1990s, it was common to define heavy episodic drinking or binge drinking as five or more drinks consumed by a man or woman in a given setting. This five drink criteria had been suggested before, but had not taken the kind of hold that it soon would. Cahalan, Cisin, and Crossley (1969) suggested that the consumption of five drinks in a given setting serves as a potential marker for evaluating harm associated with drinking. Additionally, the Monitoring the Future Study conducted at the University of Michigan had been employing this same criteria since 1975 (Johnston, O'Malley, & Bachman, 1996). In 1984, O'Malley, Bachman, and Johnson also used the term "binge" to refer to the five drink criteria when analyzing data from the Michigan study. After further investigation, Wechsler, Dowdall, Davenport, and Rimm

(1995) established more precise criteria. They suggested that the criteria for a binge-drinking episode should remain the same for men, and that a four-drink measure should be adopted for women. Using such criteria would better account for the binge-drinking behavior of women and the consequences of this behavior.

Consequences to drinkers and others. It is clear that excessive drinking by college students, male and female, can have severe consequences on students' matriculation and success. In an analysis of roughly 24,000 women on college campuses, Mohler-Kuo, Dowdall, Koss, and Wechsler (2004) found that 1 in 20 (4.7%) women had been the victim of a rape and that nearly three quarters of these victims (72%) had experienced the rape while intoxicated.

Research on drinking outcomes indicates that students who participate in excessive drinking not only harm themselves through their behavior, but also harm those with whom they interact. This includes those individuals who do not drink excessively, yet are connected to someone whose drinking is problematic, be it a roommate, classmate, friend, co-worker, or even acquaintance. Wechsler (1996) suggested that the secondhand effects of binge drinking are widespread and impact most college students. Secondhand effects cited in Wechsler's (1996) study include being insulted or humiliated, experiencing unwanted sexual advances, having interrupted sleep, and baby-sitting friends or roommates. In an earlier study performed by Wechsler et al. (1994), physical assaults, sexual assaults, and property damage were identified as some of the more severe consequences of binge drinking.

Wechsler, Lee, Hall, Wagenaar, and Lee (2002) surveyed 4,661 households to assess the quality of neighborhood life of families that live close to colleges with high

rates of binge drinking, and the relationship of a high density of alcohol outlets in these areas. They found that families living close to college campuses were more likely to report a lowered quality of neighborhood life through “such secondhand effects of heavy alcohol use as noise and disturbances, vandalism, drunkenness, vomiting and urination” (Wechsler et al., 2002, p. 425). Additionally, it was found that the number of alcohol outlets was an important factor mediating the relationship between colleges and such secondhand effects. This was especially true for colleges with high rates of binge drinking.

After analysis of CAS data, Hingson and colleagues (2002) estimated that as many as 600,000 college students are hit or assaulted by students under the influence of alcohol each year. They also estimated that in addition to the 2 million college students in the United States that drove motor vehicles under the influence of alcohol in 1999, more than 3 million rode as a passenger with a drinking driver (Hingson et al., 2002). Based on this study, they also estimated that over 1,400 students at 2- and 4-year colleges died unintentionally in situations related to alcohol, while somewhere in the neighborhood of 500,000 students were unintentionally injured while under the influence of alcohol.

In terms of risk for alcohol abuse and dependence, Knight et al. (2002), when looking at data from the CAS, found that 31% of students endorsed criteria for an alcohol abuse diagnosis, and 6% for a dependence diagnosis, over the course of the past 12 months. Additionally, these researchers indicate that two of every five students reported at least one symptom of abuse or dependence. It was also indicated that students who attended colleges with heavy drinking environments were more likely to have an abuse or dependence diagnosis.

Another interesting finding from the CAS concerns what Weitzman and Nelson (2004) refer to as the "prevention paradox," which postulates the necessity of intervening with all students who drink. They suggest this necessity because while heavy drinkers are at most risk for experiencing alcohol-related harms, they are few in number, thus accounting for only a small proportion of the risk on campus. They state that students who drink at lower levels, but participate in binge drinking are greater in number and account for a greater amount of the risk in terms of alcohol-related consequences.

At-risk groups. Research has indicated that affiliation with certain ethnic groups, social groups, and colleges can result in one being more at-risk of having an alcohol related problem. One such subset of the college population that has been deemed at risk is members of the Greek system. Wechsler, Dowdall, Davenport, and Castillo (1995) indicated that the strongest predictors of college student binge drinking were residence in a fraternity or sorority, adoption of a party-centered lifestyle, and engagement in other risky behaviors. This study also indicated that Caucasian men were most likely to binge drink. Additionally, this article suggested that prior binge drinking in high school was significantly correlated with binge drinking in college, suggesting that behaviors adopted in high school persist into college.

College athletes are another at-risk population. Research from the CAS has suggested that college athletes are at an increased risk for participation in binge drinking (Nelson & Wechsler, 2001). They hypothesize that this may be due to the fact that college athletes have strong social ties, which have been found to be associated with binge drinking. Interestingly, this drinking behavior persists despite the implementation of regular alcohol prevention programs.

In a publication by Weitzman and Wechsler (2000), data surrounding the impact of having a parent who drank problematically were presented. With roughly 10% of 17,592 subjects reportedly having problem-drinking parents, these authors found a bimodal pattern of drinking in subjects. Subjects showed higher than normal patterns of either abstinence or heavy episodic drinking. Among this sample, those subjects whose mother was identified as the problem-drinker were most at risk for participating in heavy episodic drinking. Consistent with trends in college student drinking, males were more at risk than females to engage in heavy episodic drinking.

Prevention. Over a four-year period from 1997-2001, researchers from Harvard University selected 10 universities from the first National School of Public Health College Alcohol Study to participate in what they called "A Matter of Degree Program" (Weitzman, Nelson, Lee, & Wechsler, 2004). In order to participate in the program the universities had to obtain funding through the Robert Wood Johnson Foundation (RWJF), had to be characterized as having a high binge drinking rate on campus, and had to demonstrate a commitment to implementing the environmental/systemic intervention being offered. The program, implemented by stakeholders at each university, focused on changing specific aspects of the universities' culture surrounding alcohol, including marketing behavior of alcohol outlets, social and cultural beliefs about alcohol, and state and local policies surrounding alcohol use that serve to support and perpetuate negative outcomes related to excessive alcohol use (Weitzman et al., 2004). Opposed to having a standardized implementation procedure for each university to follow, the researchers allowed the stakeholders on each campus to develop their own program. It was required, however, that the program incorporate environmental strategies to address both the

college and community environments. When compared to students from 32 similar universities, researchers found that communities where “A Matter of Degree” took place experienced significant reductions in levels of heavy alcohol consumption including binge drinking and the harms caused by binge drinking. Based on this research, it is apparent that larger environmental strategies, when coupled with individual-level interventions, can play a major role in addressing alcohol use on college campuses.

Another large-scale study that has been taking place since 1976 provides rich information about the nature of alcohol consumption among college students. Of particular interest is the information this research provides concerning college students’ drinking in comparison to their non-college peers, as well as data about the drinking behavior of students after they graduate from or leave college.

Monitoring the Future Study

Researchers from the University of Michigan developed a longitudinal research program to evaluate the drinking behavior of students as they matriculate from high school through college. The fact that this project has allowed for the analysis of the same cohort over time is unique to other studies of alcohol use. From this project, several key pieces of information have been found. First, O’Malley and Johnston (2002) reported that college students drink more than their non-college peers. More specifically, students enrolled in college have higher annual alcohol consumption rates, higher consumption rates in the previous 30 days, and higher levels of heavy consumption. However, when it comes to daily drinking levels, students not enrolled in college tend to drink more. Upon graduation though, this research suggests that there is a “cross-over” effect, where students who did not attend college begin drinking at higher rates than students who did

attend college. Additionally, this research suggests that there has been little change in the amount of alcohol consumed by college students from 1980-1999 (O'Malley & Johnston, 2002).

Core Alcohol and Drug Survey

Similar to the CAS, the Core Alcohol and Drug Survey is focused on assessing alcohol use, alcohol related-problems, and attitudes and beliefs about alcohol use among college students. Researchers from Southern Illinois University have been conducting this survey for approximately 10 years. Historical data about the results from their surveys are reported at the following web address: http://www.siu.edu/departments/coreinst/public_html/. In 2004, 68,000 students from roughly 133 colleges in the United States completed the Core Survey.

Consumption rates. The Core Survey research indicated 84% of the surveyed students reported they had consumed alcohol in the year prior to completing the survey, and 72% reported consuming alcohol in the previous 30 days. In terms of high-risk (five or more drinks in one sitting in the previous two weeks) and heavy and frequent drinking (high-risk drinking in addition to consuming alcohol on three or more occasions per week), results indicated that the average number of drinks consumed per week was six, with 48.8% of students being considered binge-drinkers, and 22% of students meeting the criteria for heavy or frequent drinking. When broken down by year in school, seniors exhibited the most binge drinking (52.8%), followed by juniors (51.6%), sophomores (49.1%) and freshman, (45.3%). The percentage of students considered heavy and frequent drinkers was also led by seniors with 27.5%. Students completing the Core

Survey also answered questions about the alcohol-related consequences they experience in the given year.

Consequences. The top five self-reported consequences reported by students in 2004 were the following: had a hangover (64.3%), got nauseated or vomited (55.7%), done something I later regretted (39.1%), had a memory loss (34.4%), and got into an argument or a fight (34%). Other consequences included missing a class (32.9%), been criticized by someone I know (31.1%), driven a car while under the influence (30.5%), and been hurt or injured (16.2%). While the above does not provide an objective stance from which to evaluate the drinking behavior of students, it does shed light on what college students identify as consequences of their drinking.

Violent acts. When asked about violent acts experienced and the percentage of such acts that occurred while under the influence of alcohol or other drugs, several trends became evident. First, while 5.4% of students experienced forced sexual touching during the prior year, 69% of these students report being under the influence of alcohol or other drugs when this took place. Additionally, 52% of the students in the study reported experiencing actual physical violence, and of these students 66.5% reported this occurring while they are under the influence of alcohol or other drugs. Finally, 3.3% of the students in the study reported having unwanted sexual intercourse, and 79.3% of these respondents reported being under the influence of alcohol or other drugs when this occurred.

Perceptions. Results from the 2004 Core Surveys suggest some particularly interesting reasons why students may consume alcohol. When asked about the social and sexual effects, students believe alcohol to have the following benefits: breaking the ice

(75.4%), enhance social activity (74.8%), gives people something to do (65.8%), allows people to have more fun (62.6%), facilitates male bonding (57.5%), facilitates peer connections (59.9%), facilitates sexual opportunities (52.6%), facilitates female bonding (47.7%), makes women sexier (29.2%), make males sexier (18%), and makes me sexier (18%). At a minimum, this provides an insightful overview of the perceptions that college students hold about the positive effects of alcohol. No information was provided as to the negative perceptions that alcohol use may have. This is likely due to the fact that such perceptions would have an inhibitory effect in terms of alcohol consumption. Obviously, having a positive perception of the effects of alcohol is likely to encourage or facilitate greater use.

National Survey on Drug Use and Health (NSDUH)

The Substance Abuse and Mental Health Service Administration (SAMHSA), an "agency in the Department of Health and Human Services, is the Federal Government's lead agency for improving the quality and availability of substance abuse prevention, addiction treatment, and mental health services in the United States" (Office of Applied Studies, 2006). This body is responsible for conducting the National Survey on Drug Use and Health (NSDUH), formerly called the National Household Survey on Drug Abuse (NHSDA). The survey is conducted on an annual basis through face-to-face administration of questionnaires in various college settings including dormitories, group homes, Greek houses, and apartments.

In a recent brief (October 31, 2003), based on the 2002 survey, researchers reported several key findings. First, consistent with research from the Monitoring the Future Survey, results indicated that full-time students aged 18-21 had higher rates of

binge drinking than non-students. Data also indicated that non-students were less likely than full-time students to use seat belts while driving. Finally, data from this survey indicated that students enrolled in school were more likely to drive under the influence of alcohol than their non-enrolled peers.

National College Health Risk Behavior Survey

The National College Health Risk Behavior Survey was conducted by the CDC in 1995. Although the previous studies provide more current information, findings from this study are worth mentioning as they appear consistent with data from other projects. In this project, researchers surveyed 4,838 college students at 136 2- and 4-year institutions. Analysis of the data indicated that 68% of college students consumed alcohol at least once in the past 30 days and that 42% of college students had consumed five or more alcohol drinks in one occasion, consistent with the results from the CORE study where 72% of the sample report consuming alcohol in the past 30 days and 48% of the sample met the criteria of participating in binge drinking.

Summary of National Studies

Several things become clear after reviewing findings from the above studies. First, almost half of college students binge drink over a two-week period (Wechsler et al., 2000). When viewed over a three month period, more then 75% of students participate in binge-drinking (Vik et al., 2000). Additionally, college students who binge drink and drink heavily experience various negative consequences as the result of their drinking (Nelson et al., 2005; O'Malley & Johnston, 2002; Wechsler, 1996), and the communities in which binge drinking rates are high suffer more consequences than those where the

levels are low (Wechsler et al., 2002). Thus, the rationale behind efforts to reduce the harm associated with college student drinking is obvious.

Brief Interventions

In response to the problem created by excessive drinking on college campuses, various prevention programs have been developed and implemented. This is true despite a paucity of studies with less than strong empirical support for creating reductions in alcohol consumption. Citing research on campus prevention efforts, Walters, Bennett, and Noto (2000) write, "Unfortunately, few campus programs have actually been empirically validated, and those that are evaluated often find that changes in attitudes or knowledge about alcohol are not accompanied by actual decreases in drinking" (p. 223). Visits to different campuses to explore how they address college student alcohol use is sure to yield different approaches to addressing college alcohol use. It is likely that alcohol education will be provided and that students will have access to counseling to assist them in reducing their alcohol use if they so choose. Some campuses are now incorporating Web-based programs (e.g. Alcohol.edu) while others have university offices directly responsible for addressing alcohol use on campus. Whether located in the universities' counseling centers, psychological services clinics, or in alcohol-designated programs, some colleges are incorporating brief interventions. Such interventions provide assistance to those students who are or may soon be experiencing mild to moderate alcohol-related problems, yet would not be good candidates for abstinence-based treatment such as Alcoholics Anonymous (Zweben & Fleming, 1999). Unlike alcohol education or social-norming programs, brief interventions have been shown to be

effective in reducing both college student drinking and the number of alcohol-related consequences associated with this behavior (Bien, Miller, & Tonigan, 1993; Larimer, Cronce, Lee, & Kilmer, 2005).

While abstinence-based treatment aims to eradicate alcohol from one's life, brief interventions focus on increasing one's motivation to change their behavior regarding alcohol or other substances. Studies comparing brief interventions to intensive treatment and to no treatment at all demonstrate the utility of brief interventions, as they were found to outperform no treatment, and were found to be as effective as more intensive therapies (Bien et al., 1993; Larimer et al., 2005). The obvious cost benefit is highlighted as comparable effects are observed with interventions that take less time.

Historical Context

Early evidence of the efficacy of brief interventions started in the early 1960s when researchers were looking at ways to facilitate the likelihood that a patient identified as having an alcohol problem would seek treatment if referred. In order to combat this, Chafetz designed a brief intervention to be used in emergency medical care settings (Chafetz, 1961; Chafetz, et al., 1962). The intent of the intervention was to get alcoholics to participate in longer-term treatment. The counselor who delivered the intervention was encouraged to be empathic, respectful, understanding, and caring. Sixty-five percent of the participants that received the brief intervention kept their subsequent appointment for alcohol treatment. This was striking as only 5% of the people who did not get the intervention followed up with the alcohol specialist. A follow-up study confirmed these initial findings (Chafetz, 1968; Chafetz, et al., 1964), and numerous other studies testing

referral completion (e.g. Koumans, Muller, & Miller, 1967; Nirenberg, Sobell, & Sobell, 1980) further established the utility of brief interventions used in this manner.

As time passed, it became evident that there could be brief interventions designed to not only encourage subsequent alcohol treatment, but also to directly impact drinking behavior. Bien and colleagues (1993), in a review of the literature, identified 10 different studies that compared drinking outcomes in controlled trials in which participants were administered either brief interventions or no special treatment. These researchers also compared findings of studies examining brief interventions with more extensive forms of therapy.

In one study designed to compare the efficacy of a brief intervention against no special treatment, Kristenson, Ohlin, Hulten-Nosslin, Trell, and Hood (1983) set out to screen all male residents between the ages of 46 and 53 from a small region in Sweden. Seventy-six percent of the men from this area responded to the invitation to participate. Participants with high serum-y-glutamyltransferase (GGT) scores (a liver enzyme sensitive to heavy drinking) were asked additional questions, resulting in 585 men confirmed to have an alcohol problem that were included in the study. These men were then assigned to one of two conditions: brief intervention (n = 317) or control (n = 268). In this study, the brief intervention consisted of a physician suggesting drinking in moderation, monthly physical examinations with a nurse, and quarterly check-ins with the physician. Participants in the control condition received a letter informing them of their high GGT levels, and were followed up every other year. The groups did not differ at initial testing. Over the course of six years, participants who received the brief intervention experienced significantly fewer sick days (M = 5.3 versus M = 27.2) and

hospitalizations due to alcohol use (M = 133 versus M = 482), and suffered half the mortality rate of the control group. While both groups had significantly lower GGT levels at the 2-year and 4-year follow-up, the brief intervention group evidenced a greater reduction in the enzyme.

International evaluation of the efficacy of brief interventions came when Babor and Grant (1992), working with the World Health Organization (WHO), screened 32,000 patients in general health care settings from 10 different nations. After screening, 1,490 identified at-risk drinkers received a 20-minute health interview and were then randomly assigned to one of three conditions: no additional intervention, 5 minutes of advice, or advice plus 15 minutes of counseling and a self-help manual. An additional group consisting of three sessions of supportive counseling was offered at several of the sites as well. Analysis of the data after a 9-month follow-up revealed that participants who received the 5 minutes of advice or the 15 minutes of counseling and self-help manual experienced an average of a one-third reduction in alcohol consumption, which was significantly greater than those in the control group who received screening but no advice. It is important to note that in this study, females showed significant reductions in consumption regardless of whether or not they received advice.

Additional historical studies confirmed the efficacy of using brief interventions when compared to no brief intervention at all (see Bien et al., 1993). However, as would be expected, curiosity about how brief interventions measured up to more intensive treatments arose during the time when brief interventions were outperforming no treatment controls. An article written by Edwards et al. (1977) provided evidence to suggest that a brief intervention was as effective as more extensive alcohol treatment.

Edwards et al. (1977) utilized both random assignment and matching to determine the group assignment of 100 British men recruited from an outpatient alcoholism family clinic. Individuals in the brief intervention were given constructive advice on achieving abstinence. The other group participated in treatment that included the following components: an introduction to Alcoholics Anonymous, antidipsotropic medication, medication for additional withdrawal symptoms, sessions with a psychiatrist, in addition to the men's wives consulting with a psychiatrist. At a 12-month follow-up, participants in the advice and extensive treatment group reported similar 'longest periods of abstinence' (15.3 weeks (SD 2.6) and 15.8 (SD 2.3) respectively). Further, after 10 years of follow-up, Edwards, Duckitt, Oppenheimer, Sheehan, and Taylor (1983) never found significant differences between the groups on any outcome measure.

Several studies conducted in the United States substantiated the findings of Edwards et al. (1983). Specifically, when comparing patients who received 10 weeks of outpatient treatment to patients who received advice from a counselor to follow a self-help manual, Miller, Gribskov, and Mortell (1981) found similar improvement at a 3-month follow-up in both groups, in addition to reporting a 50% reduction in alcohol consumption. This work was replicated with a longer 24-month follows-up by Miller and Baca (1983). These, in addition to other trials, substantiated that brief interventions were as effective as more intensive forms of therapy. In their review, Bien and colleagues (1993) reported two studies (Chick, Ritson, Connaughton, Stewart, & Chick 1988; Robertson, Heather, Dzialdowski, Crawford, & Winton, 1986) that found more extensive forms of therapy more efficacious than brief interventions, but concluded that "well-

planned and consistently administered" brief interventions can be as effective as more extensive therapy (p. 321). In sum, Bien et al. (1993) wrote,

> From the preceding review, it appears that brief interventions for alcohol problems: (1) are usually significantly more effective than no intervention; (2) commonly show similar impact to more extensive interventions; and (3) can enhance the effectiveness of subsequent treatment. (p. 326)

Determining what elements make up brief interventions is important given data that support their utility. Miller and Sanchez (1993) did this in their review of studies using brief interventions. Additionally, the Veteran's Administration of Australia (2002) provides a model of the effective components of brief interventions.

Common Elements

Miller and Sanchez (1993) report that feedback, responsibility, advice, menu of strategies, empathy, and self-efficacy (FRAMES) are the components that are found consistently across studies of brief interventions. They indicate that *feedback* highlights the need to make behavioral changes for individuals, and that the expectation implicit in brief interventions is that individuals are *responsible* for making behavioral changes. Furthermore, Miller and Sanchez (1993) found that there is *advice*, either explicit or implicit, to change one's behavior when brief interventions are used and that brief interventions provide individuals with a *menu of strategies* that are suitable to them about how to reduce their alcohol consumption. They also describe brief interventions as being delivered in an *empathic* tone and as enhancing individuals' *self-efficacy* about being able to make behavioral changes related to their alcohol use.

The acronym FLAGS was used within a training program developed for reducing alcohol use in the veteran community to describe the effective components of brief interventions (Veterans Administrations of Australia, 2002). FLAGS consists of feedback, listening, advice, goals, and strategies. The FLAGS model is similar to the FRAMES model except for the components of listening and goals. *Listening* in the FLAGS model refers to the necessity for clinicians to be responsive and engaged with clients during brief interventions as they may have something they would like to discuss. This is consistent with empathy in the FRAMES model. *Goals* in the FLAGS model refers to the fact that successful brief interventions result in a client setting specific goals to change their behavior. Miller and Sanchez (1993) do not indicate that developing goals are necessary. Thus, in sum, given the overlap between the two models, it appears that there is agreement about several of the factors that contribute to effectiveness of brief interventions. Additionally, the breadth of the research that Miller and Sanchez reviewed (1993) when establishing the FRAMES model provides comfort in developing brief interventions on these grounds.

Early Brief Interventions with College Students

Knowing the components of effective brief interventions, Baer, et al. (1992) and Marlatt, et al. (1998) conducted brief alcohol intervention studies with college students. These studies laid the groundwork for the development of a manualized treatment protocol entitled BASICS (Brief Alcohol Screening and Intervention for College Students).

Prior to the publication of the BASICS manual, Baer et al. (1992) conducted a study comparing three different alcohol interventions. One-hundred thirty-two college

student participants from the University of Washington who reported at least one alcohol-related problem on the Michigan Alcoholism Screening Test (MAST; Selzer, 1971) and reported drinking two days a week, on average, with blood alcohol levels (BALs) of .10% or more were eligible to participate. Researchers initially planned to test the effectiveness of three different treatment conditions: a 6-week didactic classroom format intervention, a 1-hour intervention containing both feedback and skills based components, and a self-help condition. The study was conducted over the course of three separate cohorts. Due to the poor program completion and high dropout rate in the self-help manual condition, researchers decided to assign participants in the third cohort to only the classroom format or 1-hour intervention plus feedback condition. Results indicated that participants in the 6-week classroom format intervention experienced the largest changes, although they were not significantly different from those participants who participated in the 1-hour format. Participants in the classroom format reduced their average number of drinks consumed per week (DPW) from 13.2 (SD = 8.0) to 8.7 (SD = 6.3). They also experienced a reduction in their peak BAC per week from 15% (SD = 0.08) to 10% (SD = 0.08) as measured by a BAC scoring program developed by Matthews and Miller (1979). Participants also reduced their retrospective number of drinks consumed in the previous month from 49.9 (SD = 23.3) to 41.1 (SD = 30.1). Noteworthy is that students reported the classroom format to be more helpful in changing drinking habits, and reported that they would be more likely to recommend this format to other students, although there were no differences between the 6-week classroom condition and 1-hour format in rated helpfulness for changing general lifestyle. These findings suggest that brief feedback can be as effective as longer, and seemingly more

invasive, interventions. While students may not prefer the 1-hour intervention, the effects of this intervention are consistent with the 6-week group format condition.

Marlatt and colleagues (1998) conducted a study to test the effectiveness of a brief intervention designed to reduce the harmful consequences associated with alcohol consumption by high-risk college student drinkers. They assigned students identified as high risk to either a brief intervention condition aimed at reducing harmful consequences associated with alcohol use or a no-treatment control. The brief intervention consisted of a motivational interview in the winter of the participants' freshman year in college, mailed follow-up feedback the second winter quarter, and an additional motivational interview for students considered to be the highest risk on the basis of peak consumption experiences and alcohol related consequences after the 1-year follow-up. Students who either reported drinking at least monthly and consuming at least five to six drinks on one occasion in the past month, or those who reported experiencing three alcohol-related problems on three to five occasions in the past three years on the Rutgers Alcohol Problem Index (RAPI) were considered high risk. Additionally, a random selection of students from which the original screening took place was to be used as a normative comparison group.

Comparison of the high-risk group and normative comparison group indicated that: (1) high-risk students typically drank twice a week and consumed almost 11 drinks a week, while the normative comparison group drank once a week and had fewer than 6 drinks a week; (2) high-risk students reported a BAC of .12 weekly and .18 on peak episodes, while the normative students reported a .08 and .14 BAC respectively, and (3)

15 % of the high-risk sample reported one first-degree relative having an alcohol problem, with 18% of the random comparison group reporting the same.

Students in the brief intervention demonstrated a significant reduction in drinking frequency, quantity, and peak quantity over time, at a 6-month follow-up. Marlatt et al. (1998) indicate that these changes could be confounded by seasonal changes in drinking, as this was the only follow-up conducted during the Spring semester. After the 2-year follow-up, Marlatt et al. (1998) write, “The overall pattern of results supports the hypothesis that high-risk students who receive a brief intervention in their freshman year show significant reductions in both drinking rates and harmful consequences in comparison with students in a no-treatment control condition” (p. 613). Specifically, students who received the brief intervention reduced their number of alcohol related consequences from 7.5 to 3.3 and experienced reductions in the average quantity of drinks consumed from 4.7 to 3.6. For the control group, significant reductions in alcohol related problems were observed (7.6 to 4.7) with non-significant reductions in quantity of drinks consumed (4.2 to 4.0) for this group. Analysis of the data from the naturalistic control delineated that while the brief intervention did result in reductions for the at-risk students, there were still large differences in the drinking rates and related problems between the two groups after the 2-year follow-up (Marlatt et al., 1998). Regardless, this study supported prevention efforts that focused on individuals identified as at-risk.

BASICS Manual

With the data from the research projects conducted at the University of Washington to support the efficacy of brief interventions, Dimeff et al. (1999) published a brief intervention manual entitled “Brief Alcohol Screening and Intervention for

College Students: A harm reduction approach," often referred to as BASICS. Generally speaking, the manual details how to employ BASICS with college students.

As the title suggests, BASICS is a harm-reduction approach, opposed to an abstinence-based approach. Thus, the aim of BASICS is not to encourage an individual to stop drinking, rather to facilitate a process whereby an individual can take specific steps to reduce the amount of risk to which they are exposed. While reduction of alcohol consumption will likely be a part of this process, telling someone to stop consuming is counter to the philosophy of the intervention. BASICS is an "indicated" prevention program opposed to a "universal" prevention program. Indicated prevention programs are designed to address a specific population of individuals, in contrast to universal prevention that are designed to reach all individuals in a population (e.g., social norms programs or "A Matter of Degree" as mentioned above). The population BASICS is most suited to address are those individuals who are experiencing or who will likely experience consequences as a result of their alcohol use, in addition to students who drink heavily.

Based upon this groundwork, and as suggested by Dimeff and colleagues (1999), BASICS is conducted over two approximately 50-minute sessions. The first session is primarily for assessment purposes. During this time, the clinician gathers information about the client's current drinking behavior and where they stand in terms of readiness to change their behavior. Specifically, the clinician attempts to identify the quantity of alcohol the client consumes, the frequency of consumption, associated risks, related consequences, and attempts to manage intake. Motivational interviewing (Miller & Rollnick, 1991) is used to meet the client where they are in terms of altering their

drinking behavior and to slowly move them further along in their desire to make changes in their behavior. This process is in no way confrontational or directive. On the contrary, the sessions have a tone of understanding, curiosity, and support. This first session also allows the clinician to develop an initial rapport with the client, setting the tone for the upcoming feedback session. This can be helpful in terms of demonstrating to the client that they will not be told what to do, and they will not be talked-down to about their use of alcohol. Finally, either prior to or at the end of the first session, the client completes a battery of assessments to be used by the clinician when developing the client's personalized feedback.

Upon completion of the first session, the client and clinician set up an appointment approximately one week from the initial session to discuss the client's personalized feedback. The clinician develops the feedback for the client on the basis of his or her answers to the questionnaires. The personalized feedback includes information about the client's beliefs about college student drinking, his or her personal drinking pattern and how it compares to campus norms, in addition to the number of times he or she binge drinks in a given month. The feedback also includes information about the clients peak BAC level in the previous month and how it can be lowered with minor adjustment in consumption and the number of alcohol-related consequences the student experiences, as well as how this number compares to campus norms. The last sections of the feedback cover how the student allocates his or her time, the amount of calories the student consumes in alcohol, how long he or she would have to run or walk to burn off the calories, and how much money he or she spends on alcohol in a given week, month, and year. All of this information is embedded in explanatory prose, which allows the

student the ability to review the feedback on his or her own after the session. Like the first session, the tone of the meeting is characterized by respect. The clinician provides the feedback in an educational fashion, answering questions the client may have. Several empirical studies utilizing the BASICS manual have been conducted since publication of the protocol.

BASICS Research

Dimeff and McNeely (2000) randomly assigned 41 students who met criteria for heavy or hazardous drinking to one of two experimental conditions. Students in the brief intervention condition received a streamlined version of BASICS program, developed by Dimeff and colleagues (Dimeff, et al., 1999). Undergraduate students were screened by way of the Multi-Media Assessment of Student Health (MMASH), which gathers information about various areas of student health. Upon completion of the MMASH, participants in the feedback condition met with their primary care physician and reviewed the feedback that was generated from their responses. “Moderate to large treatment effect sizes favoring the brief intervention were observed on self-report measures of binge drinking episodes and alcohol problems at the 30-day follow-up” (Dimeff, & McNeely, 2000, p. 82). This follow-up was shorter than other follow-ups employed, yet shed light on the potential effectiveness of minimal exposure, at least in the short run.

Borsari and Carey (2000) reported the effectiveness of a one-session motivational interview for college students reporting two binge-drinking episodes within the previous 30 days. Participants from introductory psychology courses who qualified for the study (63 of 109, 55% female) were assigned to one of two groups. Participants in the intervention group (N = 29) received a motivational interview from a graduate clinician

adopted from the BASICS handbook. No treatment was given to the students in the control condition. Outcome measures consisted of number of drinks consumed per week, number of times consuming alcohol in the past month, frequency of binge drinking in the past month, and quantity of drinking problems. The groups did not differ on any of the above variables at the baseline assessment (Borsari & Carey, 2000). At the 6-week follow-up, students exposed to the brief intervention demonstrated significant reductions in the quantity of alcohol consumed (weekly and monthly) and the frequency with which they binge drank. They did not experience significant reductions in the number of alcohol-related problems they experienced. Results of a regression analysis revealed medium to large effect sizes (ESs) of the intervention on weekly drinking (ES = 0.21), amount of time consuming alcohol per month (ES = 0.28), and (ES = 0.12) for binge drinking (Borsari & Carey, 2000). In conclusion, the authors indicate that their findings lend support for the effectiveness of the BASICS intervention in the short-term.

Baer, Kivlahan, Blume, McKnight, and Marlatt (2001) reported findings regarding the Marlatt et al. (1998) study (mentioned above) after conducting a 4-year follow-up. At the 4-year follow up, 84% of the students from the two high-risk groups and naturalistic comparison completed follow-up assessments. There were complete data sets for 76% of the sample. Attrition rates were not associated with any one demographic variable or group assignment. Analysis revealed significant main effects of the brief intervention with regards to drinking frequency, drinking quantity, and the number of alcohol related consequences experienced at the 4-year follow-up (Baer et al., 2001). The magnitude of change was greatest for negative consequences, and least for drinking frequency. The greatest reductions in all three domains were observed in the first year

immediately following the intervention (Baer et al., 2001). “Modest differential changes in drinking quantity and frequency, described in our earlier report of 2-year outcomes (Marlatt et al., 1998), do not appear to persist for longer periods of time, yet we found significantly reduced negative consequences 3.5 years after the preventative intervention” (Baer et al., 2001, p.1315).

Murphy and colleagues (2001) attempted to replicate the study by Marlatt et al. (1998). In this study, the heaviest drinking students (the upper 33% of a screening sample of 299, or n = 99) in terms of drinks per week measured by the DDQ, and those students who endorsed more alcohol-related problems on the RAPI, were assigned to one of three conditions: (1) BASICS condition consisting of a single interview (N = 30), (2) an education condition consisting of a video pertaining to alcohol abuse (N = 29), and (3) an assessment only control (N = 25). Fifteen participants were lost to attrition resulting in 84 students (54% female) in the study. These researchers state that although comparisons between BASICS and the educational intervention did not differ at statistically significant levels, “the effect sizes indicate a moderate advantage for BASICS on all alcohol consumption measures (i.e., drinks per week, drinking days per week, binge days per week) at 3-month follow-up” (Murphy et al., 2001, p. 378). At the 9-month follow-up, participants in all three conditions showed reductions, and between group effect sizes were relatively small. Murphy and colleagues (2001) speculated that the somewhat larger reductions in drinking that existed at the 3-month follow-up among participants in the BASICS condition, yet lack of differences between groups may lend support for BASICS in terms of its ability to expedite reductions in drinking that might have occurred naturally without intervention. They cite the work of Gotham, Sher, and Wood (1997)

which highlights changes in students' drinking patterns during, and post-college and the fact that, in some cases, students reduce their alcohol consumption naturally.

In an additional analysis of the upper 50% of the heavy drinkers in the study (those students consuming more than 20 drinks per week) a large mean effect size (0.99) was noted for the participants exposed to the BASICS condition at the 3-month follow up, which was maintained at the 9-month follow-up. Like previous research, this highlighted the effectiveness of BASICS with heavy drinking students (Murphy et al., 2001). Data also indicated that, in general, students rate their experience with BASICS positively, despite the nature of the information they receive in the feedback.

Larimer et al. (2001) researched the effectiveness of the BASICS intervention with students in the Greek system. In this study, fraternity pledges (N = 120) were randomly assigned to either a BASICS intervention (n = 6 houses, 77 participants) consisting of both individual and house-wide feedback components, and an assessment-only control condition (n = 6 houses, 82 participants). Unlike other studies testing the efficacy of BASICS, researchers employed peer interviewers as well as mental health professionals when delivering the feedback. One-year follow-up data indicated that fraternity members who received the brief intervention during their pledge year significantly reduced their total average alcohol consumption per week (15.42 to 12.27 drinks) and reduced their peak BAC (0.10 to 0.07) in comparison to fraternity men in the control condition (15.56 to 17.51 drinks and 0.09 to 0.08, respectively). Significant treatment effect sizes for the intervention on typical average use (d = 0.42) and peak BAC (d = 0.38) were also reported. In this study, differences in the number of alcohol-related consequences or symptoms of dependence were not observed between the two groups.

Finally, consistent with the idea that paraprofessionals can be just as effective as professionals, students who received feedback from their peers reported similar, and in some instances larger, reductions in drinking than those with professional feedback providers (Larimer et al., 2001).

In a 2005 article, Borsari and Carey reported findings from a study developed to test the effectiveness of a brief motivational intervention (BMI) modeled after BASICS in comparison to an alcohol education (AE) session with students mandated to a substance abuse prevention program. Fifty-four students (n = 34; BMI and n = 30; AE) from two colleges in the northeastern United States participated in the study and completed follow-ups at 3- and 6-months. Baseline comparisons indicated that, although there were no differences between conditions in terms of demographics or reasons for being referred to the program, there were observed differences in the quantity of drinks consumed by students at the two campuses, and the BMI group exhibited greater scores than the AE group at baseline on the AUDIT and measures of BAC. However, no changes were made in the statistical analysis to adjust for the baseline scores. Collateral reports did not indicate that students were underreporting their alcohol consumption. Results of this study indicate that students in both conditions decreased their alcohol use following the intervention (Borsari & Carey, 2005). Small to medium within-group effect sizes were observed among several variables, including number of drinks consumed per week, frequency of binge drinking episodes, typical BAC and peak BAC. The most significant finding in this study is the impact the BMI had on the number of alcohol-related consequences experienced by students in this condition. Large within-group effect sizes were observed at both the 3-month and 6-month follow-up (0.90 and 1.11 respectively).

Between-group effect sizes were 0.04 at 3 months and 0.39 at 6 months for alcohol-related consequences. In conclusion, Borsari and Carey (2005) state that the similar reductions in terms of consumption could be due to the fact that both interventions shared common features, “such as uninterrupted access to a knowledgeable interventionist, similar informational content about alcohol and its effects, and a warm, genuine, and empathic interviewing style” (p.301). They indicate that the significant reductions in alcohol-related consequences could have been accounted for by the fact that participants in the BMI condition received both personalized feedback and harm-reduction advice.

Summary of BASICS Research

On the basis of the aforementioned review, several conclusions can be drawn. First, follow-up research studies on the effectiveness of BASICS have demonstrated a positive impact on students’ alcohol consumption at 6-week (Borsari & Carey, 2000) and 104-week follow-ups (Baer et al., 2001; Marlatt et al., 1998). Second, the impact of BASICS on negative consequences related to alcohol use have been inconsistent. On the one hand, Baer et al. (2001) reported significant reductions in alcohol related consequences at 2- and 4-year follow-ups for students who received BASICS, and Borsari and Carey (2005) reported significant reductions in alcohol-related consequences among students receiving the BMI in their study. Murphy et al. (2001), on the other hand, indicated that students in their sample did not experience significant changes. The previous research also suggests that paraprofessionals may be just as effective as graduate-level trained mental health service providers in delivering feedback (Larimer, et al., 2001). Finally, based on the review, BASICS seems to be especially effective when delivered to students who drink heavily (Borsari & Carey, 2000; Murphy, et al., 2001).

Brief Interventions Without Personal Contact

With data to support the effectiveness of brief interventions with in-person contact, research aimed at testing feedback delivered without in-person feedback began. The idea being that if feedback delivered in a motivational interviewing session is effective, similar feedback delivered without any personal contact could create reductions in drinking in a similar fashion. Feedback delivered by way of mail is one such approach that researchers have tested.

Agostinelli et al. (1995) tested the effectiveness of feedback delivered by way of mail by randomly assigning students considered heavy drinkers to receive either mailed feedback or no-treatment. Students who reported drinking at least 80 standard drinks, defined as ½ pure ethyl alcohol, in the past month were eligible to participate. Of the 568 students screened, approximately 64 heavy drinking students were identified and offered the opportunity to participate in the study. Twenty-six students chose to participate, and 23 completed the study. Students in the feedback condition (n = 12) received the following information: a percentile rank based on their average weekly alcohol consumption, which was then compared to U.S. population norms; computer estimated peak BAC; and the level of personal risk of alcohol problems. This information was embedded in three pages of explanatory prose designed to help students understand the feedback. While students in the control condition (n = 11) did not receive any such information prior to the 6-week follow-up, they did receive feedback upon completion of the study. Results of this study indicate the mailed personalized feedback consisting of the aforementioned material can facilitate the reduction of alcohol consumption in students. Specifically, students who received mailed feedback reported significant

reductions in both the average number of drinks consumed per week and their average weekly BAC (mg%), 16.4 to 8.5 and 105.6 to 55.7, respectively. Within-group effect sizes for those in the feedback condition were 0.90 for average number of drinks consumed per week and 0.95 with regards to average weekly BAC peak. Although the study had several limitations, including a small sample with significant pre-treatment differences between groups, Agostinelli and colleagues (1995) note that the mean effects observed in the mailed feedback condition (0.68), in terms of reductions in measures of consumption, were consistent with randomized trials employing in-person feedback. While they suggest interpreting the results with caution, they encouraged further investigation with mailed feedback as their results indicated the potential efficacy.

Additional studies testing the effectiveness of mailed feedback were conducted by Walters and colleagues (Walters, 2000; Walters, Bennett, & Miller, 2000). In both of these studies the mailed feedback component consisted of the following information which was based on the Drinkers Check-Up: monthly and weekly amounts and costs of alcohol consumption, participants' estimated level of intoxication based on BAC, an approximation of the students' alcohol tolerance levels based on BAC, and comparisons of students' estimated alcohol consumption with national norms. In the first study conducted by Walters, 43 students enrolled at the University of New Mexico who reported having consumed 40 standard drinks in the previous month were randomly assigned to one of three groups: (1) 2-hour informational and motivational session plus mailed feedback, (2) mailed feedback only, or (3) no treatment control. Students in the 2-hour group condition participated in an "educational, attitudinal, and skills based approaches to promote responsible drinking" (Walters, 2000, p. 236).

At a 6-week follow-up, 37 students completed follow-up measures. These 37 participants were 40% female and on average 19-years-old. Additionally, students reported drinking on average 104.28 drinks in the previous month, a typical weekly BAC level of .201, an average monthly peak BAC of .310, and scored an average of 13.58 on the AUDIT. Results indicated that participants in both the mailed feedback only and 2-hour session plus mailed feedback condition reduced the average number of drinks they consumed in a month (59.37 and 27.13 respectively). Within group effect sizes of the three conditions were 1.01 for the mailed feedback condition, 0.60 for the 2-hour session plus mailed feedback condition, and 0.04 for the control group. Reductions in drinks consumed per week were 13.8, 6.35, and 0.36 respectively. On measures of consequences and expectancy, reductions among the two treatment groups were observed, but were not statistically significant. In sum, Walters, Bennett, and Miller (2000) conclude that despite the short follow-up period and small sample size, the fact that students volunteered to participate in the study, and that the measures of consequences and expectancy were modified, results of the study further supported the use of mailed feedback with college students, and highlighted that a 2-hour informational session did not have an additive effect in terms of facilitating reductions in the quantity of alcohol consumed.

Given the findings of this study, Walters conducted a follow-up at San Diego State University (Walters, 2000). Thirty-four participants, who met the same criteria as in the previous study, having reported consuming at least 40 drinks in the previous month, were randomly assigned to one of three groups. The mailed feedback group and control group remained the same as in the first study. However, instead of participants being assigned to a 2-hour informational session plus mailed feedback condition, participants in

this condition were assigned to a group session consisting of discussion and clarification about personalized feedback. Results were similar to those in the first study where participants who received mailed feedback reduced their drinking by on average 6.6 drinks per week (DPW) at a 6-week follow-up. Participants in the control condition reduced their drinking by 2.75 DPW, while those in the classroom feedback condition only reduced consumption by 0.35 DPW. The effect sizes for the conditions were 0.63, 0.29, and 0.35 respectively. Findings supported the efficacy of mailed feedback and called into question the utility of group interpretations. "That is, gathering a group of heavy drinking students may actually reinforce the perception of normalcy. If true, such a situation would fail to create the discrepancy between personal and normative behavior that we believe is a hallmark of the feedback interventions" (Walters, Bennett, & Noto, 2000, p. 225). Regardless of the causative mechanism that led to the lack of reductions among members in the group condition, the evidence presented indicates that mailed feedback was far more efficacious than this means of feedback delivery.

It was not until a study conducted by Collins et al. (2002) that the efficacy of mailed feedback was tested at a follow-up longer than six weeks. The researchers also recruited a larger sample size than any other mailed feedback study by enrolling 100 participants. Students in introductory psychology courses who reported at least two heavy drinking episodes in the last month (consuming five or more drinks for men and four or more for women) were eligible to participate. The first 100 students to express an interest in participating were randomly assigned (separately by gender) to either the mailed brief intervention (MBI, n = 49) or the control (C, n = 51) group. Feedback in this study consisted of information concerning quantity and frequency of heavy-drinking episodes,

typical and peak intoxification levels, alcohol-related problems, normative comparisons based on both campus and national norms, and didactic material on BAC, tolerance, and heavy episodic drinking. Researchers hypothesized that the mailed feedback group in comparison to the control group would: (1) experience greater discrepancy between self and others' drinking, (2) report drinking fewer drinks per heaviest drinking week, (3) have fewer heavy-drinking episodes, (4) have a lower peak BAC on their heaviest drinking occasion, (5) and have fewer alcohol-related problems. They expected these changes to be maintained at both 6-week and 6-month follow-up.

Consistent with the researchers' hypotheses, at 6-week follow-up, participants in the MBI condition reported consuming fewer drinks per heaviest drinking week and experiencing fewer heavy-drinking episodes. Changes were no longer evident at 6-months, suggesting that the MBI had immediate effects on consumption, but did not have a lasting effect. In terms of changes in alcohol related problems, Collins et al. (2002) reported no significant reductions in the number of alcohol-related problems experienced by participants in either condition. They suggested that future studies may benefit by providing participants with personalized normative feedback (PNF) regarding alcohol-related problems, as such information could highlight the immediate negative impact of their alcohol use in comparison with their peers. Additionally, results of the project suggest that students who received MBI experienced greater perceived discrepancy between self and others' drinking than those individuals in the control group, although discrepancy was not found to have a mediating effect in terms of facilitating reductions in drinking.

Benson, Ambrose, Mulfinger, and Correia (2004) reported findings of a feasibility study using mailed feedback with students identified as at-risk through national alcohol screening day (NASD). After screening 153 students with the AUDIT, these researchers mailed feedback developed from the DDQ and RAPI, to 30 participants who scored an 8 or above on the AUDIT (often used as the clinical cutoff for potential alcohol problems). Unfortunately, lack of outcome data on the effectiveness of the intervention limits the study. However, in terms of logistical feasibility, the study provided support for the assertion that NASD can be a viable place to provide feedback to students, over and above the information distributed at such screenings. Benson et al. (2004) suggested that additional research aimed at incorporating interventions into NASD was warranted.

In addition to utilizing the postal service to deliver feedback, other research delivering personalized drinking feedback (PDF) without a motivational interview has been conducted. Murphy and colleagues (2004) randomly assigned participants to either receive drinking feedback and an advice sheet to review for 30 minutes on their own, or a 30-50 minute interview during which the drinking feedback and advice sheet were discussed with a clinician. Both conditions included the same feedback and advice sheet. Feedback consisted of: (1) a percentile rank that compared the student's weekly drinking to normative drinking rates, (2) personal BAC estimates, (3) the student's frequency of heavy drinking and associated risks, (4) a list of alcohol-related negative consequences reported on the RAPI, (5) risk for problem drinking based on family history of drinking problems, (6) the student's weekly time allocation to drinking/recovering, studying, attending class and exercising and (7) the caloric content of the student's alcohol

consumption (Murphy et al., 2004). The advice sheet included suggestion about how potential ways a person could manage his or her alcohol intake (Murphy et al., 2004).

From a large screening pool (N = 331), 54 students who reported drinking 13 or more drinks a week and who experienced at least one alcohol-related problem in the previous month on the RAPI were deemed eligible to participate. Fifty-one (94%) participants completed follow-up questionnaires six months later. Regardless of whether or not students received personalized drinking feedback with or without a motivational interview (MI), they reported significant small to moderate reductions on several consumption measures. Students reported reductions in mean number of drinks consumed per week (24.12 to 18.93 drinks), the frequency of drinking per week (3.85 to 3.4 episodes) and frequency of heavy drinking days per week (2.98 to 2.43). Thus, the findings suggested that the MI did not necessarily have an additive effect. No significant reductions in the number of alcohol-related consequences were observed in this study. Additionally, the results indicated that females responded more favorably to the PDF, which the researchers hypothesized to be related to the PDF including information regarding caloric intake (Murphy et al., 2004). Thus, this study provided further support for the efficacy of personalized drinking feedback in reducing the quantity of alcohol consumed when delivered without personal contact, and was the first study to find differential effects with women.

Summary of Brief Interventions without Personal Contact

In summary, the aforementioned research supports the efficacy of delivering feedback to students without personal contact, particularly to facilitate alcohol consumption reduction. Several projects indicate that this intervention is especially

efficacious at 6-week follow-ups (Agostinelli et al., 1995; Walters, 2000, Walters, Bennett, and Noto, 2000). Collins et al. (2002) found reductions in consumption at six weeks, but not at six months. The effect of the intervention on alcohol related problems is not as promising, as most projects have found no significant reductions in alcohol-related consequences (Collins et al., 2002; Walters, 2000; Murphy et al., 2004). Despite the current lack of evidence regarding the effectiveness of feedback without in-person contact on alcohol-related consequences, Collins et al. (2002) have encouraged the incorporation of alcohol-related consequences in future feedback studies. Thus, continued investigation about the impact of feedback on alcohol-related consequences still seems warranted. Given how cost effective brief interventions without personal contact are, efforts to maximize their effectiveness seem worthwhile.

Internet Interventions

The Internet has arguably become the primary source of information for individuals in the United States. One can retrieve almost any kind of information on the Web. With this in mind, programs aimed at addressing alcohol use through this technology have been developed. Walters, Miller, and Chiauzzi (2005) reviewed the current literature on what they called e-Interventions. In the article they review *Alcohol 101 Plus*, *Alcohol Response-Ability*, *e-Chug*, *myStudentBody: Alcohol, and Under the Influence*. With the exception of *Alcohol 101 Plus*, all of the interventions are delivered via the Internet, thus highlighting the utility of the Internet as a means for implementing alcohol programming. Within this review, they indicate that "feedback seems to be one of the most consistent features of these automated programs and one that they are uniquely

qualified to deliver" (Walters, et al., 2005, p.143). They encourage practitioners and researchers alike to discern how to best make use of the Internet as it relates to intervening with alcohol users. They cite the work of Black and Coster (1996) who found that college students want minimal instruction about alcohol use, and hypothesize that utilizing the Internet could be the ideal mechanism for giving students information about a topic they would prefer not to discuss. It is noteworthy that many college handbooks now indicate that e-mail is an official form of communication, thus requiring students to be proficient with e-mail.

Studies Conducted Incorporating an Electronic Component

Kypri et al. (2004) researched the effectiveness of a Web-based screening and brief intervention employed at a campus health center after finding that students would be less likely to engage in a discussion about their alcohol consumption that was not self-initiated and would be more open to Web-based screening and brief intervention (Kypri, et al., 2003). They also indicated that intervening at a university health center makes use of a unique opportunity to address students' alcohol-related problems. In this double-blind randomized controlled trial, the 104 students who qualified for participation in the study did so by scoring at least an 8 on the AUDIT and reporting consumption of more than four/six standard drinks (females/males) on one or more occasions in the preceding four weeks. Students enrolled in the control condition of this study received a generic alcohol fact sheet while the students in the experimental condition received personalized feedback based on their responses to a series of questionnaires that were delivered via the Internet. The intervention included information about recent consumption, their risk status, comparison of their consumption with recommended upper limits, an estimate of

their BAC for their heaviest drinking occasion in the preceding 4 weeks, and comparison of their consumption with that of the national and university norms along with correction of their norm misperception (Kypri et al., 2004). Follow-ups took place at six weeks and six months on the outcome measures of frequency of drinking, typical occasion quantity, total consumption, frequency of very heavy episodic drinking, personal, social, sexual and legal consequences of episodic heavy drinking, and consequences related to tertiary student role expectations. “At six weeks, the intervention resulted in reductions of 26% in total consumption, 37% in very heavy episodes, and 30% in alcohol-related personal, sexual and legal problems. At six months, there were reductions of 24% in alcohol-related personal, sexual and legal problems and 28% in consequences related to academic role expectations” (Kypri et al., 2004, p. 1410-1417). These authors suggested that a larger sample size would allow for more in-depth analysis of the changes in the drinking behavior of the subjects exposed to the intervention. They also suggested that engaging large numbers of students in electronic screening and brief interventions (e-SBI) could have a “population-level” benefit even if the reductions in drinking are small (Kypri, et al., 2004).

Neighbors et al. (2004) sought to establish the efficacy of providing students with personalized normative feedback without providing them with any other information related to their alcohol use. Feedback in this study included information detailing the students’ drinking behavior, their perceptions of typical student drinking, and actual typical student drinking based on campus norms. These feedback components were modeled after the normative feedback components used in BASICS (Dimeff et al., 1999). Different from other studies at the time, this information was provided to students on a

computer screen immediately following the completion of the baseline assessment. They were also given a printout of the feedback to take with them. Similar to mailed-feedback studies, there was no in-person contact in this study. This was also the first study to conduct 3-month and 6-month follow-up assessments after providing such feedback. Nye, Agostinelli, and Smith (1999) had conducted a study looking at the effects of giving students personalized normative feedback, however, follow-up assessment took place immediately following the provision of feedback, thus longer-term effects of providing personalized normative information alone were left unknown. After analyzing the data from the 252 participants in the study at 3- and 6-month follow ups, Neighbors and colleagues (2004) reported effect sizes of 0.35 and 0.36 respectively, of the intervention in facilitating drinking reductions. They argue that personalized normative feedback is one of the most potent components included in feedback studies, and is likely to contribute to reductions in drinking in those individuals that drink primarily for social reasons.

Need for the Study

Based on the review of the literature regarding brief interventions, the need to further test the efficacy of personalized drinking feedback modeled after the feedback delivered in BASICS becomes apparent. As mailing feedback has garnered support in the literature, it seems logical to assess the utility of delivering feedback to students via e-mail, given the large number of students that have e-mail addresses. On many campuses, e-mail is considered an official form of communication. Additionally, this method of feedback delivery would provide a non-invasive alcohol intervention that students would

likely appreciate. Additionally, the incorporation of multiple feedback components (e.g. normative information, BAC estimates, experiences of alcohol-related consequences, money allocation, etc.) opposed to a more streamlined feedback sheet is necessary as this may have the ability to reach a broader range of students. To address this gap in the literature, the following project was designed.

III. METHODOLOGY

This project was designed to assess the effectiveness of delivering BASICS feedback to students via e-mail. A 6-week follow-up was employed so comparisons to brief interventions with similar follow-up times could be made. Students not assigned to receive personalized BASICS feedback were e-mailed generic information regarding consequences associated with alcohol use. Pre- and post-test measures assessed frequency and quantity of alcohol consumed, alcohol-related consequences, and perceptions of normative drinking behavior.

Hypotheses

The following hypotheses guided this study.

1. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days they report consuming alcohol in the 30 days prior to taking the survey.
2. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the typical number of drinks they report consuming in a given week as measured by the *Daily Drinking Questionnaire*.

3. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days that they report feeling a little lightheaded or high from drinking in the 30 days prior to taking the survey.
4. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days they report feeling drunk in the 30 days prior to taking the survey.
5. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of days that they report binge drinking in the 30 days prior to taking the survey.
6. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in their AUDIT scores as measured by the *Alcohol Use Identification Test*.
7. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the number of alcohol-related consequences they experienced in the month prior to completing the survey as measured by the *Rutgers Alcohol Problem Index*.
8. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the frequency with which they think the typical college student of their gender drinks.
9. Students who receive e-mailed personalized feedback modeled after BASICS will report at the 6-week follow-up a significant reduction in the quantity of

alcohol they believe the typical college student of their gender drinks per drinking occasion.

Sample

Students enrolled in a University course entitled “Introduction to Psychology” were invited to volunteer for participation in this study. To qualify for participation, students had to be classified as an undergraduate student, enrolled in the aforementioned course, and willing to participate in research that looked at the impact of e-mailed BASICS feedback on alcohol use. It was expected that the demographic makeup of the sample would be consistent with the demographic makeup of the University’s undergraduate student population.

Procedure

Upon getting approval to conduct this project from the University Institutional Review Board (IRB), the researcher approached instructors of “Introduction to Psychology” classes, explained the study, and asked if they would be willing to allow students to receive 2 hours of extra-credit for participating in this project (see Appendix A). They were informed that students in their class who gave consent would either be assigned to an experimental group that would receive e-mailed feedback modeled after BASICS (see Appendix B) or a generic feedback control condition where students would receive a general sheet about college student alcohol use (see Appendix C). Parental consent was required by students 18 years of age or younger. Two instructors were asked for permission to attend their classes early in the fall semester to inform students about

the study and to distribute consent documents (see Appendix D and Appendix E) and questionnaire packets. Questionnaire packets included questionnaire instructions (see Appendix F), the General Information Questionnaire (see Appendix G), the Alcohol Use Disorders Identification Test (see Appendix H), the Rutgers Alcohol Problem Index (see Appendix I), the Alcohol Use Survey (see Appendix J), the Daily Drinking Questionnaire (see Appendix K), the Retrospective Drinking Diary (see Appendix L), the Money Allocation Survey (see Appendix M), and the Activity Log (see Appendix N). The principle investigator (PI) attended three separate "Introduction to Psychology" sections on August 31, 2006, to distribute consent documents and questionnaire packets and indicated that the packets would need to be returned by September 15, 2006, to a locked drop-box located in the mailroom of the Psychology department. A script describing the study was read (see Appendix O).

After picking up the completed questionnaires from the drop-box, the researcher removed the consent document and identifying information from the questionnaire packet and replaced it with a code. A master code list was generated, stored in a secure location, and access to this information was restricted to only the PI and faculty sponsor. The PI then randomly assigned students to receive either e-mailed personalized feedback or generic feedback. Personalized BASICS feedback was generated by either the PI or a trained research assistant, and was then e-mailed to participants as an attachment by the PI no more than 14 days after receiving the completed questionnaire packets. Participants assigned to receive generic feedback were e-mailed generic information as an attachment consistent with the way personalized feedback was sent. Towards the end of the semester, on November 3, 2007, subjects in both conditions were asked to complete the same

assessment battery as they completed at the beginning of the study. This packet was also delivered to students in class by the PI. Students were asked to deliver their completed assessment battery to the locked drop-box located in Psychology department mailroom by November 17, 2006. At the end of the study, all students who completed both assessments received two hours worth of extra credit from the instructor of their course. Students who only completed the baseline assessment received one hour of extra credit.

Measures

General Information Questionnaire

The general information questionnaire, developed by the PI for the study, consists of seven questions regarding one's gender, age, number of years in school, Greek membership, ethnic membership, and place of residence.

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT (Babor & Grant, 1989) is a 10-item questionnaire that is widely used to assess problematic drinking behavior in individuals. Of the 10 questions on the test, three pertain to frequency of drinking (how much, how often, and binge-episodes), four are related to alcohol dependence (unable to stop, failed responsibilities, eye-opener, guilt), and three are focused on alcohol-related consequences (memory loss, injury to others, advised to cut down). In assessing the psychometric properties of the AUDIT with a sample of 989 college students, Fleming, Barry, and McDonald (1991) found a high reliability ($r = 0.84$) and moderate predictive validity ($r = 0.71$). Additionally, O'Hare and Sherrer (1999) researched the reliability of the AUDIT with 312 college students who

had been caught breaking university alcohol policies and found alpha coefficients of 0.78 for consumption, 0.84 for drinking problems and 0.94 for the entire scale.

Rutgers Alcohol Problem Index (RAPI)

The RAPI (White & Labouvie, 1989), a 23-item test that assesses alcohol-related problems, was specifically formulated to be used with adolescents and young adults ages 12-21. The RAPI is a Likert-type scale where participants indicate how many times in the past 28 days they have experienced one of the alcohol related consequences (0 = 0 times, 1 = 1-2 times, 2 = 3-5 times, 3 = 6-10 times, 4 = more than 10 times). Items include statements such as "Passed out or fainted suddenly," "Had a bad time," and "Tried to cut down or quit drinking." The RAPI has been used extensively in the college student drinking literature (Borsari & Carey, 2000; Collins et al., 2002; Larimer et al., 2001; Marlatt et al., 1998,) and has been shown to discriminate between clinical and normal samples of adolescent drinkers (White & Labouvie, 1989). Reliability coefficients of .8 or higher have been found in both clinical and non-clinical samples, and the RAPI has been found to have good convergent validity with other measures of consequences of alcohol use (White & Labouvie, 1989).

Alcohol Use Survey

The alcohol use survey is a 9-item self-report questionnaire, designed to assesses individuals' past-month utilization of alcohol, how many times one has been lightheaded and drunk in the past month, the number of binge drinking episodes the person has engaged in, as well as normative beliefs about college student alcohol and drug use. The questions included on the alcohol use survey are questions that are frequently reported in the literature on alcohol use and are considered psychometrically sound.

Daily Drinking Questionnaire (DDQ)

The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985) was used to assess the student's typical number of drinks consumed per week, and the average number of hours spent consuming alcohol on those days. In its original form, the DDQ consisted of seven boxes, representing the seven different days of the week. Respondents were asked to indicate the typical number of drinks they consumed on that day over the period of the previous month. Some researchers who have used the DDQ included an additional seven boxes in which respondents were to indicate the typical number of hours they spend consuming alcohol on the different days. The DDQ has been used in numerous studies of college student alcohol use (e.g., Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990; Marlatt et al., 1998; Murphy, McDevitt-Murphy, & Barnett, 2005) and, based on the work of Kivlahan and colleagues (1990), is thought to be a reliable measure that is highly correlated with self-monitored drinking reports. Miller et al. (1998) found 1-week test-retest correlations of ($r = 0.93$) for the DDQ estimate of drinks per week.

Retrospective Drinking Diary (RDD)

The retrospective drinking diary is a self-report method of measuring students drinking over the previous seven days. Participants are asked to indicate both the number of drinks they had along with the number of hours they spent consuming those drinks on a seven day grid labeled Monday thru Sunday. The RDD is very similar to the DDQ in format.

Money Allocation Survey

The money allocation survey is a self-report measure used to assess the amount of money an individual spends on alcohol in a typical night. Similar to both the DDQ and the RDD in format, the money allocation survey asks participants to report the average amount of money spent on alcohol on a typical night. If an individual spends, on average, ten dollars on alcohol on a typical Friday night, then they would write ten dollars in the blank labeled Friday. The MAS also includes an item for students to indicate the greatest amount of money they had spent on alcohol in the past year.

Activity Log

The activity log is an 11-item self-report measure used to gather information about how much time an individual had spent participating in various activities in the past seven days. Individuals are asked to report the number of hours they spent doing the following activities: (1) attending class, (2) doing homework/studying, (3) extracurricular activities, (4) paid employment, (5) exercise or sports, (6) family time, (7) religious activity, (8) social activity without alcohol, (9) time with significant other/dating, (10) time spent in leisure activities or hobbies, (11) time spent drinking. In order to facilitate the individual's ability to accurately report the amount of time they spent in the different activities a seven-day chart is provided as a means to map their previous week.

IV. RESULTS

Statistical Analysis

Descriptive statistics were employed to characterize the sample in terms of demographics and dependent variables. T-tests and chi-square analysis were conducted to confirm that the two groups (personalized and generic feedback) were similar at baseline after randomization. For each hypothesis tested, a repeated measure ANOVA was conducted to detect main effects over time and interaction effects on all the dependent variables due to group assignment. In each case it was expected that those who received e-mailed feedback would score lower relative to those in the generic feedback condition.

Findings

This project set out to assess the efficacy of personalized feedback in reducing college student's alcohol use, alcohol-related problems, and perceptions of normative drinking patterns when delivered via e-mail as compared to generic information about alcohol use delivered similarly. In order to achieve this aim, three sections of "Introduction to Psychology" were visited, and approximately 600 students were offered 2 hours of extra-credit for participating in a project looking at college student alcohol use. Three-hundred and twenty-two students (322) responded to the invitation by completing questionnaire packets that contained measures aimed at assessing their alcohol

consumption behavior. One hundred ninety-one (191) students completed follow-up measures and comprised the sample of the current project.

The sample used in the current study was largely female (76%), Caucasian (82.2%) and comprised of persons not affiliated with Greek organizations (62.8%). The mean age of the participants was 18.70 years of age. See Table 1 for a complete summary of the demographic information of the sample.

Table 1

Demographics of Study Sample

Ethnicity	
Caucasian	82.20%
African American	8.90%
Bi-racial	6.28%
Asian	2.62%
Gender	
Female	76.0%
Male	24.0%
Residence	
Off-campus	56.5%
With Parents	2.6%
Dorm	30.4%

(table continues)

Table 1 (continued)

Greek	6.8%
Other	3.7%
Greek	
Member	37.2%
Non-Member	62.8%

Preliminary analysis revealed that the two groups did not differ in terms of gender [χ^2 (2, N = 191) = .912, p = .340], ethnicity [χ^2 (2, N = 191) = .104, p = .747], or Greek affiliation [χ^2 (2, N = 191) = .027, p = .870] at baseline. The groups were also similar in terms of age [F (2,191) = .056, p = .813] and education [*F* (2,190) = 175, p = .676]. Furthermore, there were no significant differences between the groups on any of the alcohol-related outcome variables. Subject's baseline and follow-up scores on all of the outcome measures used in the study are presented in Table 2.

Table 2

Means (Standard Deviations) for Alcohol-Related Behavior (N = 191) at Baseline and Follow-up

	Generic		Personalized	
	Baseline	Follow-up	Baseline	Follow-up
Self-Reported Alcohol Use	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
# of Days **Alcohol Consumed** in Past 30 Days	4.36 (5.01)	4.47(4.65)	4.56 (5.83)	4.00 (5.06)
Typical # of Drinks Consumed per Week	6.39 (7.48)	7.15 (8.83)	8.58 (11.68)	6.67 (9.86) [b]
# of Days **Felt High** From Alcohol Use in Past 30 Days	2.55 (3.40)	3.07 (3.99)	2.95 (4.68)	2.60 (3.58) [c]
# of Days **Felt Drunk** From Alcohol Use in Past 30 Days	2.04 (3.34)	2.24 (3.51)	2.54 (3.88)	2.00 (3.22) [b]
# of **Binges** in Past 30 Days	2.52 (3.99)	2.56 (3.91)	2.93 (4.73)	2.47 (3.91)
Audit Score	6.19 (6.12)	6.53 (6.05)	6.37 (6.16)	5.84 (5.24) [c]
Alcohol-Related [d] Consequences	3.18 (4.95)	3.34 (5.52)	3.51 (5.65)	2.58 (3.72) [c]
Perceived Peer Alcohol Use				
Frequency (Days/Week) [a]	3.43 (0.70)	3.36 (0.74)	3.40 (0.72)	3.02 (0.69) [b]
Quantity (Drinks/Occasion) [a]	2.89 (0.98)	2.84 (0.95)	2.81 (1.04)	2.50 (0.88) [b]

Note: a Significant main effect of time for participants in both groups from baseline to follow-up. All *p*s <.05

b Significant group by time interaction in the personalized group from baseline to follow-up. $p < .05$

c Non-significant group by time interaction in the personalized group from baseline to follow-up.

d Non-significant main effect of time in both groups from baseline to follow-up.

Alcohol Use and Alcohol-Related Problems

Repeated-measures analyses were performed on the entire sample to ascertain whether or not student's alcohol-related behavior changed from baseline to follow-up, and to determine if changes varied as a function of group assignment. Table 2 summarizes all main effects and interaction effects observed in the study. Main effects were first examined to determine whether participants reported significant decreases in alcohol use from baseline to follow-up. No main effects were found on either groups' past 30 days alcohol use, typical number of drinks consumed per week, reported number of days feeling high or lightheaded from alcohol use in the past 30 days, number of days reported feeling drunk from alcohol consumption in the past 30 days, or AUDIT scores. There was a non-significant main effect in the hypothesized direction in the number of alcohol-related consequences that participants reported experiencing [$F (1, 188) = 3.163$, $p = .077$], such that there was a trend toward a significant decrease in the number of alcohol-related consequences participants' reported experiencing from baseline ($M = 3.36$, $SD = 5.32$) to follow-up ($M = 2.85$, $SD = 4.50$).

In addition to examining main effects, interaction terms were examined to determine if participants differentially reported changes in alcohol use and associated problems as a function of their group assignment. No interaction effects were observed in either group for past 30-day alcohol use or binge frequency in the past 30 days. Non-significant interaction effects were observed for the number of days participants reported feeling high or lightheaded in the past 30 days from alcohol use [$F (1, 188) = 3.323$, $p = 0.070$], their AUDIT scores [$F (1, 184) = 2.934$, $p = 0.088$], and the number of alcohol-related problems participant's experienced in the past 28 days [$F (1, 188) = 2.872$, $p =$

0.092]. For all three variables, participants in the personalized group reported lower scores from baseline to follow-up, whereas participants in the generic group reported higher scores from baseline to follow-up. Significant interaction effects were found for the typical number of drinks consumed per week [F (1, 188) = 12.698, p = 0.00] and the number of days students reported feeling drunk in the past 30 days [F (1, 188) = 5.400, p = 0.021]. Students who received personalized feedback reported reductions in the typical number of drinks consumed per week at follow-up (M = 6.67, SD = 9.86) relative to baseline (M = 8.58, SD = 11.68), and reported fewer days drunk in the past 30 days at follow-up (M = 2.00, SD =3.22) compared to baseline (M = 2.54, SD = 3.88). Students who received generic feedback reported increases in both the typical number of drinks consumed per week (baseline M = 6.39, SD = 7.48; follow-up M = 7.15; SD = 8.83) and days drunk in the past 30 days (baseline M = 2.04, SD = 3.34; follow-up M = 2.24; SD = 3.51).

Students' Perceptions of Normative Drinking

Repeated measures were also used to examine participants' perceptions of the alcohol use of other students. There was a significant main effect of time on both groups' ratings of perceived peer frequency of alcohol use [F (1, 189) = 14.697, p = 0.00], meaning that participants in both groups reported lower perceived frequency at follow-up (M = 3.18, SD = 0.73), relative to baseline (M = 3.41, SD = 0.71).

There was also a significant main effect of time on participants' ratings of perceived quantity consumed [F (1, 189) = 6.838, p = 0.010], where participants in both groups reported lower perceived quantity at follow-up (M = 2.66, SD = 0.93) relative to baseline (M = 2.85, SD = 1.01). Significant interaction effects were also observed for

both perceived frequency [F (1, 189) = 6.351, p = 0.013] and perceived quantity [F (1, 189) = 3.887, p = 0.050]. In both cases, participants in the personalized feedback group reported more substantial decreases than participants in the generic feedback group. Means and standard deviations are in Table 2.

V. SUMMARY AND CONCLUSIONS

Overview

For some college students, the college years mark a time when heavy alcohol use seems normative. It is well documented in the scholarly literature that binge drinking rates and alcohol-related consequences are high for people in their college years (Wechsler, Lee, Hall, et al., 2002; Wechsler, Lee, Kuo, et al., 2000). Research from the CAS (College Alcohol Survey) indicates that approximately 42.7% of college students were binge drinkers in 1997 (Wechsler & Dowdall, 1998). The harmful consequences associated with this kind of behavior are pervasive. Many students will acknowledge that their alcohol use has caused memory loss, led them to do something they later regretted, and led to interpersonal conflicts in their lives. Not surprisingly, research by Murphy Murphy-McDevitt, and Barnett (2005) indicates that many students find drinking enjoyable. Up to a point, alcohol consumption appears to have positive effects for college students. For example, many students find that alcohol serves to enhance the positive aspects of the activities in which they participate. However, and not surprisingly, there is a point at which additional alcohol produces adverse effects.

Given that some college students have a less than desirable relationship with alcohol and that many of these students do not need inpatient, abstinence-based treatment (i.e. 12-step treatment), efforts to intervene with these students in a way that best suits

their unique situation is necessary. BASICS is one intervention that has garnered significant support in the literature (Baer et al., 1992; Borsari & Carey, 2000; Murphy et al., 2001). Research supports the efficacy of BASICS feedback delivered via a motivational interview (Baer et al., 1992; Borsari & Carey, 2000; Murphy et al., 2001) and via the postal service (Agostenelli et al., 1995; Collins et al., 2002; Walters, 2000; Walters, Bennett, & Miller, 2000) in terms of reducing the amount of alcohol students consume. Students who receive BASICS via motivational interview seem to be more likely to experience a reduction in the number of alcohol-related consequences than if they receive BASCIS feedback in another form. Delivering BASICS to students in groups has yet to provide fruitful results (Walters, 2000; Walters, Bennett & Miller, 2000). Research utilizing computers as a means to deliver personalized feedback and testing its efficacy has also been conducted (Kypri et al., 2004; Neighbors et al., 2004, Walters et al., 2005). Such projects have involved students sitting in front of a computer, such as during a routine medical examination; to review feedback about one's drinking behavior. To date, however, there has been no scholarly inquiry into the efficacy of BASICS when delivered to students via e-mail.

Arguably, few college students (with the exception of persons with disabilities that may hinder them from being able to use a computer) could matriculate through college without using a computer. Furthermore, having an e-mail account is almost essential to college matriculation. Auburn University, for example, stipulates that e-mail is an official form of communication, requiring students to be responsible for information communicated via e-mail. This, coupled with college students' avid use of the Internet for not only academic reasons, but also as a means for personal communication and

information acquisition, begs the question of how to utilize this medium as a mechanism for therapeutic change. Testing the efficacy of BASICS when delivered by e-mail was one step toward this end. Therefore, the current project tested the impact of e-mailed personalized BASICS feedback on college students' drinking behavior compared to e-mailed generic feedback over a 6-week follow-up. The results of the project are summarized below.

Alcohol Use and Alcohol-Related Problems

No differences were observed in the number of days (Hypothesis #1) that students reported drinking between those that received personalized and generic feedback. On average, students in the sample reported drinking about 4.5 days in the past 30 days both prior to and after the generic and personalized feedback were delivered. Thus it is clear, at least with the sample under investigation, that the information delivered to students did not result in fewer drinking occasions. This stands in contrast to what one may see if the intervention employed were abstinence-based.

Of importance and as expected were the significant differences in the number of drinks consumed in a given week reported by those who received personalized feedback compared to those who received generic feedback (Hypothesis #2). Those who received personalized feedback demonstrated a significant reduction in the number of drinks reported ($M = 8.58$, $SD = 11.68$) to ($M = 6.67$, $SD = 9.86$), while students who received generic feedback actually reported an increase in the typical number of drinks they consumed in a week from ($M = 6.39$, $SD = 7.48$) to ($M = 7.15$, $SD = 8.83$). This is interesting because it highlights that although students who received personalized

feedback drank as frequently as they were before the intervention, they drank less during those occasions. In light of the increase observed in the generic feedback group, one could argue that the personalized feedback served to moderate an increase in alcohol consumption that may have occurred had the personalized group not received the personalized information. The finding that students in the personalized group demonstrated reductions in the typical number of drinks consumed is consistent with the research on mailed personalized feedback (Agostenelli et al., 1995; Walters, 2000; Walters, Bennett, & Miller, 2000). Agostenelli and colleagues (1995) found that heavy drinkers who had initially reported consuming 16.4 DPW, reported consuming 8.5 DPW 6 weeks after receiving mailed personalized feedback. Given that the current project did not survey only heavy drinkers, the reductions found in the current project, although not as striking (almost a 50% decrease in the number of drinks consumed per week), highlight the effectiveness of the current intervention. Furthermore, the findings of the current project reflect Walter's (2000) findings of mailed feedback with students in New Mexico. He found a 6.6 DPW reduction in the student's included in his sample, all of whom were considered heavy drinkers. The follow-up time in Walter's (2000) project is comparable to the follow-up employed in the current project. This finding is also consistent with the research on feedback delivered via motivational interview, as students given feedback in this way report often report reductions in the number of drinks they consume in a given week.

Additionally, students who received personalized feedback reported feeling drunk on fewer occasions in the past month than those who received the generic feedback (Hypothesis #4). One could argue that this finding substantiates the previous finding

regarding the number of drinks consumed in a given week. It makes sense that if students report drinking fewer drinks in a given week upon receiving the personalized feedback that they might also report fewer occasions of being drunk. Research and common sense substantiate that a person is not likely to experience the effects of a substance if it is not in his or her system. It seems probable that this is what is occurring in the sample. Students appear to be drinking at the same frequency, but not at the same quantity levels. The e-mailed personalized feedback seems to help students moderate the amount of alcohol they are putting in their system. This is important as the likelihood of a person experiencing a negative consequence associated with drinking is likely to increase the more they consume. This is especially true as it relates to passing out, feeling sick, or having a hangover after drinking. It is expected that fewer occurrences of being drunk might, in the long run, result in fewer negatives outcomes associated with one's use of alcohol.

Also noteworthy is that a less robust finding, but nonetheless an apparent trend, indicated that students who received personalized feedback experienced reported feeling light-headed from consuming alcohol over the course of a month fewer times than those who received the generic feedback (Hypothesis #3). This appears to be further support for the reduction in the typical number of drinks consumed.

Interestingly, and somewhat contradictory to the above finding is that no significant differences were observed in the number of binge drinking episodes reported between groups (Hypothesis #5). Thus, while students who received personalized feedback drank fewer drinks per week and reported fewer episodes of being drunk in the prior month, they did not experience fewer binge drinking episodes. Previous research

employing brief interventions via a motivational interview have found that an intervention delivered this way can reduce the number of binge drinking episodes a person experiences (Borsari & Carey, 2000). This has also been the case with mailed feedback at 6-week follow-ups, although such effects were not present at six months (Collins et al., 2002). The present sample did not report such changes despite reporting being drunk on fewer occasions. It is possible that students met the criteria for a binge drinking episode (the 4/5 measure for women or men), but did not subjectively experience this as being drunk. Given that there was not a monthly drinking log used in the current study, it is not clear if students in the personalized condition had less severe binges as a result of getting personalized feedback. Without a measure of daily consumption no statements about the severity of the binges can be made. Such a measure may have been able to shed light on whether students binge drank but at lower levels (e.g., a female binging by drinking 4 drinks, opposed to 6).

The RAPI was used to assess differences in the number of alcohol-related problems that students experienced. Although non-significant, the data suggests that students who received personalized feedback experienced fewer alcohol-related problems (Hypothesis #7). There was an observed mean increase in the number of alcohol-related consequences experienced by those in the generic feedback group from baseline to follow-up ($M = 3.18$, $SD = 4.95$ to $M = 3.34$, $SD = 5.52$), while participants in the personalized group demonstrated a mean reduction upon receiving the feedback ($M = 3.51$, $SD = 5.65$ to $M = 2.58$, $SD = 3.72$. Collins and colleagues (2002), who did not include information about alcohol-related consequences in their project, suggested incorporating alcohol-related consequences in mailed feedback. The present study's data

suggests that incorporation of this component of personalized feedback is worthwhile, particularly as students who received generic feedback demonstrated an increase in the number of alcohol-related consequences they experienced. Worth noting is that the generic feedback students received included statistics about harmful consequences associated with alcohol use. It did not, however, include the percentile ranks and normative information that the personalized feedback contains. Making it "personal" seems to be critical.

On a more general alcohol-problem index, the AUDIT, a similar non-significant reduction was observed for students who received e-mailed personalized feedback (Hypothesis #6). Consistent with the RAPI above, students who received the generic feedback scored higher at follow-up than at baseline, while those who received personalized feedback demonstrated a reduction. This offers modest additional support for the personalized feedback. Furthermore, given that the AUDIT is rather insensitive to short-term behavior changes, this difference is even more noteworthy. Five of the AUDITS' 10 items inquire about drinking behavior over the past year and would not change in light of short-term behavior change.

Students' Perceptions of Normative Drinking

One goal of social norms campaigns is to educate people about normative behavior and in turn to alter their perceptions about what is "normal." By doing so, it is expected that people will alter their behavior to be consistent with the behavioral norm. Obviously, such an approach will not be fruitful for all persons. Nonetheless, research supports that personalized normative information can serve to increase student's intention

to reduce alcohol use (Neal & Carey, 2004). Researchers have speculated that such information might be the most potent component of brief feedback interventions.

A significant interaction effect was found in the present study between group assignment and both perception measures (perceived frequency of alcohol use and perceived quantity of alcohol consumed per occasion). Thus, students who received personalized feedback reported fewer drinks consumed per drinking occasion by the typical student (Hypothesis #9), in addition to reporting that the typical student drinks on fewer occasions (Hypothesis #8). This is important as normative attitudes about drinking can serve to impact one's personal choices about how much to drink, and at what point they would be operating outside the boundaries of what would be considered normal. Furthermore, from a transtheoretical model of change perspective, highlighting normative behavior could serve to increase one's motivation for change from a pre-contemplative to contemplative state (Prochaska, DiClemente, & Norcross, 1992). Noteworthy is that the generic feedback students received did not include any information about normative drinking levels among college students, while the personalized feedback contained normative drinking frequency and quantity specific to the gender of the participant in the study.

Implications of the Findings

Several implications can be drawn from the outcomes of this research. First and foremost, this research substantiates a need for further investigations of e-mailing BASICS feedback to students. Present findings coupled with research employing the Internet for psychological intervention for other issues and diagnoses (Meyer, 2007, for

example), suggest that researching the efficacy of “Internet interventions” is not only worthwhile, but necessary. Many people, some of whom may be reluctant to speak with a mental health professional, can easily access email and the Internet. If electronic mediums can provide non-confrontational, relatively anonymous services that are effective to these people, efforts to provide such services need to be made. One could argue that college students, like many people, may not be willing to discuss directly in person their mental health concerns with a professional. Information delivered to students via e-mail, can be designed to reach these people who would rather not be seen in person, and yet are in need of behavior change.

Additionally, given the ease with which e-mailed feedback is developed and distributed, such feedback could be administered to a large number of students. The findings of this study build upon prior research regarding mailing feedback (Agostinelli et el., 1995; Collins et al., 2002; Walters, 2000) and suggest that the costs associated with traditional mail when employing such interventions can be avoided. Printing, sorting, and mailing costs are all avoided when feedback is delivered via e-mail. Alcohol program administrators can leverage this intervention when looking to reach a large number of students inexpensively. Weitzman et al. (2004), for example, have championed the concept of multiple levels of alcohol intervention in the “A Matter of Degree” program, whereby university and community stakeholders work together to reduce problematic alcohol use among college students. E-mailing students personalized feedback could be one component of this sort of larger alcohol prevention initiative.

Finally, given the short-term performance of this intervention and ease with which it could be developed, incorporation of e-mailed feedback into a larger alcohol prevention

effort at times of the year when heavy drinking is particularly prevalent could be done with relative ease. Times when this could be done include Spring Break, football rivalry weekends, and the week immediately following mid-term exams. Exposing students to personalized information about their alcohol use at these "vulnerable times" may serve to deter heavy alcohol use.

Limitations

The current study had several limitations. First, this study did not include a no-treatment control condition. Subjects in the generic feedback condition were exposed to general information about problematic alcohol use on college campuses, which may have impacted their drinking behavior. Second, all data was based on self-report, which may have influenced participants in terms of expectancy effects or demand characteristics. However, self-report is considered normative in college student alcohol use research. Investigations have revealed that contrary to what one may believe, college students typically respond honestly about their alcohol use behavior. In the current project, students were reminded that all information would be kept confidential and that only the principal investigator would have access to students' identifying information, to ensure accurate responding. A third limitation is the absence of collateral verification. Some researchers have queried friends of participants to ensure accurate responses to questionnaires. Limited resources in the current project negated such a rigorous methodology. Fourth, students were offered extra credit for participating, which could call into question the external validity of the findings. Finally, the short follow-up (6-week) employed in the current project prohibited the analysis of any more immediate (i.e.

4-week) changes in participants' behavior, as well as the impact of the intervention at longer follow-ups (i.e. 6-month or 9-month).

Recommendations

Future research in the area of e-mailing BASICS feedback may benefit from several methodological considerations. First, future investigations may benefit from only recruiting participants considered to be medium or heavy drinkers, or recruiting a larger sample in general, so as to increase the likelihood of having a greater number of heavy drinkers included in the sample. This would allow one to examine the efficacy of e-mailed personalized feedback to those individuals who may be most in need of alcohol interventions. The current investigation included heavy drinkers but not enough to do meaningful analysis of their data.

Future investigations would also likely benefit from the inclusion of an acceptability measure. This would allow investigators to analyze the extent to which participants enjoy or find the intervention helpful. It is expected that students would like how e-mail allows them to remain relatively anonymous and requires minimal effort on their part.

Including a readiness to change questionnaire in future investigations is also recommended. Being able to determine if changes in drinking behavior following the receipt of e-mailed personalized feedback vary as a function of one's readiness to change is important. It may be that those individuals who are more eager to change their behavior are more responsive to e-mailed information. It could also be the case that an e-mail does little for someone who has little interest in changing their drinking patterns. A

motivational interview may be better for individuals with little motivation to change. Future research can shed light on the role of motivation to change as it relates to e-mailed alcohol interventions.

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APPENDICES

APPENDIX A

PROFESSOR CONTACT SCRIPT

Professor Contact Script

Hi Professor,

My name is Zach Bryant and I am a graduate student in the Department of Counselor Education, Counseling Psychology, and School Psychology. I am interested in college student drinking and more specifically different ways to address college student drinking, one being e-mailing students personalized feedback about their alcohol use. I am approaching you because I would like for you to provide students with the opportunity to receive extra credit for participating in a research project designed to assess the effectiveness of providing students with such feedback. I ask that the extra credit you give be consistent with the amount of extra credit normally given to students for participating in research projects that take one hour of their time. Students who participate will be asked to complete a series of questionnaires regarding their use of alcohol at two points during the semester, early during the fall semester and again 6-weeks later. Students who participate will be randomly assigned to receive either personalized feedback about their use of alcohol, or generic feedback about alcohol use one week after completing the first questionnaire packet. I will deliver the questionnaire packets and informed consent forms to students at the end of one of your regularly scheduled classes and ask that those who choose to participate deliver the completed forms and questionnaires to a locked drop-box that will be located in Thach 213a. I will read the following script to students when I visit students early in the Fall 2006 semester. (Show professor the script). Do you have any questions?

(Answer any questions the professor may have.) With all of that in mind, would you be willing to let me come to your class and tell your students about the project and to provide students extra-credit for participating in the project?

APPENDIX B

PERSONALIZED FEEDBACK E-MAIL AND ATTACHMENTS

E-mail

Dear Student,

Attached to this e-mail you will find personalized feedback about your alcohol use. Please review the attachment at a time that is most convenient for you. Please feel free to respond to this e-mail if you have any questions.

IF YOU FEEL DISTRESSED IN ANY WAY PLEASE DO NOT HESITATE TO CALL ANY OF THE FOLLOWING SERVICES PROVIDERS.

The following is a referral list of mental health service providers in Auburn/Opelika in the event that you feel distressed.

The format of the list provides you with the name of the agency—the services they offer—how to contact them—and their cost.

Crisis Center—Phone Counseling—334-821-8600—No charge

Student Counseling Services at Auburn University—Individual and Group Therapy—334-844-5123—No charge

Auburn University Psychological Services Center—Marriage, Family, and Individual Therapy—334-844-4889--$24-55 based on income

Clinical Psychologists—Individual and Group Therapy—334-821-3350--$130, initial appointment and $120, other appointment

East Alabama Mental Health Center—Individual and Group Therapy—334-742-2700 or 334-742-2877 (after hours)--$8-80 based on income

Safe Harbor at Auburn University—Counseling for victims and friends of victims of rape and dating violence—334-844-5123—No Charge

Female Attachment

PERSONALIZED FEEDBACK SAMPLE (FEMALE)
Personal Feedback for XXX

The information provided below is intended to help you evaluate your drinking behavior and whether or not you wish to change it. The information is based on your responses to the survey you completed.

Your Beliefs About Drinking

HOW MUCH DO COLLEGE STUDENTS DRINK?

In the questionnaire you completed, you estimated that the average college female drank **xx** times a week and during each occasion, she consumed **xx** drinks. That's a total of about **xx** drinks per week. Several recent studies of Auburn undergraduates enrolled in university core and psychology courses found that the average female undergraduate actually drinks two times each week and consumes about 2-3 drinks on each occasion, that's a total of only 6 drinks per week. Many college students tend to overestimate what other students actually drink. Although in certain settings such as bars or fraternity parties it may seem like everyone is drinking a large amount, many students are drinking much less than you might imagine.

	Frequency	Quantity	Drinks Per Week
Your estimated norm	**Xx times a week**	**xx** drinks	**about xx**
Actual student norm	2 times a week	2-3 drinks	about 6

Your Drinking Pattern

HOW YOUR DRINKING COMPARES TO OTHER COLLEGE STUDENTS.

According to your responses to the questionnaire, you drink **xx** days a week, and consume about **xx** *standard drinks* (12 oz. beer, 5 oz. wine, 1 oz. liquor) a week. In comparison to other Auburn University students, your percentile rank is **xx.** This means that you currently drink more than **xx%** of female college students. In other words, only **xx%** of college females drink more than you. When compared *only* to female students who report recent alcohol use, your percentile rank is **xx.** Many students are surprised to learn that most other students drink less that they do. This may be because heavier drinkers tend to hang out in the same social groups, which creates the false impression that all students drink heavily.

Risk Factors for Alcohol Problems

BINGE DRINKING IS?

Binge drinking means consuming **5 or more drinks** in an evening for a man, or **4 or more drinks** in an evening for a woman. Numerous studies have shown that most of the negative effects of drinking (e.g., accidents, sexual assaults, blackouts, fights, hangovers, etc.) occur on binge drinking nights. Binge drinking can also lead to increased tolerance to alcohol, which is often an early sign of serious alcohol problems or alcohol dependence.

You reported xx binge drinking nights in the past month. Frequent binge drinking increases the risk for alcohol problems.

Blood Alcohol Content

Factors that influence blood alcohol content BAC:
(1) alcohol quantity- the more you drink the higher your BAC
(2) speed of drinking - if you space drinks out your BAC will not be as high as if you drink quickly.
(3) gender- females process alcohol more slowly than males, and will thus have a higher BAC (and feel more impaired) than males.
(4) weight -lighter individuals will have higher BACs than heavier individuals
(5) food- drinking on an empty stomach will increase BAC

Effects of various blood alcohol contents:

- **.02-.06** is associated with pleasant mood and relaxation (i.e., the positive effects of alcohol).
- **.08 and above** defines legal intoxication for those over 21 (for those under 21 any amount of alcohol in your system can result in a DUI arrest) and is associated with slurred speech, delayed reactions, and poor judgment.
- **.15 and above** is associated with blackouts, accidents, poor balance, nausea, and bad hangovers.
- **.30 and above** is associated with slowed heart rate, and possibly coma and death.

We computed your BAC from the information you provided on the questionnaire. For purposes of analysis, we assumed that the alcohol you reported consuming was beer. Your peak BAC on a night when you consume **XX** drinks over a period of **XX** hours is **XX**. If you consumed **XX** drinks over the course of **XX** hours your peak BAC would be **XX**. Notice how minor changes in the quantity of alcohol and the time period within which the alcohol is consumed can impact your peak BAC. Keep in mind that your BAC levels may be higher if liquor is consumed or if you do not eat before consuming alcohol.

ALCOHOL-RELATED CONSEQUENCES

You reported that the following alcohol-related consequences had occurred in the past month. In comparison to the alcohol-related consequences of other Auburn University students, your percentile rank is **xx.** This means that you experience more consequences than **xx%** of Auburn college students. These negative consequences can sometimes be early signs of a more serious alcohol problem or alcohol dependence. Research shows that negative consequences are most likely to occur when binge drinking.

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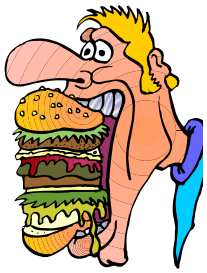
How You Spend Your Time



This is a list showing how much time you spend drinking and recovering compared to other activities. It generally takes at least one hour to recover from each drink, so we added this to the estimate of time spent drinking that you provided on the questionnaire. Although you may be asleep for much of the time you spend "recovering," alcohol prevents deep restorative sleep (that's why you feel so tired the next day!). Note how your time spent drinking compares to time spent in these other important activities. Many heavy drinking college students experience problems in life areas (e.g., academics, relationships, health/fitness) which are neglected due to time spent drinking.

Activity	Hours
Drinking	XX
School	XX
Time w/ friends	XX
Employment	XX

Calories from Alcohol

Each standard drink contains about 100 calories. These are "empty calories" since they contain few vitamins or nutrients. On nights when you consume **5 drinks**,

that adds up to **500 calories**, roughly the equivalent of **a cheeseburger and fries**. Your weekly consumption of **XX drinks** adds up to **XX calories** or **XX.**

In order to burn off the calories from **5 drinks**, you would have to walk for **105 minutes** or run for **42 minutes.** You would need to walk for **XX hours** or run for **nearly XX hours** to burn off the calories you consume from your weekly drinking.

Over the course of a year, your current drinking pattern adds up to **XX** calories or **XX** pounds of body fat.

Money Spent on Alcohol

Weekly Total = $XX
Monthly Total = $XX

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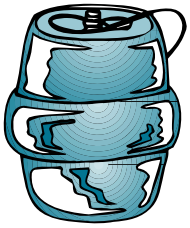
Yearly Total = $XX

Drink Smart: How to Maximize the Benefits and Minimize the Harm



Think about the good and the bad aspects of your drinking. If you are like most people, the regrettable moments (e.g., getting sick, embarrassing yourself, getting into an argument, doing something risky or regretful, passing out, etc.) have most likely occurred on nights that you drank a lot, or drank quickly.

The positive aspects of drinking, like feeling relaxed, outgoing, and happy, are most likely to occur on nights when you drink a moderate amount, spaced out over time.

Here are some tips for <u>MAXIMIZING</u> the <u>POSITIVE</u> aspects of drinking:

1) **Be sure you <u>know what you are drinking</u> — a <u>standard drink</u> is 12 oz. of beer, 5 oz. of wine, or 1 oz. of hard liquor. A mixed drink can contain up to 4 oz. of liquor — equivalent to 4 standard drinks!**

A mug of beer can be up to 20 oz. — equivalent to 2 standard drinks!

2) <u>Drink Slowly!</u> Sip your drinks, make yourself wait before getting your next drink, drink water or coke between drinks, or do whatever it takes to space out your drinking so that you will have a good time all night (and avoid passing out and feeling poorly in the morning).

3) Drink <u>light beer</u> instead of hard liquor.

4) Plan your night in advance and count your drinks — <u>decide how many drinks you can handle</u> in a night, and how long you will be out for. You may want to wait until later in the evening to start drinking, or decide to stop drinking at a certain time.

5) <u>Be safe about where you drink and who you drink with</u>. Being intoxicated makes you vulnerable, so don't drink heavily when you are around people you don't know well and trust. Be sure you always have a safe way of getting home.

6) Don't drink and drive. Not only can an arrest cost you a great deal of money, it is a felony offense that will remain on your record. (Imagine having to check 'Yes' on the arrest question!) Remember, if you are under 21, you can get arrested for driving after drinking any amount of alcohol.

7) Think about how drinking impacts other life areas, like academics, health, and relationships. How does drinking relate to your long-term life goals? How else could you spend the time you currently spend drinking and recovering? Are you satisfied with your grades?

Male Attachment

PERSONALIZED FEEDBACK SAMPLE (MALE)

Personal Feedback for XXX

The information provided below is intended to help you evaluate your drinking behavior and whether or not you wish to change it. The information is based on your responses to the survey you completed.

Your Beliefs About Drinking

HOW MUCH DO COLLEGE STUDENTS DRINK?

In the questionnaire you completed, you estimated that the average college male drank **xx** times each week and during each occasion, he consumed **xx** drinks. That's a total of about **xx** drinks per week. Several recent studies of Auburn undergraduates enrolled in university core and psychology courses found that the average male undergraduate actually drinks 2-3 times each week and consumes about 4 drinks on each occasion, that's a total of only 8 drinks per week. Many college students tend to overestimate what other students actually drink. Although in certain settings such as bars or fraternity parties it may seem like everyone is drinking a large amount, many students are drinking much less than you might imagine.

	Frequency	Quantity	Drinks Per Week
Your estimated norm	**xx times a week**	**xx** drinks	**about xx**
Actual student norm	2 times a week	4 drinks	about 8

Your Drinking Pattern

HOW YOUR DRINKING COMPARES TO OTHER COLLEGE STUDENTS.

According to your responses to the questionnaire, you drink **XX** days a week, and consume about **xx** *standard drinks* (12 oz. beer, 5 oz. wine, 1 oz. liquor) a week. In comparison to other Auburn University students, your percentile rank is **xx.** This means that you currently drink more than **xx%** of male college students. In other words, only **xx%** of college males drink more than you. When compared *only* to male students who report recent alcohol use, your percentile rank is **xx**. Many students are surprised to learn that most other students drink less that they do. This may be because heavier drinkers tend to hang out in the same social groups, which creates the false impression that all students drink heavily.

Risk Factors for Alcohol Problems

BINGE DRINKING IS?

Binge drinking means consuming **5 or more drinks** in an evening for a man, or **4 or more drinks** in an evening for a woman. Numerous studies have shown that most of the negative effects of drinking (e.g., accidents, sexual assaults, blackouts, fights, hangovers, etc.) occur on binge drinking nights. Binge drinking can also lead to increased tolerance to alcohol, which is often an early sign of serious alcohol problems or alcohol dependence.

You reported xx binge drinking nights in the past month. Frequent binge drinking increases the risk for alcohol problems.

Blood Alcohol Content

Factors that influence blood alcohol content BAC:

(1) alcohol quantity — the more you drink the higher your BAC
(2) speed of drinking — if you space drinks out your BAC will not be as high as if you drink quickly.
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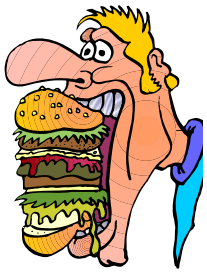
How You Spend Your Time



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School	xx
Exercise	xx
Hobbies	xx

Calories from Alcohol

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In order to burn off the calories from **5 drinks**, you would have to walk for **105 minutes** or run for **42 minutes.** You would need to walk for **xx hours** or run for **xx** to burn off the calories you consume from your weekly drinking.

Over the course of a year, your current drinking pattern adds up to **xx** calories or **xx** pounds of body fat.

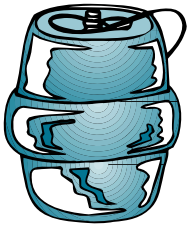
Money Spent on Alcohol

Weekly Total = $xx
Monthly total = $xx

_____

Yearly Total=$xx

Drink Smart: How to Maximize the Benefits and Minimize the Harm



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3) Drink <u>light beer</u> instead of hard liquor.

4) Plan your night in advance and count your drinks- <u>decide how many drinks you can handle</u> in a night, and how long you will be out for. You may want to wait until later in the evening to start drinking, or decide to stop drinking at a certain time.

5) <u>Be safe about where you drink and who you drink with</u>. Being intoxicated makes you vulnerable, so don't drink heavily when you are around people you don't know well and trust. Be sure you always have a safe way of getting home.

6) Don't drink and drive. Not only can an arrest cost you a great deal of money, it is a felony offense that will remain on your record. (Imagine having to check 'Yes' on the arrest question!) Remember, if you are under 21, you can get arrested for driving after drinking any amount of alcohol.

7) Think about how drinking impacts other life areas, like academics, health, and relationships. How does drinking relate to your long-term life goals? How else could you spend the time you currently spend drinking and recovering? Are you satisfied with your grades?

APPENDIX C

GENERIC FEEDBACK E-MAIL AND ATTACHMENT

Generic Feedback E-mail and Attachment

E-Mail

Dear Student,

Attached to this e-mail you will find information about college student alcohol use. Please review the attachment at a time that is most convenient for you. Please feel free to respond to this e-mail if you have any questions.

IF YOU FEEL DISTRESSED IN ANY WAY PLEASE DO NOT HESITATE TO CALL ANY OF THE FOLLOWING SERVICES PROVIDERS.

The following is a referral list of mental health service providers in Auburn/Opelika in the event that you feel distressed.

The format of the list provides you with the name of the agency—the services they offer—how to contact them—and their cost.

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Clinical Psychologists—Individual and Group Therapy—334-821-3350--$130, initial appointment and $120, other appointment

East Alabama Mental Health Center—Individual and Group Therapy—334-742-2700 or 334-742-2877 (after hours) --$8-80 based on income

Safe Harbor at Auburn University—Counseling for victims and friends of victims of rape and dating violence—334-844-5123—No Charge

Attachment - (THIS IS THE GENERIC FEEDBACK STUDENTS RECEIVED)

A Snapshot of Annual High-Risk College Drinking Consequences

Death: 1,700 college students between the ages of 18 and 24 die each year from alcohol-related unintentional injuries, including motor vehicle crashes (Hingson et al., 2005).

Injury: 599,000 students between the ages of 18 and 24 are unintentionally injured under the influence of alcohol (Hingson et al., 2005).

Assault: More than 696,000 students between the ages of 18 and 24 are assaulted by another student who has been drinking (Hingson et al., 2005).

Sexual Abuse: More than 97,000 students between the ages of 18 and 24 are victims of alcohol-related sexual assault or date rape (Hingson et al., 2005).

Unsafe Sex: 400,000 students between the ages of 18 and 24 had unprotected sex and more than 100,000 students between the ages of 18 and 24 report having been too intoxicated to know if they consented to having sex (Hingson et al., 2002).

Academic Problems: About 25 percent of college students report academic consequences of their drinking including missing class, falling behind, doing poorly on exams or papers, and receiving lower grades overall (Engs et al., 1996; Presley et al., 1996a, 1996b; Wechsler et al., 2002).

Health Problems/Suicide Attempts: More than 150,000 students develop an alcohol-related health problem (Hingson et al., 2002) and between 1.2 and 1.5 percent of students indicate that they tried to commit suicide within the past year due to drinking or drug use (Presley et al., 1998).

Drunk Driving: 2.1 million students between the ages of 18 and 24 drove under the influence of alcohol last year (Hingson et al., 2002).

Vandalism: About 11 percent of college student drinkers report that they have damaged property while under the influence of alcohol (Wechsler et al., 2002).

Property Damage: More than 25 percent of administrators from schools with relatively low drinking levels and over 50 percent from schools with high drinking levels say their campuses have a "moderate" or "major" problem with alcohol-related property damage (Wechsler et al., 1995).

Police Involvement: About 5 percent of 4-year college students are involved with the police or campus security as a result of their drinking (Wechsler et al., 2002) and an estimated 110,000 students between the ages of 18 and 24 are arrested for an alcohol-related violation such as public drunkenness or driving under the influence (Hingson et al., 2002).

Alcohol Abuse and Dependence: 31 percent of college students met criteria for a diagnosis of alcohol abuse and 6 percent for a diagnosis of alcohol dependence in the past 12 months, according to questionnaire-based self-reports about their drinking (Knight et al., 2002).

Last reviewed: 9/23/2005

Article location: http://www.collegedrinkingprevention.gov/StatsSummaries/snapshot.aspx

APPENDIX D

PARENTAL CONSENT/ASSENT FORM

The Use of a Brief Alcohol Intervention with Auburn University Students Enrolled in Introduction to Psychology Courses
PARENTAL CONSENT/ASSENT FORM

Your child has been invited to participate in a research study regarding the effects of personal feedback on alcohol use. We hope to learn more about the effects of this type of intervention on student drinking. This study is being conducted by Zach Bryant, a graduate student at Auburn University, under the supervision of Dr. Chris Correia, an Assistant Professor in the Department of Psychology, and Dr. John Dagley, Associate Professor in the Department of Counselor Education, Counseling Psychology, and School Psychology. Your child was selected as a possible participant because he/she is: 1) an Auburn University undergraduate student and (2) enrolled in the course entitled, "Introduction to Psychology." You and your child have been asked to sign this form because your child is less than 19 years of age.

If you decide to let your child participate, you will need to read and sign this informed consent form. Your child will then fill out his/her own consent form. We will then ask your child to complete some questionnaires about his/her alcohol use. This should take approximately 15 minutes. Your child will then be asked to deliver this parental consent form and his/her consent form in addition to the questionnaire packet to a locked drop box locate in Thach 213a on campus. He/she will then be assigned to one of two groups, either (1) the group that gets personal feedback about their alcohol use, or (2) the group that will get more generic information about alcohol use. The group to which your child will be assigned will be randomly determined. Participants in both groups will receive either personalized feedback or generic information attached to an e-mail from Zach Bryant approximately one week from the day he/she completes the initial assessment battery. He/she will then be asked to fill out more questionnaires about his/her alcohol use 3 months later. This too will take approximately 15 minutes. Your child will again be asked to deliver this questionnaire packet to a locked drop box locate in Thach 213a on campus.

The risks of participating in this study are minimal. Your child may find answering questions about his/her use of alcohol or getting feedback about his/her alcohol use distressing. In case he/she should become distressed, we will provide him/her with printed information on how to contact the appropriate on and off-campus resources for support. He/she will be responsible for initiating and paying for any such support. Breaches of confidentiality are highly unlikely because your child's identifying information will be separated and kept apart from the questionnaires that he/she completes. The questionnaires will be identified solely by a code number. Additionally, your child will be instructed to provide an e-mail address to which he/she is comfortable receiving information about his/her use of alcohol. Participation in this study is

completely voluntary, and you or your child have the option to withdraw consent to participate at any time. If your child decides to withdraw from the study it will have no influence on his/her grade in “Introduction to Psychology”.

Your child will be compensated for participating. He/she will receive extra-credit in the “Introduction to Psychology” course in which he/she is enrolled, the amount to be consistent with other extra-credit opportunities offered in the course.

The direct benefits to your child, the participant, are that he/she may learn more about his/her alcohol use, although we cannot promise you that he/she will directly benefit from participation.

Any information obtained in connection with this study and that can be identified with your child will remain confidential. To protect confidentiality of all participants, surveys that contain potentially sensitive information about participant’s alcohol use will be numerically coded, and this information will be stored separately from this consent form. We will maintain a master list of participant names and code numbers. The master list is necessary to help us collate data collected at the baseline session and during the follow-up session. The master code list will be kept in a locked filing cabinet separate from the data. The master code list will be destroyed after data analysis is complete. Information about this study may be published in a professional journal, used for a doctoral dissertation, and/or presented at a professional meeting. If so, only group data will be presented, and no individual participant will be identified.

We have a Confidentiality Certificate (CC) from the U.S. government that adds special protection for the research information about you. It says we do not have to identify your child, even under a court order or subpoena. Still, we may report medical information (if your child needs medical help), probable harm that your child may cause to themselves or others, or probable child abuse, and the government may see your child’s information if it audits us. This Certificate does not mean the government approves or disapproves of our project.

The Certificate can not be used to resist a demand for information from personnel of the United States government that is used for auditing or evaluation of Federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). The federal auditors can use their audit information only for audit or evaluation of the program. They can’t report anything that would harm the research subjects.

You should understand that a Certificate of Confidentiality does not prevent your child or a member of your family from voluntarily releasing information about your child or your child’s involvement in this research. Note, however, that if an insurer, employer, or other person learns about your child’s participation and obtains you and your child’s written

consent to receive research information, then the researchers may not use the CC to withhold this information.

Your decision whether or not to participate will not jeopardize your future relations with Auburn University, the present course in which you are enrolled (Introduction to Psychology), the Department of Psychology, or the Department of Counselor Education, Counseling Psychology, and School Psychology. If you have any questions, we invite you to ask them now. If you have questions later, Zach Bryant (bryanza@auburn.edu, Department of Counselor Education, Counseling Psychology, and School Psychology) or Dr. John Dagley (844-2973, daglejc@auburn.edu, Department of Counselor Education, Counseling Psychology, and School Psychology) will be happy to answer them.

For more information regarding your rights as a research participant you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu

HAVING READ THE INFORMATION PROVIDED YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH PROJECT. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Parent or Guardian's Printed Name_____ Date_____

Parent or Guardian's Signature_____

Participant's Printed Name_____ Date_____

Participant's Signature_____

Investigator's Printed Name_____ Date_____

Investigator's Signature_____

APPENDIX E

INFORMED CONSENT FORM

The Use of a Brief Alcohol Intervention with Auburn University Students Enrolled in Introduction to Psychology Courses

INFORMED CONSENT FORM

You are invited to participate in a research study regarding the effects of personal feedback on alcohol use. We hope to learn more about the effects of this type of intervention on student drinking. This study is being conducted by Zach Bryant, a graduate student at Auburn University, under the supervision of Dr. Chris Correia, an Assistant Professor in the Department of Psychology, and Dr. John Dagley, Associate Professor in the Department of Counselor Education, Counseling Psychology, and School Psychology. You were selected as a possible participant because you are: 1) an Auburn University undergraduate student and (2) enrolled in the course entitled, "Introduction to Psychology."

Finally, participants under the age of 19 will be required to get parental consent to participate in this research project.

If you decide to participate, we will ask you to complete a questionnaire packet about your alcohol use. This should take approximately 15 minutes. You will need to deliver both your signed consent form and completed questionnaire packet to the locked red drop-box located in Thach 213a. You will then be assigned to one of two groups, either (1) the group that gets personal feedback about their alcohol use, or (2) the group that will get more generic information about alcohol use. The group to which you will be assigned will be randomly determined. Participants in both groups will receive either personalized feedback or generic information attached to an e-mail from Zach Bryant approximately one week from the day you complete the initial assessment battery. You will then be asked to fill out more questionnaires about your alcohol use 3 months later. This too will take you approximately 15 minutes. Again, you will need to deliver this packet to the locked red drop-box located in Thach 213a.

The risks of participating in this study are minimal. You may find answering questions about your use of alcohol or getting feedback about your alcohol use distressing. In case you should become distressed, we will provide you with information on how to contact the appropriate on and off-campus resources for support. You will be responsible for initiating and paying for any such support. Breaches of confidentiality are highly unlikely because your identifying information will be separated and kept apart from the questionnaires that you complete. The questionnaires will be identified solely by a code number.

 _____Initials

Additionally, we ask that you provide an e-mail address to which you are comfortable receiving information about your use of alcohol. Participation in this study is completely voluntary, and you have the option to withdraw your consent to participate at any time. If you decide to withdraw from the study it will have no influence on your grade in "Introduction to Psychology."

You will be compensated for your participation. You will receive extra-credit in the "Introduction to Psychology" course in which you are enrolled, the amount to be consistent with other extra-credit opportunities offered in the course.

The direct benefits to you, the participant, are that you may learn more about your alcohol use, although we cannot promise you that you will directly benefit from participation.

Any information obtained in connection with this study and that can be identified with you will remain confidential. To protect confidentiality of all participants, surveys that contain potentially sensitive information about your alcohol use will be numerically coded, and this information will be stored separately from this consent form. We will maintain a master list of participant names and code numbers. The master list is necessary to help us collate data collected today and during the follow-up session. The master code list will be kept in a locked filing cabinet separate from the data. The master code list will be destroyed after data analysis is complete. Information about this study may be published in a professional journal, used for a doctoral dissertation, and/or presented at a professional meeting. If so, only group data will be presented, and no individual participant will be identified.

We have a Confidentiality Certificate (CC) from the U.S. government that adds special protection for the research information about you. It says we do not have to identify you, even under a court order or subpoena. Still, we may report medical information (if you need medical help), probable harm to yourself or others, or probable child abuse, and the government may see your information if it audits us. This Certificate does not mean the government approves or disapproves of our project.

The Certificate can not be used to resist a demand for information from personnel of the United States government that is used for auditing or evaluation of Federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). The federal auditors can use their audit information only for audit or evaluation of the program. They can't report anything that would harm the research subjects.

You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your own involvement in this research. Note, however, that if an insurer, employer, or other

person learns about your participation and obtains your written consent to receive research information, then the researchers may not use the CC to withhold this information.

Your decision whether or not to participate will not jeopardize your future relations with Auburn University, the present course in which you are enrolled (Introduction to Psychology), the Department of Psychology, or the Department of Counselor Education, Counseling Psychology, and School Psychology. If you have any questions, we invite you to ask them now. If you have questions later, Zach Bryant (bryanza@auburn.edu, Department of Counselor Education, Counseling Psychology, and School Psychology) or Dr. John Dagley (844-2973, daglejc@auburn.edu, Department of Counselor Education, Counseling Psychology, and School Psychology) will be happy to answer them.

For more information regarding your rights as a research participant you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu

HAVING READ THE INFORMATION PROVIDED YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH PROJECT. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's Printed Name_____ Date_____

Participant's Signature _____

Investigator's Printed Name_____ Date_____

Investigator's Signature _____

_____ Initials

APPENDIX F

QUESTIONNAIRE INSTRUCTIONS

Questionnaire Instructions

Please read the following questionnaires carefully and take your time when responding. It typically takes people approximately 15 minutes to complete the entire packet. Please indicate below your name and an e-mail address where you would like to have either (1) personalized feedback or (2) general information about alcohol use. (Failure to leave a valid e-mail will result in your not being included in the follow-up assessment.) As stated in the consent form, whether or not you get feedback will be randomly assigned.

Lastly, please place your completed consent forms and questionnaire packet in the red locked drop-box located in Thach 213a.

NAME:_____

Please provide an e-mail address where you feel comfortable receiving information about your alcohol use.

E-Mail Address: _____

APPENDIX G

GENERAL INFORMATION QUESTIONNAIRE

General Information Questionnaire

Date: _____

1. Please indicate your gender: _____ Male (1) _____ Female (2)

2. How old are you? ____ ____ years.

3. How many years of school have you completed (e.g., graduated from high school = 12 years)? ____ ____ years.

4. Are you a member of a fraternity or sorority? _____ Yes (1) _____ No (2)

5. Please check one of the following Ethnic categories:

   _____ Hispanic or Latino (1)

   _____ Not Hispanic or Latino (2)

6. Please check as many of the following Racial categories that apply to you:

   _____ American Indian or Alaska Native

   _____ Asian

   _____ Black or African American

   _____ Native Hawaiian or Other Pacific Islander

   _____ White

7. Where do you currently reside?

   ___ Off campus house or apartment (1)____ At home with parents/guardians (2)

   ___ Fraternity House (3) ____ Campus dormitory (4)

   ___ Sorority House (5) ____ Other:_____ (6)

APPENDIX H

ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

The Alcohol Use Disorders Identification Test (AUDIT)

PLEASE CIRCLE THE MOST ACCURATE SELECTION

1.) How often do you have a drink containing alcohol?

0 = Never **1** = Monthly or less **2** = 2-4 times a month
3 = 2-3 days a week **4** = 4, 5, 6, or 7 days a week

2.) How many drinks containing alcohol do you have on a typical day when you are drinking?

0 = 0, 1, or 2 drinks **1** = 3 or 4 drinks **2** = 5 or 6 drinks
3 = 7, 8, or 9 drinks **4** = 10 drinks and above

For questions 3 – 8 use these selections:

0 = Never **1** = Less than monthly **2** = Monthly
3 = Weekly **4** = Daily or almost daily

3.) For women: How often do you have *4 or more* drinks a day? **0 1 2 3 4**
For men: How often do you have *5 or more* drinks a day? **0 1 2 3 4**

4.) How often during the last year have you found that you were not able to stop drinking once you started? **0 1 2 3 4**

5.) How often during the last year have you failed to do what was normally expected from you because of drinking? **0 1 2 3 4**

6.) How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session? **0 1 2 3 4**

7.) How often during the last year have you had a feeling of guilt or remorse after drinking? **0 1 2 3 4**

8.) How often during the last year have you been unable to remember what happened the night before because you had been drinking? **0 1 2 3 4**

For questions 9 and 10 use these selections:

0 = No **2** = Yes, but not in the last year **4** = Yes, during the last year

9.) Have you or has someone else been injured as a result of your drinking?
0 2 4

10.) Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested you cut down? **0 2 4**

APPENDIX I

RUTGERS ALCOHOL PROBLEM INDEX (RAPI)

Rutgers Alcohol Problem Index (RAPI)

Date: _____

Instructions: Indicate if any of the following have happened during the last 28 days while you were using alcohol, or because of your alcohol use. When marking your answers, use the following code:

0 = never 1 = 1-2 times 2 = 3-5 times 3 = 6-10 times 4 = more than 10 times

1. Not able to do your homework or study for a test	0 1 2 3 4
2. Got into fights, acted bad or did mean things	0 1 2 3 4
3. Missed out on other things because you spent too much money on alcohol	0 1 2 3 4
4. Went to work or school drunk	0 1 2 3 4
5. Caused shame or embarrassment to someone	0 1 2 3 4
6. Neglected your responsibilities	0 1 2 3 4
7. Relative avoided you	0 1 2 3 4
8. Felt that you needed MORE alcohol than you used to use in order to get the same effect	0 1 2 3 4
9. Tried to control your drinking by trying to use only at certain times of the day or certain places	0 1 2 3 4
10. Had withdrawal symptoms, that is felt sick because you stopped or cut down drinking	0 1 2 3 4
11. Noticed a change in you personality	0 1 2 3 4
12. Felt you had a problem with alcohol	0 1 2 3 4
13. Missed a day (or part of a day) of school or work	0 1 2 3 4
14. Tried to cut down or quit drinking	0 1 2 3 4
15. Suddenly found yourself in a place you could not remember getting to	0 1 2 3 4
16. Passed out or fainted suddenly	0 1 2 3 4
17. Had a fight, argument, or bad feeling with a friend	0 1 2 3 4
18. Had a fight, argument, or bad feeling with a family member	0 1 2 3 4
19. Kept drinking when you promised yourself not to	0 1 2 3 4
20. Felt you were going crazy	0 1 2 3 4
21. Had a bad time	0 1 2 3 4
22. Felt physically or psychologically dependent on alcohol	0 1 2 3 4
23. Was told by a friend or neighbor to cut down on drinking	0 1 2 3 4

APPENDIX J

ALCOHOL USE SURVEY

Alcohol Use Survey

Date: _____

1. On how many of the past 30 days have you had some sort of beverage containing alcohol? _____

2. On how many of the past 30 days have you felt a little high or lightheaded from drinking alcohol? _____

3. On how many of the past 30 days have you felt drunk (not just a little high) from drinking alcohol? _____

4. MALES ONLY: On how many of the past 30 days have you drank 5 or more drinks? _____

4. FEMALES ONLY: On how many of the past 30 days have you drank 4 or more drinks? _____

How often do you think the typical college student (of your gender) drinks?

1. Once a month or less
2. 2-3 times a month
3. 1-2 times a week
4. 3-4 times a week
5. Nearly every day

How much do you think the typical college student (of your gender) drinks on a typical drinking night?

1. 0-2 drinks
2. 3-4 drinks
3. 5-6 drinks
4. 7-8 drinks
5. More than 8 drinks

APPENDIX K

DAILY DRINKING QUESTIONNAIRE (DDQ)

Daily Drinking Questionnaire (DDQ)

Date: _____

Daily Drinking Questionnaire

For the **past month** fill in for each calendar day the number of standard drinks you **usually drink** on that day, and the number of hours over which you consume this amount. ONE STANDARD DRINK EQUALS A 12-OZ. BEER, A MIXED DRINK OR SHOT WITH 1.5 OZ. LIQUOR, OR A 5-OZ. GLASS OF WINE.

Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
# of drinks usually consumed							
# of hours							

APPENDIX L

RETROSPECTIVE DRINKING DIARY (RRD)

Retrospective Drinking Diary (RRD)

Date:_____

Retrospective Drinking Diary

Now fill in the number of standard drinks you have had **over the past 7 days**, and the number of hours over which you consumed this amount. Start with last night and work backwards until you record the number of drinks you had on this day last week. DON'T LEAVE ANY DAYS BLANK. FILL IN THE # OF DRINKS FOR ALL 7 DAYS.

Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
# of standard drinks							
# of hours							

Please record your weight (for computing blood alcohol level) _____

APPENDIX M

MONEY ALLOCATION SURVEY

Money Allocation Survey

Date: _____

For the **past month** fill in for each calendar day the amount of money you **usually spend** on **alcohol** for that day, whether or not you actually consume all of the alcohol that day. For example, if you purchase a 12 pack of beer on Friday for $12.00 but you actually consume the beer over the course of the week, record $12 in the Friday section. Include money spent to purchase alcohol at restaurants or bars, from liquor or grocery stores, or at parties. Do not include money spent on cover charges unless that cover fee includes drinks. Do not include money spent on alcohol that others consume.

Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Amount of money usually spent							

What is the greatest amount of money you spent on alcohol in any **1 month** over the past year?

_____

APPENDIX N

ACTIVITY LOG

Activity Log

Date:_____

Activity Log- Use this chart to map out your schedule/activities over the past 7 days to help you answer the questions below.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8AM-12PM						
12PM-4PM						
4PM-8PM						
8PM-12AM						
12AM-8AM						

Estimate the total number of hours you spent in each the following activities over the past 7 days. Record your time use below. For example, if you worked 2 hours per day over the past 7 days, record 14 hours in the employment column.

1. Attending class (hours actually attended, not just what you are registered for) _____
2. Doing homework, studying, reading, going to the library, or any other school work outside of class. _____
3. Extracurricular activity (e.g., university/community organizations, Greek organizations, volunteering, etc.)_____
4. Paid Employment _____
5. Exercise or sports_____
6. Family time (e.g., talking with parents, siblings, etc., in person or over phone) _____
7. Religious activity (e.g., church services, bible study, scripture reading, etc.) _____
8. Social activity that does not involve alcohol (e.g., hanging out with friends, watching TV or movies, calling or emailing friends) _____
9. Time spent with significant other/date (including in person, on phone and email) _____
10. Time spent in leisure activities or hobbies (e.g., watching TV, Internet use, pleasure reading, etc.) _____
11. Time spent consuming alcohol _____

APPENDIX O

PARTICIPANT RECRUITMENT SCRIPT

Participant Recruitment Script

Hi,

My name is Zach Bryant and I am a graduate student in the Department of Counselor Education, Counseling Psychology, and School Psychology. I am interested in college student drinking and more specifically different ways to address college student drinking, one being e-mailing students personalized feedback about their alcohol use. I am here today because your professor (PROFESSOR's NAME) has agreed to provide you with the opportunity to receive 2 hours extra credit for participating in a project looking at the effects of e-mailed personalized feedback on alcohol use. If you decide that you may be willing to participate I ask that you read the informed consent form that details what specifically this study entails. If after doing so, you decide you are willing to participate you will need to do one of two things. (1) If you are 18 or younger you and your parents will need to read and sign a combined parental consent/assent form, in addition to you completing the attached questionnaire packet. (2) For those of you that are 19 or older you will need to read and sign the informed consent form and complete the attached questionnaire packet. Once your consent form or forms and questionnaire packet has been completed, you will need to deliver all of them to the red locked drop-box located in Thach 213a. Are there any questions? (Answer any questions the students may have). For those of you that may be interested in participating please come to the front of class and pick-up one of the two packets. This stack is for people who are 18 or younger and these are for people who are 19 or older. Thanks for your time.