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The Effectiveness of Gain- versus Loss-Framed Advertisements to Minimize Hazardous Drinking among University Students: A Test of Regulatory Fit

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A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science
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THE EFFECTIVENESS OF GAIN- VERSUS LOSS-FRAMED ADVERTISEMENTS TO
MINIMIZE HAZARDOUS DRINKING AMONG UNIVERSITY STUDENTS: A TEST OF
REGULATORY FIT

Thesis format: Monograph Article

by

Barlas Gunay

Graduate Program in Psychology

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science

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Abstract

University binge drinking is a concern. Traditionally, social norms marketing campaigns have been employed. Regulatory focus theory – based on the premise that behavior is driven either by the motivation to maximize gains (promotion focus) or to minimize losses (prevention focus) – offers an alternative approach to crafting persuasive appeals in this population. This study investigated the effectiveness of gain- versus loss-framed advertisements in lowering drinking intentions in a university sample. It further explored whether the effects were moderated by regulatory focus – primed and dispositional – and trait reactance. Online surveys were completed by 208 Introductory Psychology students (51.7% female, mean age = 19.0 [$SD = 1.78$]). Message framing did not interact with regulatory focus to create regulatory fit. However, those high in promotion focus and females were more responsive to the ads, particularly the loss-framed ones, whereas those high in reactance were less responsive to the ads. Implications for tailoring anti-binge drinking ads are discussed.

Keywords: alcohol, message framing, reactance, regulatory focus, university

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Chapter 1 : Introduction

1 The Effectiveness of Gain versus Loss-Framed Advertisements to Minimize Hazardous Drinking among University Students

Excessive alcohol consumption is a significant problem on North American university campuses. Young adults aged 18-24 years are the heaviest drinkers of all age groups and they also have the highest percentage of problem drinkers (Ham & Hope, 2003). Within this age group, university students display unique drinking patterns with different risk factors and suffer more harmful consequences than age-mates not attending university (Abar & Maggs, 2010; Dodd, Glassman, Arthur, Webb, & Miller, 2010).

Over 80% of university students drink alcohol, approximately 40% binge drink as per the criteria established by the National Institute on Alcohol Abuse and Alcoholism [NIAAA] in 2004 (5 or more drinks for males and 4 or more drinks for females in a two-hour period), and about 50% report having been drunk in the past month (Jung, Shim, & Mantaro, 2010; Tremblay, Graham, Wells, Harris, Pulford, & Roberts, 2010).

Based on the Canadian Campus Survey (2004), administered to 6,282 full-time undergraduates at 40 Canadian universities, about a decade ago, 85.7% of the students reported having consumed alcohol within the past year, 77.1% within the last month and 16.1% reported weekly binge drinking. Moreover, 32% of the students were deemed to engage in “hazardous or harmful” drinking as per the World Health Organization’s Alcohol Use Disorders Identification Test (AUDIT). These numbers had not increased since 1998, when the prior survey was done. As the survey has not been repeated since, it is not clear whether these numbers hold now, roughly a decade later. However, there is little reason to think they have come down.

1.1 Gender Differences in Alcohol Use

There are significant gender differences in drinking levels and associated risks. It has been consistently shown that male university students drink more, drink more frequently and experience a greater number of negative alcohol-related consequences than female university students (Ham & Hope, 2003; Kelly-Weeder, 2008; Tremblay et al., 2010; Wells, Mihic, Tremblay, Graham, & Demers, 2008). In recent years, the prevalence of binge drinking among female students has been increasing at a higher rate than male students. This is alarming because due to the physiological gender differences in body weight and the metabolization rate of alcohol, consuming the same amount of alcohol that an average male binge drinker typically consumes would lead a female to experience quicker and heavier intoxication, which is significantly associated with a multitude of adverse consequences (Ham & Hope, 2003; Kelly-Weeder, 2008).

1.2 Negative Consequences of Alcohol

In addition to alcohol-related unintentional traffic and non-traffic injury deaths, and alcohol-related emotional, physical, and sexual violence, there is a multitude of less severe negative consequences more commonly experienced by university binge drinkers (Hingson, Zha, & Weitzman, 2009; Saewyc et al., 2009; Wells et al., 2008; Wells & Graham, 2003). These include: blacking out, having a hangover, experiencing something regretful, missing class, falling behind in school work, forgetting where they were or what they did, arguing with friends, engaging in unplanned and/or unprotected sexual activity, getting hurt or injured, damaging property, getting in trouble with the law, and requiring medical treatment for an alcohol overdose. Pilling and Brannon (2007) found that occasional binge drinkers were 5 times more likely than non-binge drinkers to

experience more than five alcohol related problems and frequent binge drinkers were 21 times more likely to experience them relative to their non-drinking peers.

The type and frequency of alcohol-related negative consequences differ between young men and women (Ham & Hope, 2003). Whereas for male university students, the adverse effects tend to include public deviance (getting into fights, getting arrested for violent or disorderly conduct), for females consequences tend to be relatively private (unintended, unplanned, and unwanted sexual intercourse) (Kelly-Weeder, 2008; Perkins, 2002). Female university students who drink are three to nine times more likely to experience a sexual assault than those who do not (Parks & Fals-Stewart, 2004). Moreover, in a nation-wide study of American university students, Mohler-Kuo, Dowdall, Koss, and Wechsler (2004) found that 72% of female students who reported being raped also reported having been intoxicated at the time of the incident.

The negative consequences of heavy drinking on Canadian campuses are equally sobering. Based on the Canadian Campus Survey (2004), 44% of students reported at least one sign of harmful drinking (e.g., feeling guilty, memory loss, having others concerned about their drinking, and physical injuries), and 31.6% indicated at least one of the following signs of alcohol dependence: an inability to stop drinking, the failure to perform common daily activities such as attending classes, and needing a drink upon waking up. The most commonly reported harmful consequences of drinking were: having a hangover (53.4%), memory loss (25.4%), feeling regret (24.5%), skipping classes due to drinking (18.8%). The most commonly reported alcohol-associated dangerous behaviors included: unplanned sexual relations (14.1%), engaging in unsafe

sex (6%), drunk driving (7.4%), and driving while drinking (3.8%) (Canadian Campus Survey, 2004).

1.3 Alcohol as a “Social Lubricant”

Social gains are the driving reasons behind binge drinking among university students. Most important positive consequences of drinking alcohol are social in nature (e.g., making new friends, meeting potential romantic partners, and fitting in with one’s peer group) and most university drinking happens in social situations (e.g., in bars and clubs, at sports events, parties, celebrations, and holidays) (Capron & Schmidt, 2012; Kuther & Timoshin, 2003; Patrick & Maggs, 2011). Read, Wood, Lejuez, Palfai, and Slack (2004) found that binge drinking in university was highly associated with social enhancement expectancies as gauged by responses to the following items: “I act sociable when I drink”, “it is easier to talk to people when I drink”, “I am friendly when I drink”, and “I am outgoing when I drink”. Moreover, Dodd et al. (2010) found that university students view alcohol as both a social and a sexual facilitator.

Not surprisingly then, the desire to experience positive social and sexual consequences has a strong impact on university students’ alcohol consumption (Abar & Maggs, 2010). In a study by Zullig, Young, and Hussain (2010), the perception that alcohol facilitates social bonding and enhances sexual attractiveness together accounted for a significant amount of variation in problem drinking, for both males and females. Other studies have found that social factors such as frequent partying and belonging in a peer group that drinks heavily significantly predict binge drinking (LaBrie, Hummer, & Pedersen, 2007).

Thus, binge drinking in university serves a highly social purpose for students. It is a way of socializing, bonding, and finding new friends and partners (Kuther & Timoshin, 2003). But on the other side of the coin, the most common deterrent to binge drinking is its negative social consequences. That is, Dodd et al. (2010) found that students often reported being deterred from excessive drinking by social concerns such as annoying/embarrassing friends with their drunken behavior, saying/doing things while intoxicated that they would later regret, ruining the night for their friends by getting too inebriated, and “drunk dialing/texting” (i.e., making inappropriate calls or sending incoherent text messages to friends late at night) (Dodd et al., 2010).

The social deterrents of binge drinking also tend to differentiate between male and female students. In a qualitative study, Glassman, Dodd, Miller, and Braun (2010) found that for females, the most frequently reported concerns related to binge drinking were: the possibility that embarrassing photos taken of them while drunk would appear on social networking websites such as Facebook, “making a scene”, “appearing stupid” and or fighting with friends. For males, the most frequently-reported concerns, also social in nature, were: the negative effects of excessive drinking on their sexual performance and being perceived as “sketchy” by females due to inappropriate touching or being overly forward while intoxicated (Glassman et al., 2010). Clearly, both the catalysts and deterrents of binge drinking among university students are predominantly social and gendered.

1.4 Social Norms Marketing Campaigns

Social norms marketing (SNM) campaigns have been the most frequently used advertising-based strategies to address binge drinking on university campuses (DeJong,

2010; Mattern & Neighbors, 2004; Stamper, Smith, Gant, & Bogle, 2004). SNM campaigns are based on the social norms theory, which distinguishes between descriptive and injunctive norms. Descriptive norms refer to “the perception of other’s quantity and frequency of drinking”, whereas injunctive norms represent perceived moral rules of the peer group and refer to the “perceived approval of drinking” (Borsari & Carey, 2003, p.332). SNM campaigns usually target descriptive norms of drinking.

One of the premises on which these campaigns are based is that university students tend to misperceive and over-estimate the amount of drinking their peers engage in (Perkins & Berkowitz, 1986). A study done in 2007 at 11 different Canadian universities bears this out: only 14% of students accurately estimated and 76% over-estimated the average amount of alcohol consumed by their peers at parties. Moreover, more than a third overestimated the alcohol drinking norms on campus by as many as three or more drinks (Perkins, 2007). Perkins & Berkowitz (1986) argue that this exaggerated perception leads students to tend to drink more than they normally would because they falsely believe that overdrinking is the norm on campus.

Therefore, SNM campaigns have been centered on correcting students’ misperceptions about peer alcohol use by simply feeding back normative information to them (Mattern & Neighbors, 2004). A typical example of a social norms advertisement would be as follows: “74% of Western University students have 0 to 4 drinks when they party”. With the presentation of such facts, the expectation is that the students will realize that binge drinking is not as common as they perceive it to be, will feel less social pressure to binge drink, and will adjust their behavior according to this new information by decreasing their drinking (Turner, Perkins, & Bauerle, 2008).

SNM campaigns have produced contradictory results (Perkins, 2007; Pilling & Brannon, 2007; Stamper et al., 2004). For example, Wechsler, Nelson, Lee, and Seibring (2003) compared alcohol consumption in universities that used SNM campaigns to those that did not and found no support for the effectiveness of SNM programs in reducing alcohol use; whereas another study by Mattern and Neighbors (2004) compared pre and post SNM campaign drinking levels in a university and found that SNM advertisements significantly reduced students' exaggerated perceptions of drinking norms. Such contradictory findings seem to be due to experimental design problems that are common in SNM research. Most early studies that have tested SNM interventions have suffered from a variety of design issues such as lack of sufficient controls, non-randomization, and having other anti-drinking campaigns running simultaneously on campus (Pilling & Brannon, 2007; Stamper et al., 2004; Thombs, Dotterer, Olds, Sharp, & Carrie, 2004). Even though more recent research with better methodology has produced more favorable results regarding the efficacy of SNM interventions, the true efficacy of SNM interventions to curb binge drinking at universities remains questionable (Licciardone, 2003; Perkins, 2007; Pilling & Brannon, 2007).

Lack of credibility has been established as an important factor that lowers SNM campaigns' effectiveness (DeJong, 2010; Park, Smith, Klein, & Martell, 2011; Thombs et al., 2004). Polonec, Major, and Atwood (2006) investigated the credibility of SNM ads among university students, and found that 72.6% of them did not believe the typical SNM message that most students on campus drank "0 to 4 drinks" when they partied. Furthermore, 52.7% of students reported drinking five or more drinks in one occasion. The SNM campaign was only successful at helping 61% of students perceive binge

drinking as a problem. In another study, Thombs et al. (2004) reported that only 40.7% of the students found SNM campaigns believable. Notably, Park et al. (2011) found that the believability of SNM campaigns significantly affected the relationship between students' own drinking behaviors and their perception of their peers' drinking levels. These findings suggest that for binge drinking reduction ads to work, the students must first find them credible.

Psychological reactance has been found to be another crucial element that hinders SNM campaigns' effectiveness (Campo & Cameron, 2006; Jung et al., 2010).

Psychological reactance is a motivational state that is hypothesized to occur when a freedom is eliminated or threatened with elimination (Brehm & Brehm, 1981).

Dispositional reactance is an important personality trait that impacts a variety of risk-taking behaviors including hazardous drinking. Furthermore, "trait reactant individuals are motivated to restore threatened or lost freedoms" through a number of ways such as performing the behavior being admonished, or resisting the behavior being advocated (Miller & Quick, 2010, p. 266). The latter has been appropriately termed as the "boomerang effect" by Brehm (1981).

In the context of advertising, reactance is a state that the viewer experiences when the content of the ad evokes feelings of anger and a threat to freedom simultaneously (Dillard & Shen, 2005). Reactance is the reason why prescriptive messages often fail to reach their intended effects: they simply create a "you can't tell me what to do!" effect.

Research on state reactance in advertising has shown that even seemingly noncontrolling messages (such as those included in SNM campaigns) can elicit considerable amount of reactance among university students (Campo & Cameron, 2006;

Jung et al., 2010). For example, Bushman and Stack (1996) investigated the effectiveness of the warning labels that are shown before violent television programs among university students and found that even seemingly innocuous warnings (e.g., “due to some violent content, parental discretion is advised”) backfired and increased students’ interest in watching violent television shows. Furthermore, Fitzsimons and Lehmann (2004) conducted a study on university students regarding reactance to recommendations and found a similar effect. Students had to choose between four granola bars, one being the “most attractive”. However, when an “expert” recommended that they choose from one of the other three bars, due to the boomerang effect, the students were most likely to go against the recommendation and choose the most attractive one.

In the context of binge drinking, Jung et al. (2010) have found that social norms messages elicit reactance through triggering threats to university students’ wishes to preserve autonomy and self-determination in their drinking. Even though most SNM campaigns are non-prescriptive and based on reporting of facts, they still cause a measurable degree of reactance.

A final disadvantage of SNM campaigns is that due to their simplistic reporting of statistics about alcohol use on campus, they tend to be perceived as uninteresting, which leads to decreased ad engagement and poor message recall among students. Multiple studies have found that most students do not even attend to and do not retain the social norms messages that are presented to them (Jung et al., 2010; Thombs et al., 2004).

Considering these three main disadvantages of SNM campaigns it appears that for binge drinking intervention ads to work, they need to be credible and engaging without provoking reactance, and focus on outcomes that matter to students, such as social

consequences, rather than health or physical danger. Moreover, there are a number of other features that can increase the effectiveness of persuasive appeals.

1.5 Features of Effective Advertisements

The emotional impact of persuasive messages is important. While viewing persuasive messages, people are cued by emotions (both positive and negative) when judging the ad and its message (Dillard & Peck, 2000). Dunlop, Wakefield, and Kashima (2008) proposed three distinct categories of emotional responses to ads; message-referent, plot-referent, and self-referent.

Message-referent responses include the viewer's immediate reactions to the ad. For example, in response to an ad that depicts the negative social consequences of binge drinking by showing a drunk person throwing up in front of his/her friends, a viewer might have the message-referent response of disgust. Plot-referent responses include emotions experienced in relation to a character or to a situation that is depicted in the ad. Considering the previous example, in addition to disgust, the viewer might also feel shame as a plot-referent emotional response to the situation that the character is in. Finally, self-referent emotions are elicited not by a feature of the ad, but "by thoughts about one's life and self that are stimulated by the ad" (Dunlop et al., 2008, p. 55). For the anti-binge drinking ad described above, the self-referent emotion for viewers might be worry, as they imagine themselves in the same situation as the character depicted in the ad.

Engagement with the ad is also an important factor that increases message believability and relevance. Moore, Williams, Moore, and Murphy (2013) investigated the effectiveness of social norms ads designed to decrease binge drinking among

university students and found that increased levels of attention to the ads enhanced their credibility and perceived relevance as measured by their degree of agreement with these features on a 5-point likert scale (strongly disagree to strongly agree). Surely, before students can start to experience message-, plot-, and self-referent emotions in the face of binge drinking dissuasion ads, they must first pay attention to them.

Finally, it is not enough for a message to simply discourage a behavior: it should also include information regarding the ways in which the viewers can achieve what is suggested by the ad (Dunlop et al., 2008; Pelletier & Sharp, 2008). For example, Wolburg (2001) compared the effectiveness of anti-binge drinking PSAs that included self-efficacy appeals to those that did not in decreasing engagement in alcohol-related risky behaviors and found that ads with alcohol-related risk management strategies (e.g., walking away from fights or programming one's cell phone to dial a cab at a predetermined time) were more effective at increasing students' perceptions of binge drinking as risky. The ads that dryly warned the students against the hazards of binge drinking without giving them any tips on how to decrease the associated risks were not as effective.

Considering the SNM campaign's flaws, and the fact that persuasive appeals must be credible, emotionally arousing, engaging, and informative without evoking psychological reactance, there is the need for an alternative theoretical approach aimed at curbing dangerous drinking on university campuses.

2 Regulatory Focus Theory

Regulatory focus theory (RFT; Higgins, 1997) proposes that people tend to adopt one of two different strategies to self-regulate when pursuing goals – either a promotion

focus or a prevention focus. Promotion focus involves using “eager” strategic means to attain goals. It entails pursuing ideals, going the “extra mile” and striving to maximize gains. In the case of alcohol use among university students, it means drinking responsibly so as to enjoy a positive social outcome. Prevention focus, on the other hand, utilizes “vigilant” strategic means in goal pursuit, which involves fulfilling obligations and duties, conforming to rules, and avoiding losses. It would entail avoiding binge drinking so as not to incur its negative social consequences (Daryanto, de Ruyter, Wetzels, & Patterson, 2010; Higgins, 2005; Otto, Markman, Gureckis, & Love, 2010).

Regulatory focus has been conceptualized both as a trait-like individual difference variable (referred to as “chronic regulatory focus”; Higgins, Friedman, Harlow, Idson, Ayduk, & Taylor, 2001) and an adaptable state that can be manipulated for a specific task or goal (Kees, Burton, & Heintz Tangari, 2010).

We believe that ad campaigns based on RFT could be a viable alternative to social norms approach to creating persuasive appeals to curb binge drinking on university campuses. One important aspect of RFT, the “regulatory fit”, has been shown to increase motivation for and the valuing of the goal described in a message that is framed in a way that is congruent with one’s chronic regulatory focus.

2.1 Regulatory Fit

The effect of regulatory focus on thinking about obtaining a goal depends on the interaction between one’s chronic regulatory focus and the gains or losses resulting from one’s actions associated with the pursuit of the goal (Higgins & Scholer, 2009; Otto et al., 2010). If there is a match between a person’s chronic regulatory focus and the gains or losses associated with the pursuit of a goal (e.g., drinking responsibly to maximize social

gains [gain frame] versus avoiding binge drinking to prevent social losses [loss frame]), then they would experience “regulatory fit”, a state of “feeling right” about the goal that one is actively pursuing (Aaker & Lee, 2006; Higgins et al., 2001).

There is a strong emotional component to the RFT. While the promotion focus is associated with eagerly approaching goals, a prevention focus induces people to vigilantly avoid losses, maintain safety, and or fulfill their responsibilities. The main emotions that accompany promotion focus are happiness and pride, whereas the major emotions that are associated with prevention focus are shame and worry.

Through the framing of outcomes as gains (promotion focus) versus losses (prevention focus), emotions can be manipulated to match an individual’s regulatory focus. This results in regulatory fit (Higgins, et al., 2001). From here on, when referring to ad message framing, the terms “gain-framed” and “loss-framed” will be used interchangeably with “promotion framed” and “prevention framed”, respectively.

Regulatory fit has been shown to energize goal pursuit and increase the valuing of the goal. This can be done by either matching the message to either the individuals’ chronic or manipulated regulatory status. Evidence for the effectiveness of both approaches will now be reviewed.

2.2 Chronic Regulatory Focus

Matching the frame of the motivational message to an individual’s chronic regulatory focus can increase its impact. For example, Cesario, Grant, & Higgins (2004) were able to increase the healthy diet messages’ persuasiveness by framing the messages to fit individuals’ chronic regulatory focuses across four different experiments. In addition, Avnet and Higgins (2003) have successfully used regulatory fit to increase the

monetary evaluations of a chosen object. When a message is congruent with one's chronic regulatory focus, the value of a presented goal is increased, influencing both decision making and attitude change (Higgins, 2005). Therefore, regulatory fit can be used to influence behavior and sway the evaluation of a goal to increase its worth.

There have been slight differences in the conceptualization and measurement of chronic regulatory focus across studies (Summerville & Roese, 2008).

Higgins et al. (2001) suggested that chronic regulatory focus was a product of one's past experiences related to goal attainment behavior. Thus, a history of obtaining success through using eager strategic means can promote the use of a chronic promotion focus, whereas a history of obtaining success by employing vigilant strategic means can promote a chronic prevention focus. We argue that this conceptualization of regulatory focus as a product of an individual's history of success at promotion and prevention tasks may not prove to be directly applicable to university students. Furthermore, the Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001), a measure of regulatory focus that is based on the idea of gauging individuals' histories of success at promotion and prevention tasks, focuses on the past interactions with parents and "other past self-guide experiences capturing the obligation aspect of prevention focus" (Summerville & Roese, 2008, p. 248), which we argue may not fully capture students' overall regulatory concerns as they exist in the present.

In contrast, Lockwood, Jordan, and Kunda (2002) proposed that chronic regulatory focus fundamentally reflects one's general tendency towards obtaining either promotion or prevention goals. Promotion goals involve striving to accomplish an ideal self, and so create a sensitivity to the presence or absence of positive outcomes: strategies

for achieving promotion goals involve the eager pursuit of gains or successes. Alternatively, prevention goals involve striving to avoid catastrophes, and so create a sensitivity to the presence or absence of negative outcomes, thus the resulting strategies for achieving prevention goals involve the vigilant avoidance of losses or failures. Thus, Lockwood et al. (2002)'s measure of regulatory focus, the General Regulatory Focus Measure (GRFM) emphasizes university students' current academic achievement motivations as they relate their regulatory concerns. Moreover, GRFM has been more frequently used in applied research (Yeo & Park, 2006).

2.3 Inducing Regulatory Focus

To create regulatory fit, a number of studies have manipulated participants' regulatory focus temporarily to match the framing of their messages. This has been generally done by exposing the participants to a message or a task that evokes either an eager or vigilant strategic means to approach the goal that is described in the persuasive appeal that immediately follows. This results in a temporary/state regulatory focus induction independent of an individual's chronic regulatory focus, which then can be matched with the frame of the message to maximize persuasiveness (Cesario et al., 2004).

In a study testing the effectiveness of gain- versus loss-framed messages in improving attitudes towards health-related behaviors to reduce clogging of arteries, Lee and Aaker (2004) manipulated participants' regulatory focuses by exposing them either to a message that described the benefits of drinking grape juice (i.e., feeling energized and healthy) to induce a promotion focus or to a message warning participants about the losses that may result from not drinking grape juice (i.e., clogged arteries and heart disease), inducing a prevention focus. Participants then completed a short manipulation

check where they were asked to indicate the degree to which their thoughts were focused on the promotion benefits (e.g., gaining energy and health) versus prevention benefits (e.g., keeping arteries unclogged and avoiding heart disease) of these messages.

Immediately afterwards, participants viewed ads that either extolled the benefits of keeping arteries unclogged (gain/promotion frame) or warned against the hazards of failing to keep arteries unclogged (loss/prevention frame). This manipulation had its intended effect and when participants' induced regulatory focus matched the framing of the message (i.e., when they experienced "regulatory fit"), they expressed a more favorable attitude about engaging in health-related behaviors, whereas when their induced regulatory focus did not match the message frame, they expressed significantly less favorable attitudes. This study provided the first demonstration that regulatory fit theory could be used to increase the effectiveness of a persuasive appeal (Cesario, Higgins, & Scholer, 2008).

Similarly, to address the role of regulatory focus in message framing to prevent smoking among teenagers, Kim (2006) used priming passages that either extolled the benefits of drinking soymilk to promote growth or warned against diseases that may result from not drinking soymilk. After a manipulation check regarding whether the priming ads contained ideas about enhancement or protection strategies, participants viewed either promotion or prevention framed anti-smoking ads. The manipulation had its intended effect and when the induced regulatory focus and the ad message frame were congruent (i.e., when regulatory fit was achieved) versus incongruent (i.e., when there was a mismatch), participants reported lower intentions to smoke, and were less likely to believe that cigarettes would make them feel relaxed and more content compared to their

peers. Similarly, Haaga, Friedman-Wheeler, McIntosh, and Ahrens (2007) were also able to reduce intentions to smoke cigarettes through evoking regulatory fit with persuasive messages.

Regulatory focus can also be manipulated by having participants write about their personal experiences relevant either to promotion or to prevention goals (Higgins, Roney, Crowe, & Hymes, 1994; Latimer et al., 2008). For example, as a part of a study investigating how role models who encourage strategies that fit participants' regulatory focuses increased motivation, Lockwood et al. (2002) conducted three slightly different experiments. The first experiment was designed to test the effectiveness of their regulatory focus priming task. They asked participants to either think about a positive (promotion prime) or negative (prevention prime) academic outcome that they wanted to achieve or avoid and to describe the strategies they could use to promote or prevent this outcome. Next, a measure that served as the manipulation check asked students to rate their academic motivation levels after completing the priming task. Students who received primes congruent with the framing of the messages they viewed reported significantly higher levels of academic motivation relative to those who received no regulatory focus induction or a message that mismatched the priming task. Across all three experiments, Lockwood et al. found that having students describe either eager (promotion focused) or vigilant (prevention focused) ways to achieve academic successes or to avoid academic failures was significantly effective in creating regulatory fit. In the context of the present study, we believe that having university students think about and actively describe eager or vigilant means to achieve academic successes or to avoid academic failures as per Lockwood et al. would be a more appropriate way of

manipulating their state regulatory focus rather than having them passively read induction passages.

Overall, studies that have employed regulatory focus induction prior to showing participants gain- versus loss-framed ads to bring about health-related behavior change through creating regulatory fit so far have produced promising results. Some of the most important findings showing the potency of regulatory focus manipulation have been documented by Daryanto et al. (2010) in increasing exercising intentions; by Latimer et al. (2008) in increasing physical activity; by Kees et al. (2010) in increasing inclinations to maintain a healthy bodyweight; by Spiegel, Grant-Pillow and Higgins (2004) in increasing fruit and vegetable consumption as part of a healthy diet; and by O’Keefe and Jensen (2009) in increasing dental hygiene behaviors.

2.4 The Effects of Gain- versus Loss-Framed Advertisements on Health Behaviors

Independent from regulatory focus priming, gain- and loss-framed ads by themselves have distinct effects on health-related behaviors (O’Keefe & Jensen, 2009). Gain-framed messages have been shown to be more effective when targeting health-promotion behaviors (e.g., diet, exercise, and smoking cessation), whereas loss-framed messages are more effective when targeting disease-prevention behaviors (e.g., getting screened for a possible disease) (Rothman, Bartels, Wlaschin, & Salovey, 2006). However, despite this variability of message frames’ effectiveness in health behavior change, a meta-analytic review of the relevant literature by O’Keefe and Jensen (2009) has shown that, overall, gain-framed appeals were slightly more effective than loss-framed appeals (O’Keefe & Jensen, 2009). Therefore, chronic regulatory focus

moderates the effectiveness of framed messages, with gain-framed appeals optimizing message persuasiveness (Cesario et al., 2004; Latimer et al., 2007). Even though the advantages of creating regulatory fit in attempts to change health behaviors have been well documented, RFT is yet to be fully utilized to curb binge drinking at universities (Latimer et. al., 2007; Quick & Bates, 2010).

2.5 RFT in Moderating Binge Drinking

We have been able to identify only two studies that have applied some element of RFT to address binge drinking on university campuses. Quick and Bates (2010) tested the efficacy of gain- versus loss-framed messages in curbing alcohol abuse in a university sample and measured reactance. However, because RFT was not the focus, they did not address regulatory fit. Quick and Bates (2010) found that students who perceived the health risks of binge drinking to be low benefited more from gain-framed messages, whereas loss-framed messages were the most effective for heavy drinkers. We plan to build on these findings by determining whether matching primed and/or chronic regulatory focus with the message frame would lead to lower drinking intentions and higher valuing of alcohol treatments. Also, a case study by Glassman, Dodd, Miller, and Braun (2010) used ads in an effort to reduce excessive drinking at one university; however, they used ads that depicted only the negative social consequences of heavy drinking, which were accompanied by larger scale interventions such as increased alcohol prices and provision of alcohol-free alternative activities on campus. They found that their interventions lowered self-reported hazardous drinking, alcohol overdoses, and other alcohol-related negative consequences. Even though we do not have the resources to test such expensive large scale interventions, our study will test the effectiveness of

using ads that either extol the social benefits of drinking responsibly or warn against the social hazards of binge drinking, and how regulatory fit, trait reactance, and gender might affect this relationship.

3 Summary and Hypotheses

Heavy drinking on Canadian campuses is a serious problem that has not yet been adequately addressed, and research on the effectiveness of university anti-binge drinking campaigns is scarce (Perkins, 2007). The present study will evaluate the effectiveness of ads that are framed according to the RFT through the use of gain-framed messages extolling the social benefits of drinking responsibly, versus loss-framed messages depicting the social hazards of binge drinking in an effort to dissuade excessive drinking among university students. Moreover, we will test for the moderating effects of emotional reactions to the messages. As per our literature review, our hypotheses are:

Hypothesis 1.

(a) Priming by ad type interaction effect (i.e., experiencing of regulatory fit) on drinking intentions and valuing of alcohol treatments. A match between ad type (gain-frame versus loss-frame) and primed regulatory focus (i.e., promotion prime, prevention prime, or no prime) will yield lower drinking intentions and higher valuing of alcohol treatments than a mismatch.

(b) A chronic regulatory focus by ad type interaction (i.e., experiencing of regulatory fit) on drinking intentions and valuing of alcohol treatments. A match between chronic regulatory focus (promotion versus prevention) and ad type (gain-frame versus loss-frame) will yield lower drinking intentions and higher valuing of alcohol treatments than a mismatch.

(c) A main effect of ad type on drinking intentions and valuing of alcohol treatments. Gain-framed ads promoting responsible drinking will be more successful at decreasing students' drinking intentions and increasing their valuing of alcohol treatments.

Hypothesis 2. A main effect of trait reactance on drinking intentions and valuing of alcohol treatments. Compared to students with low trait reactance, those with high trait reactance will rate the ads more negatively and will be less inclined to reduce their drinking and value alcohol treatments.

Hypothesis 3. Given the gender differences in binge drinking and alcohol-related consequences, it is reasonable to assume that the possible effects of a drinking intervention would also vary across genders.

(a) There will be a gender effect on ad ratings and drinking intentions and valuing of alcohol treatments. Due to their lower baseline levels of drinking and experiencing of alcohol-related consequences, females will rate the ads more positively, and will express lower drinking intentions and higher valuing of alcohol treatments.

Due to the scarcity of information we have to date about the relationships between gender and message framing, we will explore:

(b) Whether gender interacts with ad type to affect drinking intentions and valuing of alcohol treatments.

Mediational analyses. We will explore the extent to which the effects proposed above are mediated by students' emotional responses to the ad and their judgment of its message-referent features (credibility, absurdity and effectiveness)

Chapter 2 : Methods

1 Study Phases

This study was completed in three phases: (1) creation of the stimuli (advertisements), (2) piloting of the stimuli, and (3) the main study. These elements will be described in sequence.

1.1 Creation of the Advertisements

To craft the gain- and loss-framed ads for our study, we collaborated with a class of third year creative advertising students from Humber College in Toronto. In February 2012, we met with the students and the course instructor and gave them a detailed presentation on the use of gain- and loss-framed ads to promote health behaviors. We emphasized that we were looking for ad pairs, with one of the pairs focusing on the benefits of drinking responsibly and the other on the hazards of binge drinking.

We also asked Humber students to highlight the social consequences of drinking, because, as previously noted, university students' approach and avoidance motives regarding alcohol are primarily social in nature (Scott-Sheldon et al., 2012). We received a pair of promotion-prevention ads from each of four teams of students in April 2012 (Appendix A).

1.2 The Pilot Study

Throughout the summer of 2012, work continued on stimulus development. Few of the promotion ads delivered by the Humber students were truly promotion-focused and some were deemed too risqué. However, the approach taken by two of the four teams, specifically, using text messaging and a "mistakes don't wash off" tagline to portray the

negative consequences of binge drinking were seen as promising. Accordingly, we worked to develop promotion counterparts to these messages, and a new set of ads to play on the theme of being “wasted” / “wasting time” (prevention) or not (promotion).

Consequently, we worked to create three sets of ad pairs based on the following tags:

Pair 1: “Sober just saved you a \$25 cab ride (Promotion)” versus “Drunk dialing doesn’t get you far” (Prevention)

Pair 2: “You look better without the beer goggles” (Promotion) versus “Mistakes don’t wash off” (Prevention)

Pair 3: “Sunrise Belongs to Moderate Drinkers” (Promotion) versus “Another Night Wasted” (Prevention).

In light of research by Pelletier and Sharp (2008) indicating that public health announcements that provide concrete strategies for behavior change are more effective than those that do not, the bottom portion of all ads contained a heading followed by four strategies to minimize hazardous drinking.

In the promotion-oriented ads, a gain-framed heading (“Controlling your drinking can help your grades, social life and health”) was followed by four positively-worded tips: “It’s okay to skip a round”, “Try to have not more than one drink per hour”, “Make sure you eat something before your night out”, and “Drink water between drinks”. In contrast, in the prevention-oriented ads, a loss-framed heading (“Binge drinking can hurt your grades, social life and health”) was followed by four prohibitive statements: “Skip the beer pong”, “Don’t drink more than one drink per hour”, “Avoid drinking on an empty stomach”, and “Avoid dehydration”.

Finally, because the ads were to be aimed at Western students, the Western logo and color (purple) were incorporated into all. The ads, created with the help of a 3rd year Humber College creative advertising student hired to do the graphic design, are presented in Appendix B.

Each ad was followed by items gauging its message-referent features, plot-referent promotion and prevention emotions, self-referent promotion and prevention emotions (adopted from Dunlop et al., 2008), and a state reactance measure (Dillard & Shen, 2005). This group of items, all used in the main study, will be described in full in the Main Study section of this chapter.

The pilot study was approved by UWO's Psychology Ethics Board on November 5, 2012 (Appendix C) and was conducted online with Introductory Psychology students from UWO Psychology Participant Pool from November to December 2012. The ads were presented in randomized order to minimize order effects, yielding 12 different versions of the survey: a 2 (ad types: gain-framed vs. loss-framed) x 6 (ad orders: 1-2-3, 1-3-2, 2-1-3, 2-3-1, 3-1-2, 3-2-1) design. Thirty five students (71.4% female, mean age = 18.32 ($SD = 1.12$) years), mostly first year students ($n = 30$; 88%) participated. Twenty students viewed and rated the gain-framed and 15 the loss-framed ads.

To investigate the differences in ad ratings based on message framing, we conducted a one-way multivariate analysis of variance (MANOVA) on the ad ratings with the ad type as the fixed factor and the Alcohol Use and Disorders Identification Test (AUDIT; baseline drinking measure) score and ad order as covariates. There was a significant main effect of ad type on ad ratings, $F(7, 25) = 12.36$, $p < .001$, $\eta_p^2 = .776$. One-way univariate analyses of variance (UNIANOVAs) showed that the main effect of

ad type was driven by statistically significant effects on message-referent effectiveness, $F(1, 31) = 15.23, p < .001, \eta_p^2 = .329$, credibility, $F(1, 31) = 6.87, p = .013, \eta_p^2 = .181$, self-referent promotion, $F(1, 31) = 5.69, p = .023, \eta_p^2 = .155$, and prevention emotions, $F(1, 31) = 47.72, p < .001, \eta_p^2 = .606$. On scales of 1 (Not at all) to 5 (Extremely), contrary to our expectations, students rated the loss-framed ads as more effective ($M = 3.26, SD = .47$ vs. $M = 2.64, SD = .44$) and more credible ($M = 3.24, SD = .70$ vs. $M = 2.61, SD = .67$) than gain-framed ads. Moreover, as expected, gain-framed ads engendered more self-referent promotion emotions ($M = 2.23, SD = .67$ vs. $M = 1.60, SD = .80$) than the loss-framed ads, whereas loss-framed ads evoked more self-referent prevention emotions ($M = 3.03, SD = .55$ vs. $M = 1.79, SD = .52$). Both types of ads elicited minimal levels of reactance ($M = 2.03, SD = .80$ [gain-framed ads] vs. $M = 2.06, SD = .91$ [loss-framed ads]), and the difference between means was not statistically significant, $F(1, 31) = .006, p = .941$. Responses to the open-ended items indicated that students perceived the promotion ad from the third pair as “religious” and that they would eliminate it if it was up to them. Therefore, this ad was completely changed for the main study. On average, the six preliminary ads that were used in the pilot study were indeed perceived as gender neutral (as measured by the question stem: “This ad appears to target...”) on a scale of 1 (Only males) to 4 (Males and females equally) to 7 (Only females) ($M = 3.95, SD = .93$).

From November 2012 to February 2013, the three ad pairs were further refined, again with the graphic design services of the 3rd Humber Creative Advertising student. The third promotion ad “Sunrise belongs to moderate drinkers” was replaced with “Oh, the things you could do... if you weren’t hungover”, and the third prevention ad “another

night wasted” was replaced with “wasted”. Below are the final taglines of the three pairs of ads. The final versions of pairs 1, 2 and 3 are presented in Appendices D, E and F, respectively.

Pair 1: “Sober just saved you a \$25 cab ride (Promotion)” versus “Drunk dialing doesn’t get you far” (Prevention)

Pair 2: “You look better without the beer goggles” (Promotion) versus “Mistakes don’t wash off” (Prevention)

Pair 3: “Oh... the things you could do, if you weren’t hungover” (Promotion) versus “Wasted” (Prevention).

1.3 The Main Study

Please see Figure 1 for a graphical depiction of the recruitment and survey version assignment processes and Figure 2 for a graphical depiction of the experimental design and the order of measures. We used the G*Power 3 software to compute the statistical power that the study design required (Faul, Erdfelder, Lang, & Buchner, 2007). The analyses showed that a sample size of 118 with approximately 20 participants per cell would yield enough statistical power to detect a possible priming by regulatory focus message framing or chronic regulatory focus by message framing interaction. Considering our goal of also investigating main effects of message framing, reactance, and gender, which would require a larger sample size, we aimed at recruiting a total of at least 180 participants (30 per 6 cells).

1.3.1 Recruitment Procedures

Participants were recruited online through UWO’s Psychology Research Participant Pool (SONA). The brief study description on the Participant Pool webpage

indicated that study participants would “view and rate a series of health-related advertisements”. The study took 60 minutes to complete and participants received one academic credit for their participation. The survey, built via and hosted on SurveyMonkey.com (courtesy of Dr. James Olson for providing us with a user account), was available only to UWO Introductory Psychology students with online Participant Pool accounts. The only exclusion criterion was having participated in the pilot study.

The study was approved by UWO Psychology’s Ethics Board on February 14, 2013 (Appendix G) and data were collected between March 4, 2013, and April 17, 2013. Before beginning the survey, participants read an online letter of information and completed an informed consent form (Appendix H). They had the option of leaving the study at any point without any penalty (such as losing their credit) by simply closing their survey browser window.

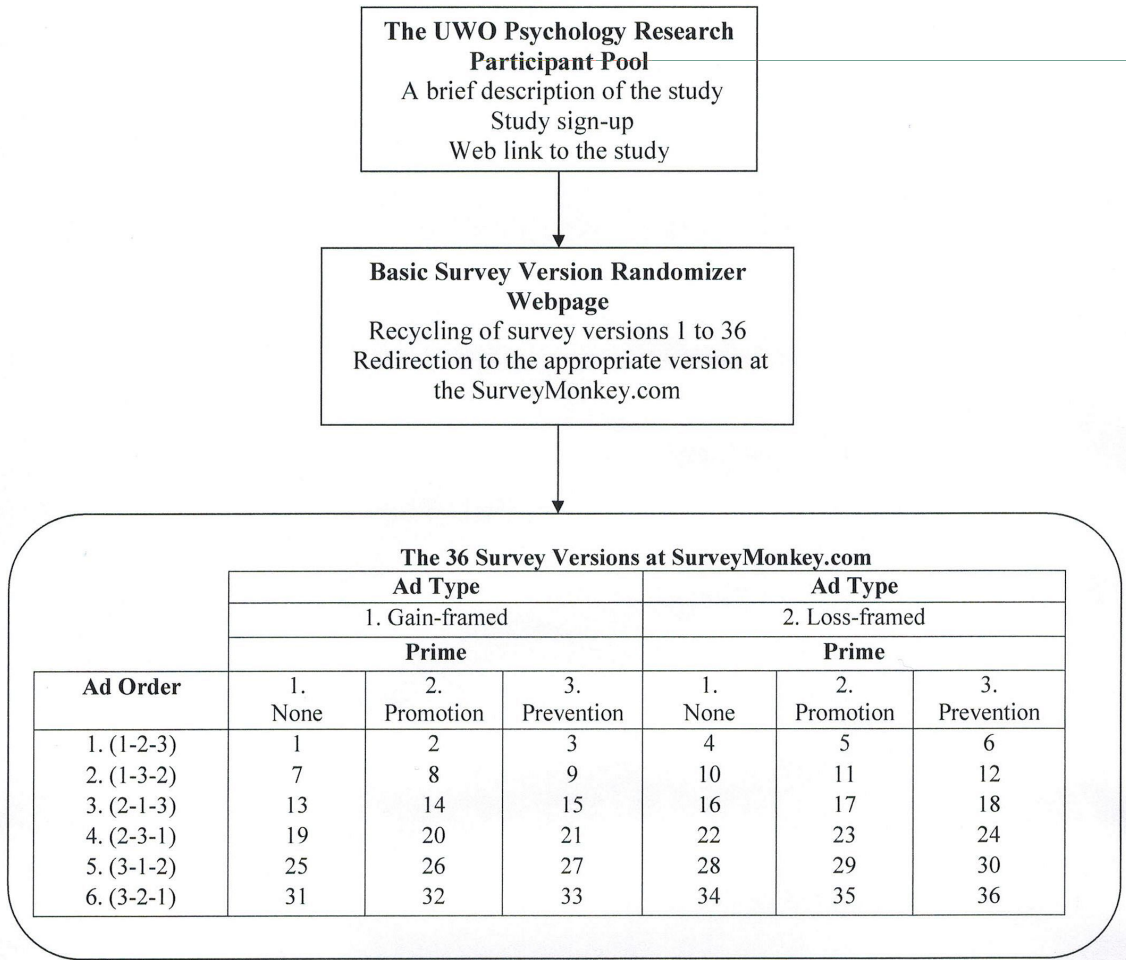


Figure 1: Recruitment and survey version assignment procedures

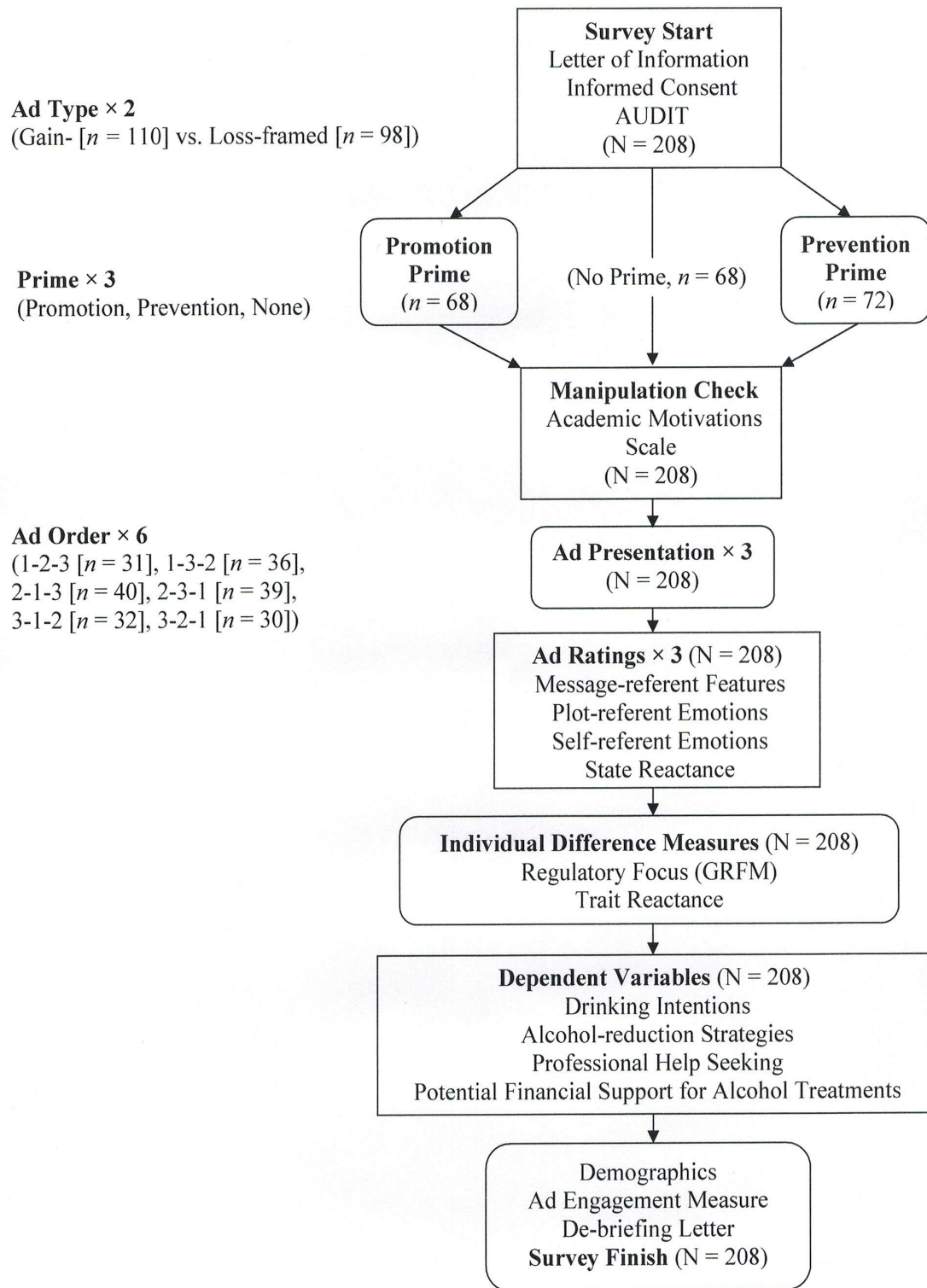


Figure 2: Experimental design and the study procedures

Upon completion of the survey, all participants were thanked for their participation and were presented with a de-briefing letter (Appendix I).

The participant characteristics are described in the Results section.

1.3.2 Experimental Design

Please see Figure 2 for a depiction of the study design.

As described in detail earlier, there were three gain-framed and three loss-framed ads. Participants were randomly assigned to view either gain- or loss-framed three ads and rated each ad on a variety of scales. After viewing all ads, they completed the ad rating items, followed by the individual difference and dependent measures. Interspersed were some manipulation and engagement checks, all to be described in the upcoming sections.

There were 36 versions of the survey, based on a 2 (ad type: gain-framed vs. loss-framed) \times 3 (regulatory focus priming: no prime, promotion prime, and prevention prime) \times 6 (ad order: 1-2-3, 1-3-2, 2-1-3, 2-3-1, 3-1-2, 3-2-1) design. To ensure randomization to condition, when participants clicked on the study link from the subject pool (SONA) webpage, they were automatically directed by a randomizer webpage (courtesy of Dr. Rod Martin) to one of the 36 versions of the survey.

1.3.2.1 Regulatory Focus Priming

To manipulate participants' regulatory focus, we used Lockwood et al.'s (2002) "Academic Strategies" induction task. Participants were randomly assigned to either a promotion prime, prevention prime or no prime condition (Appendix J). Those in the promotion prime condition ($n = 68$; 32.7%) were asked to think about a positive academic outcome and list three strategies that they could use to successfully accomplish

this goal, whereas those in the prevention prime condition ($n = 72$; 34.6%) were asked to think about a negative academic outcome that they might want to avoid and to list three strategies that they could use to prevent this outcome. Participants in the no prime condition ($n = 68$; 32.7%) were not presented with this task.

1.3.2.2 Manipulation Check of the Regulatory Focus Priming

Immediately following the priming task, participants filled out the Academic Motivation Scale (Lockwood et al., 2002; 14 items, $\alpha = .80$; Appendix K). This scale was used by Lockwood et al. (2002) to determine whether the regulatory focus priming task they developed (and used in this study) had its intended effect. Eight of the items involved engaging in activities (e.g., “I plan to put more time into my schoolwork”) versus six items involved abstaining from activities (e.g., “I plan to procrastinate less”). Initially, Lockwood et al. (2002) entertained the “the possibility that participants in the two priming conditions might respond differently to the two types of items (engaging versus abstaining), however, all items hung together as a highly coherent scale (Cronbach’s $\alpha = .80$)” (Lockwood et al., 2002, p. 857). Therefore, they collapsed all 14 items to create a single index of motivation. The original is based on a 11-point Likert-type scale (where 1 = Not at all true and 11 = Very true). However, due to restrictions posed by SurveyMonkey.com, we had to limit the range of the scale from 1 (Not at all true) to 9 (Very true).

1.3.3 Measures

The individual difference measures, the dependent measures, ad rating measures, priming manipulation, and ad engagement measures will be presented in succession. The chronological order in which they were completed by participants is depicted in Figure 2.

1.3.3.1 Individual Difference Measures

The individual differences of interest included a baseline measure of alcohol consumption tendencies and consequences, chronic regulatory focus, and trait reactance.

The measures used to gauge these constructs are described in sequence.

1.3.3.1.1 Alcohol Use and Its Consequences

All 208 participants filled out the Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001; $\alpha = .80$, both in large community samples and in our sample) a 10-item criterion validated measure gauging the frequency and intensity of drinking, alcohol-related consequences, and risks for alcohol abuse and dependence (Babor et al., 2001; Dodd et al., 2010) (Appendix L). Validity of the AUDIT is similar to those of other self-reported screening tests (e.g., the CAGE Questionnaire and the Michigan Alcohol Screening Test; MAST), and is appropriate for both males and females (Babor et al., 2001).

The score range for the AUDIT is 0-40. A score of 8 or above is deemed to indicate hazardous drinking (Babor et al., 2001). Specifically, a score of 8-18 indicates a participant may be experiencing negative alcohol-related health consequences, and a score of 19 and above indicates possible alcohol dependence (Dodd et al., 2010).

1.3.3.1.2 Chronic Regulatory Focus

To measure participants' dispositional regulatory focus, we used the General Regulatory Focus Measure (GRFM; Lockwood et al., 2002; Cronbach's $\alpha = .86$; Appendix M). GRFM is comprised of two 9-item subscales, a chronic promotion focus (items 1, 2, 4, 7, 9, 10, 11, 13, and 15; Cronbach's $\alpha = .91$) and a chronic prevention focus (items 3, 5, 6, 8, 12, 14, 16, 17; Cronbach's $\alpha = .80$) subscales. With items such as

“My major goal in school right now is to achieve my academic ambitions (promotion item)” and “I often worry that I will fail to accomplish my academic goals (prevention item)”, it measures students’ chronic regulatory focus in relation to their current academic goals. We chose the GRFM over the Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001), another widely used measure of chronic regulatory focus, because we agree with Summerville and Roese’s (2008) assessment that GRFM was more suitable for an undergraduate sample because it is “tailored to the participant population of undergraduate students, emphasizing success and failure at academic goals” (p. 248).

The GRFM yields three different scores for each participant: a chronic promotion focus score (the mean of the nine promotion items), a chronic prevention focus score (the mean of the nine prevention items), and an overall chronic regulatory focus score. The overall chronic regulatory focus was calculated by subtracting the mean of prevention items from the mean of promotion items. For each participant, this yielded a score between -9 and 9, with negative values indicating a chronic prevention focus and the positive scores indicating a chronic promotion focus.

1.3.3.1.3 Psychological Reactance

This was assessed by Hong’s 14-item Psychological Reactance Scale (HPRS; Hong & Page, 1989; Cronbach’s $\alpha = .83$; Appendix N). This measure taps trait reactance with items such as “regulations trigger a sense of resistance in me” and “I become angry when my freedom of choice is restricted”. All items are measured on a 5-point Likert-type scale with 1 = strongly disagree, 3 = neither agree nor disagree, and 5 = strongly agree. Developed on Australian university students, HPRS is an improvement upon

Merz's (1983) 18-item German reactance scale. In test samples, HPRS was found to have reliabilities of .89 for test-retest and .77 for Cronbach's alpha.

1.3.3.2 Dependent Measures

1.3.3.2.1 Drinking Intentions

To gauge participants' drinking intentions following exposure to the ads, we modified the first three items of the AUDIT. Students were prompted with the stem: "During the next three months" and then were presented with the following three items: "How often do you intend to have a drink containing alcohol? (0 = Never, 1= Monthly or less, 2 = 2-4 times a month, 3 = 2-3 times a week, 4 = 4 or more times a week), "How many drinks containing alcohol do you intend to have on a typical day when you are drinking (0 = 1 or 2, 1= 3 or 4, 2 = 5 or 6, 3 = 7 to 9, 4 = 10 or more), and "How often do you intend to have six or more drinks on one occasion" (0 = Never, 1= Less than monthly, 2 = Monthly, 3 = Weekly, 4 = Daily or almost daily).

1.3.3.2.2 Intentions to Employ Alcohol-reduction Strategies

According to Bonar et al. (2012), because some students have little or no intention to employ specific drinking self-control strategies to limit their alcohol intake, they often end up binge drinking. Therefore we were interested in measuring students' inclinations to engage in alcohol-reduction strategies after exposure to the ads as an indicator of heightened sensitivity to the consequences of alcohol. To this end, we used 15 items from the 28-item Future Intentions Subscale of Alcohol Reduction Strategies measure (Bonar et al., 2012). We used only 15 items (Appendix O), still a sizeable number, to limit response burden. The Cronbach's α for all 28 items was .94 in Bonar et al. (2012)'s sample. In our sample, internal reliability for the 15 items we used was very close at .91.

1.3.3.2.3 Intentions to Seek Professional Help For a Potential Drinking Problem

To assess whether the ads influenced students' judgment of dangerous drinking as a problem in need of rectification, we posed the following question to them, in the interest eliciting their views about "Western's potential responsible drinking strategies": "We are curious about how interested you would be in some of Western's potential future efforts at implementing a variety of strategies on campus to encourage responsible drinking among students. If you had a drinking problem, how inclined would you be to seek help for it from a health care professional?" (Scale ranged from 1 = Not at all to 7 = Very much so).

1.3.3.2.4 Monetary Contribution to Western's Alcohol treatment and Prevention Programs

We reasoned that if the ads had an impact, students would also be inclined to place a higher value on alcohol treatment for their peers and not only for themselves. To this end, we posed the following:

"In addition to your tuition, you pay student ancillary fees. For the current 2012-2013 academic year, the ancillary fees for full-time undergraduates are about \$1,200. Of this, approximately \$400 covers health and wellness services such as student health and recreation center fees. Presently, there are no funds specifically set aside for the prevention and treatment of alcohol (and drug) problems in the undergraduate population. If the USC was to contemplate doing so and polled students about it, how much of the \$400, if any, would you be willing to reallocate to support an alcohol (and drug) problem prevention and treatment fund?"

Please indicate a dollar amount between 0 and 400 (If you would disagree with such a hypothetical policy change, please write “0”):”

The hypothetical monetary amount students reported was then used to gauge their level of support for a potential alcohol problem intervention and treatment fund/program.

1.3.3.3 Advertisement Reactions Measures

Each of the three ads in every survey version was followed by the same 44 items (Appendix P, p. 110). These items tapped the ads’ message-referent features (13 items), plot-referent emotions (12 items) and self-referent emotions (11 items). All items were based on those used by Dunlop et al. (2008) and were rated on a 1 (Not at all) to 5 (Extremely) Likert-type scale. Four of the 8 items included in the self-referent emotions measure were drawn from the anger subscale of Dillard and Shen (2005)’s state reactance measure. Threat to freedom (4 items) was the other subscale of the ad state reactance measure (Dillard & Shen, 2005). In addition to these 40 items, there was one item that gauged gender neutrality (the question stem: “This ad appears to target...”) on a scale of 1 (only males) to 4 (males and females equally) to 7 (only females). Overall, students rated all six ads as gender neutral ($M = 4.06$, $SD = .85$).

The last three items were open ended. Participants were asked to write down what they liked most about the ad, what they liked least about the ad, and how they would change it to make it more effective at curbing binge drinking among Western students.

1.3.3.3.1 Message-referent Features

The first 13 of the 44 items were designed to gauge the ads’ features. The first 10 items were: “This ad is... believable, realistic, visually appealing, convincing, original, stupid, memorable, creative, ridiculous, would be effective for Western students”. The

next 3 items were: “I... like this ad, can relate to this ad, think my peers can relate to this ad” (Appendix P).

1.3.3.3.2 Plot-referent Emotions

The next 12 items tapped emotions that are associated with promotion (i.e., pride) and prevention (i.e., shame) focuses. Dillard and Peck (2000) have shown that the more the viewers can identify with the ad characters, the more believable and effective the ads are. Thus, these items were framed in a way to tap into both the transportability and the emotions that are associated with promotion and prevention focuses. These items were: “Placing yourself in the position of one of the characters in the ad, how do you think you would feel? Afraid, happy, guilty, proud, embarrassed, pleased, ashamed, hopeful, content, hopeless, excited, worried” (Appendix P).

1.3.3.3.3 Self-referent Emotions

Eleven items measured the emotions our ads evoked (Appendix P). These items were: “How did this ad make you feel? Irritated, amused, angry, inspired, annoyed, energized, aggravated, optimistic, offended, confident, anxious”. These items also gauged the emotions that are usually associated with promotion and prevention focuses as they are experienced directly by the participants. All items were rated on a 1 (not at all) to 5 (extremely) scale. The items “irritated, angry, annoyed, aggravated” made up Dillard and Shen (2005)’s state reactance measure’s anger subscale (Cronbach’s $\alpha = .90$).

1.3.3.3.4 Threat to Freedom Measure

Together with the four anger items mentioned above, four threat to freedom items gauged the level of reactance evoked by the ads. These 8 items were drawn from Dillard and Shen (2005)’s state reactance measure (Cronbach’s $\alpha = .93$; Appendix P). The threat

to freedom items were: “This ad... threatened my freedom to choose, tried to make a decision for me, tried to manipulate me, tried to pressure me”. All items were rated on a 1 (not at all) to 5 (extremely) scale (Cronbach’s $\alpha = .93$; Appendix P).

1.3.3.4 Advertisement Engagement

At the end of the survey, we presented the participants with a 10 item true – false “quiz” about the three ads they had seen earlier. The quiz items were parallel though necessarily different for those the two ad conditions. Sample questions included “The three ads you viewed included the following line: ‘Controlling your drinking can help your grades, social life, and health’ (for promotion focused ads condition)”, and “The three ads you viewed included the following line: ‘Binge drinking can hurt your grades, social life, and health’ (prevention focused ads condition)”.

This measure was an attempt to investigate a possible relationship between the attention paid to the ads by the students and the resulting ad ratings, and the responses to the four dependent variables. As well, it afforded us the possibility of including in the data analysis only those who were sufficiently attentive to the ads (i.e. got a certain percentage correct; Cronbach’s $\alpha = .79$; Appendix Q).

1.3.3.5 Demographics

Demographic information was also collected, including the participants’ gender, age, and year in their university program.

Chapter 3 : Results

1 Participants

This study was completed by 208 University of Western Ontario undergraduate students. One hundred participants were male (48.3%), 107 were female (51.7%), and 1 student did not report his/her gender. Participants' ages ranged between 18 and 35, with a mean age of 19 ($SD = 1.78$). The majority of participants were in their first year at university ($n = 181$; 87%), followed by second ($n = 17$; 8.2%), third ($n = 6$; 2.9%), fourth ($n = 3$; 1.4%), and fifth years ($n = 1$; .5%), respectively.

2 Descriptive Statistics

Descriptive statistics for the variables of interest are presented in Table 1. The distributional properties and internal consistency for all variables were acceptable.

2.1 Alcohol Use and Related Problems

Based on the AUDIT cut-off scores, 62% ($n = 129$) of our sample fell within the “high-risk” or “hazardous” drinking range (i.e., scored 8 or above). Specifically, 56.3% ($n = 117$) were experiencing some negative health consequences from their drinking (i.e., scored between 8 and 18) and 5.7% ($n = 12$) likely had a problem with alcohol dependence (i.e., scored over 19).

The AUDIT score was entered as a covariate in all of our analyses to control for the effects of baseline drinking levels, which strongly predict future drinking intentions, one of our primary dependent variables (Glassman et al., 2010).

Table 1: Psychometric Properties of the Dependent Variables and the Individual Difference Measures

Table 1

Psychometric Properties of the Dependent Variables and the Individual Difference Measures (N = 208)

Variable	# of Items	<i>M</i>	<i>SD</i>	Median	Range		α	Skew	Kurtosis
					Potential	Observed			
Dependent Variables									
Drinking Intentions	3	1.63	.87	1.67	0-4	0.00-3.67	.83	-.21	-.71
Alcohol-reduction	15	2.77	.88	2.80	0-5	0.00-5.00	.91	-.31	.91
Help-seeking	1	4.16	1.76	4.00	1-7	1.00-7.00	--	-.06	-.79
Contribution Amount	1	70.92	91.37	50.00	0-400	0.00-400.00	--	1.64	2.49
Individual Differences									
AUDIT	10	9.84	5.88	9.00	0-40	0-30	.80	.44	-.19
Chronic Promotion Focus	9	6.61	1.36	6.72	1-9	2.11-9.00	.91	-.37	-.31
Chronic Prevention Focus	9	5.52	1.28	5.50	1-9	2.56-9.00	.80	.15	-.29
Chronic Regulatory Focus	18	1.09	1.61	.99	-9-9	-3.97-5.89	.86	.21	.67
Trait Reactance	14	40.91	7.73	41.00	14-70	21.00-70.00	.83	.29	1.00

Note. α = Cronbach's alpha.

In the sections that follow, preliminary analyses will be presented first, after which the analyses bearing on the three main study hypotheses will be presented in sequence.

3 Preliminary Analyses

3.1 Advertisements Viewing Order

To determine whether the order in which students viewed the three ads had an effect on drinking intentions and the valuing of alcohol treatments, we conducted a multivariate analysis of variance (MANOVA) on these variables with ad order (six levels) as a fixed factor and the AUDIT score as the covariate. There was indeed an overall effect of order, $F(20, 792) = 1.62, p = .042, \eta_p^2 = .039$, which was driven by an order effect on intended monetary contributions to a hypothetical UWO alcohol treatment program, $F(5, 198) = 3.44, p = .005, \eta_p^2 = .080$. A Tukey HSD post hoc test showed that those who viewed the ads in the order 3-1-2 ($n = 32$) were inclined to allocate significantly more dollars ($M = 124.53, SD = 118.03$) to a possible UWO alcohol treatment program than those who viewed the ads in the order 1-2-3 ($n = 30, M = 58.50, SD = 83.02$), 2-1-3 ($n = 39, M = 50.90, SD = 65.64$), and 3-2-1 ($n = 29, M = 59.31, SD = 90.12$). In light of this finding, whenever possible, we controlled for ad order (in addition to the AUDIT score) in all subsequent analyses.

3.2 Manipulation Check on Regulatory Motives Induced by the Priming Task

To determine whether the priming task had its intended effect on inducing a promotion or prevention focus, we conducted a one-way univariate analysis of variance

(UNIANOVA) on the effect of priming (no prime, promotion prime, and prevention prime) on academic motivation. That it was not statistically significant ($F(2, 205) = .027$, $p = .974$) indicates that the regulatory focus priming manipulation was not effective. Accordingly, given that the priming task did not actually manipulate regulatory focus, this independent variable was not considered in subsequent analyses.

3.3 Advertisement Engagement

To determine whether the level of attention paid to the ads affected drinking intentions and valuing of alcohol treatments, we ran a one-way MANOVA with ad engagement (i.e., those who got at least 50% of the questions about the ads correct versus those who did not) as the fixed factor. The MANOVA was not significant, $F(4, 198) = 1.95$, $p = .104$. Given this, and that excluding data from the 66 participants who scored less than 50% on the recall test did not affect the pattern of results for the primary hypotheses; all analyses in this thesis will be based on the entire sample.

3.4 Factor and Reliability Analyses for Advertisement Ratings

Each of the three either gain- or loss-framed ads was followed by 44 ad rating items. Three items were open-ended and one item gauged gender-neutrality of the ads. Therefore, for each of the three pairs of ads, we conducted a series of principal components factor analyses with varimax rotation on the remaining 40 likert-type (1 = not at all to 5 = extremely) rating scales. As described in the Methods section, the items were subdivided into four sections: (1) Message-referent Features (13 items), (2) Plot-referent Emotions (12 items), and (3) Self-referent Emotions (8 items, including the 4-item anger component of the state reactance scale). Together with the anger items

embedded within the Self-referent Emotions measure, a separate 4-item Threat to Freedom scale made up the (4) State Reactance measure. A total of two items (“amused” and “offended”) were excluded due to negligible loadings on any of the factors, leaving a total of 38 items that were used in the data analyses.

3.4.1 Message-referent Features

The factor analyses for each of the three pairs of ads yielded three factors explaining 73.01%, 71.69%, and 70.01% of the variance for the first, second, and third pairs, respectively.

The three scales derived from these factors are as follows: Message Effectiveness (6 items, $\alpha = .82$; “This ad is: creative, original, memorable, visually appealing, effective, convincing”), Message Credibility (5 items, $\alpha = .80$; “I: Like this ad, can relate to this ad, think my peers can relate to this ad, This ad is believable, This ad is realistic”), and Message Absurdity (2 items, $\alpha = .71$; “This ad is: stupid, ridiculous”).

3.4.2 Plot-referent Emotions

The factor analyses for each of the three pairs of ads yielded two factors explaining 67.72%, 77.79%, and 76.81% of the variance for the first, second, and third pairs, respectively.

The two scales derived from these factors are as follows: Plot-referent Promotion Emotions (6 items, $\alpha = .94$; “Placing yourself in the position of one of the characters in the ad, how do you think you would feel? Happy, proud, pleased, hopeful, content, excited”). Plot-referent Prevention Emotions (6 items, $\alpha = .93$; “Placing yourself in the position of one of the characters in the ad, how do you think you would feel? Afraid, guilty, embarrassed, ashamed, hopeless, worried”).

3.4.3 Self-referent Emotions

The factor analyses for each of the three pairs of ads yielded two factors explaining 67.91% and 64.67%, of the variance for the first and second ad pairs, respectively. For the third pair, three factors explained 75.86% of the variance.

The two scales derived from these factors are as follows: Self-referent Promotion Emotions (4 items, $\alpha = .89$; “How did this ad make you feel? Inspired, energized, optimistic, confident”) and Self-referent Anger (4 items, $\alpha = .90$; “How did this ad make you feel? Irritated, annoyed, aggravated, angry”. Item “offended” was deleted for parsimony as these four original items by Dillard and Shen (2005) still had very good internal consistency after this item’s exclusion).

The item “amused” was excluded because it did not reliably load on either the Self-referent Promotion Emotions or Self-referent Anger factors for any of the three ad pairs. Another item, “anxiety”, loaded equally on the Self-referent Promotion Emotions and Self-referent Anger factors for the first two ad pairs and loaded on its own factor for the third ad pair. Because it was deemed important to have a variable tapping prevention emotions, anxiety was excluded from these factors and was instead used by itself as “Self-referent Prevention Emotion”.

Dillard and Shen’s Threat to Freedom subscale (“This ad... Threatened my freedom to choose, tried to make a decision for me, tried to manipulate me, and tried to pressure me”.) was internally consistent ($\alpha = .93$).

Finally, the 8-item State Reactance measure (Dillard and Shen, 2005), a composite of the four-item Self-referent Anger and the four item Threat to Freedom subscale was also internally consistent ($\alpha = .93$). From here on in, Ad Anger and Threat to Freedom scales will be grouped together and referred to as “State Reactance”.

The psychometric properties of these “reactions to advertisements” variables are presented in Table 2. An examination of the means indicates that respondents, as a group, did not have particularly strong positive or negative reactions to the ads. The correlations between ad ratings and the dependent measures, after covarying baseline AUDIT scores and ad order are presented in Table 3. The pattern indicates that favorable message-referent ad ratings (higher effectiveness, higher credibility and lower absurdity) predict openness to alcohol treatment should it be needed. It also indicates that plot-referent promotion emotions and self-referent optimism in response to the ads predicted the intention to use strategies to reduce the risk of binge drinking. Finally, the more the ad generated emotions, be they promotion- or prevention-associated, the less inclined the students were to drink in the upcoming three months.

3.5 Manipulation Check on Affect Induced by Advertisement Type

To determine whether our gain- and loss-framed ads induced the type of emotions one would expect of individuals in promotion or prevention regulatory states, respectively, we conducted a one-way MANOVA on the averaged (over the three viewed ads) plot-referent emotions (promotion and prevention) and self-referent emotions (promotion, prevention, and state reactance). A strong ad type (gain-framed vs. loss-framed) effect was observed, $F(5, 200) = 48.67, p < .001, \eta_p^2 = .549$. The one-way UNIANOVAs indicated that, as one would expect, compared to the loss-framed ads, gain-framed ads evoked higher levels of self-referent promotion emotions, $F(1, 204) = 24.76, p < .001, \eta_p^2 = .108$ ($M = 1.82, SD = .59$ vs. $M = 1.43, SD = .53$), plot-referent promotion emotions $F(1, 204) = 136.57, p < .001, \eta_p^2 = .401$ ($M = 2.49, SD = .74$ vs. $M =$

Table 2: Psychometric Properties of Advertisement Ratings

Table 2

Psychometric Properties of Advertisement Ratings (N = 208)

Variable	# of Items	<i>M</i>	<i>SD</i>	Median	Range		α	Skew	Kurtosis
					Potential	Observed			
Message-referent Features									
Effectiveness	6	2.67	.52	2.67	1-5	1.17-4.35	.82	.02	.22
Credibility	5	2.81	.57	2.80	1-5	1.00-4.40	.80	.08	-.04
Absurdity	2	1.87	.62	1.83	1-5	1.00-3.67	.71	.50	-.46
Plot-referent Emotions									
Promotion	6	2.00	.83	1.83	1-5	1.00-4.56	.94	.67	-.35
Prevention	6	2.19	.81	2.03	1-5	1.00-4.67	.93	.65	-.08
Self-referent Emotions									
Promotion	4	1.64	.59	1.50	1-5	1.00-3.25	.89	.82	-.20
Prevention	1	1.50	.69	1.17	1-5	1.00-4.00	--	--	--
Anger	4	1.48	.55	1.25	1-5	1.00-3.25	.90	1.31	.86
Threat to Freedom	4	1.96	.76	2.00	1-5	1.00-4.00	.93	.42	-.70
State Reactance ^a	8	1.72	.56	1.62	1-5	1.00-3.38	.93	.71	-.08

Note. α = Cronbach's alpha. ^aState reactance measure is aggregate of anger and threat to freedom measures.

Table 3: Partial Correlations between the Dependent Variables and the Advertisement Ratings

Table 3

Partial Correlations¹ between the Dependent Variables and the Advertisement Ratings² (N = 208)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Drinking Intentions											
(2) Alcohol-reduction	-.23**										
(3) Help-seeking	.03	.15*									
(4) Contribution Amount	-.07	.01	.15*								
(5) <i>Message Effectiveness</i>	-.16*	.09	.20**	.09							
(6) <i>Message Credibility</i>	-.14*	.05	.21**	.09	.80***						
(7) <i>Message Absurdity</i>	-.09	-.05	-.25***	.02	-.18**	-.26***					
(8) <i>Plot-referent Promotion</i>	.01	.16*	.04	.08	.15*	.08	.17*				
(9) <i>Plot-referent Prevention</i>	-.23**	-.03	.09	.17*	.18*	.28***	.07	-.40***			
(10) <i>Self-referent Promotion</i>	-.16*	.21**	.08	.18*	.41***	.34***	.11	.60***	-.01		
(11) <i>Self-referent Prevention</i>	-.19**	.17*	-.01	.17*	.12	.16*	.28***	.06	.47***	.42***	
(12) <i>State Reactance</i>	-.14*	.05	-.09	.05	-.03	-.03	.42***	.16*	.22**	.44***	.60***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

¹Controlling for the AUDIT score and ad order.

²Correlations pertaining to the advertisement reactions measures are italicized.

1.44, $SD = .51$), and lower levels of self-referent prevention emotion, $F(1, 204) = 5.79$, $p = .017$, $\eta_p^2 = .028$ ($M = 1.40$, $SD = .68$ vs. $M = 1.62$, $SD = .69$), and lower levels of plot-referent prevention emotions, $F(1, 20 \times 4) = 116.06$, $p < .001$, $\eta_p^2 = .363$ ($M = 1.73$, $SD = .54$ vs. $M = 2.70$, $SD = .75$). Although it was expected that prevention ads would engender more reactance than the promotion ads, this was not the case, $F(1, 204) = .003$, $p = .956$.

3.6 Gender Differences

We conducted a series of one-way ANOVAs to investigate the differences between males and females in their reactions to the ads (Table 4), in the dependent variables and the individual difference measures (Table 5), and calculated partial correlations (controlling for the AUDIT and ad order) between gender and other variables (Table 6). Taken together, these findings indicate that females evaluated the ads more favorably than males and the ads evoked more reactance in males than females.

In the next section, we will discuss our three main hypotheses. In all of the subsequent analyses, we controlled for the AUDIT score and ad order.

3.7 Testing of Hypotheses

3.7.1 Hypothesis 1: The Main and Interactive Effects of Ad Type and Chronic Regulatory Focus

(a) We predicted a priming by ad type interaction effect on drinking intentions and valuing of alcohol treatments. That is, students who would experience regulatory fit by viewing ads (gain/promotion focused or loss/prevention focused) that were congruent with the priming condition they were in (no prime, promotion prime, or prevention prime) would rate the ads more favorably and report lower drinking intentions and higher

valuing of alcohol treatments than those who viewed incongruent ads (students who experienced regulatory mismatch), due to the positive effect of regulatory fit on motivation. However, given the priming manipulation did not affect participants' regulatory focus; it did not make sense to run this analysis.

Table 4: Gender Differences in Advertisement Ratings

Table 4

Gender Differences in Advertisement Ratings (N = 208)

Variable	Males (n = 100)		Females (n = 107)		F-statistic
	M	SD	M	SD	
Message-referent Features					
Effectiveness	2.55	.52	2.79	.50	$F(1, 205) = 11.96, p = .001^{**}$
Credibility	2.66	.54	2.95	.55	$F(1, 205) = 14.83, p < .001^{***}$
Absurdity	1.99	.64	1.75	.57	$F(1, 205) = 7.74, p = .006^{**}$
Plot-referent Emotions					
Promotion	2.07	.84	1.93	.83	$F(1, 205) = 1.44, p = .231$
Prevention	2.19	.70	2.20	.89	$F(1, 205) = .001, p = .972$
Self-referent Emotions					
Promotion	1.66	.60	1.62	.58	$F(1, 205) = .322, p = .571$
Prevention	1.55	.72	1.46	.66	$F(1, 205) = .733, p = .393$
State Reactance	1.84	.57	1.60	.53	$F(1, 205) = 10.00, p = .002^{**}$

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5: Gender Differences in the Dependent Variables and the Individual Difference Measures

Table 5
Gender Differences in the Dependent Variables and the Individual Difference Measures (N = 208)

Variable	Males (n = 100)		Females (n = 107)		F-statistic
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Dependent Variables					
Drinking Intentions	1.81	.85	1.46	.68	$F(1, 205) = 8.70, p = .004^{**}$
Alcohol-reduction	2.66	.81	2.89	.92	$F(1, 205) = 3.62, p = .058$
Help-seeking	4.10	1.74	4.22	1.79	$F(1, 205) = .214, p = .644$
Contribution Amount	54.54	83.68	86.73	95.92	$F(1, 205) = 6.54, p = .011^*$
Individual Differences					
Chronic Promotion Focus	6.27	1.40	6.95	1.24	$F(1, 205) = 13.76, p < .001^{***}$
Chronic Prevention Focus	5.38	1.22	5.65	1.33	$F(1, 205) = 2.30, p = .131$
Chronic Regulatory Focus	.88	1.61	1.29	1.58	$F(1, 205) = 3.45, p = .065$
Trait Reactance	41.33	7.38	40.52	8.10	$F(1, 205) = .563, p = .454$
AUDIT	10.75	6.18	8.94	5.50	$F(1, 205) = 4.95, p = .027^*$

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6: Partial Correlations between Gender, the Dependent Variables, and the Individual Difference Measures

Table 6

Partial Correlations¹ between Gender, the Dependent Variables², and the Individual Difference Measures (N = 208)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Gender ³									
(2) <i>Drinking Intentions</i>	-.21**								
(3) <i>Alcohol-reduction</i>	.13	-.32***							
(4) <i>Help-seeking</i>	.03	.00	.14*						
(5) <i>Contribution Amount</i>	.18*	-.10	.02	.15*					
(6) Chronic Promotion Focus	.25***	-.03	.08	.27***	.12				
(7) Chronic Prevention Focus	.10	-.07	-.07	.05	.15*	.24**			
(8) Chronic Regulatory Focus	.13	.03	.12	.19**	-.02	.64***	-.59***		
(9) Trait Reactance	-.05	.02	-.14	-.20**	.00	-.05	.25***	-.24**	
(10) AUDIT	-.17*	.62***	-.23**	-.04	-.09	-.13	-.06	-.07	.14*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

¹Controlling for the AUDIT (except for those involving the AUDIT) and ad order.

²Correlations pertaining to the dependent variables are italicized.

³1 = male. 2 = female.

(b) We predicted a chronic regulatory focus (chronic promotion focus vs. chronic prevention focus) by ad type (gain-framed vs. loss-framed) interaction on drinking intentions and the valuing of alcohol treatments. That is, we expected that students who would experience regulatory fit through viewing ads that matched their chronic regulatory focus would rate the ads more favorably and report lower drinking intentions and higher valuing of alcohol treatments than those who experienced regulatory mismatch. To test this, we ran three two-way MANOVAs on the drinking intentions and the valuing of alcohol treatments with ad type as one of the two fixed factors. In the first MANOVA, chronic regulatory focus (high versus low, based on a median split) was the second fixed factor, in the second MANOVA, chronic promotion focus (high versus low) was the second fixed factor, and in the third MANOVA, chronic prevention focus (high versus low) was the second fixed factor.

The chronic regulatory focus \times ad type interaction was not statistically significant, $F(4, 196) = .460, p = .766$, nor was the interaction between ad type and chronic promotion regulatory focus, $F(4, 196) = .792, p = .531$. The ad type \times chronic prevention focus was also statistically not significant, $F(4, 196) = 1.33, p = .260$.

Although not predicted a priori, the two-way MANOVA of ad type by chronic promotion focus yielded a main effect for regulatory focus, $F(4, 196) = 5.26, p < .001, \eta_p^2 = .097$. One-way UNIANOVAs revealed that this main effect of chronic promotion focus was driven by a highly statistically significant effect on the intent to seek professional help in the face of a drinking problem, $F(1, 199) = 20.08, p < .001, \eta_p^2 = .092$, with those more promotion-oriented more inclined to seek help for a potential

drinking problem ($M = 4.65$, $SD = 1.77$) than those less promotion-oriented ($M = 3.67$, $SD = 1.61$).

(c) We predicted a main effect of ad type on drinking intentions. That is, as per the small but significant advantage of gain-framed ads over loss framed ads, documented in the literature, we expected that gain-framed ads would lead to more favorable ad ratings, decreased drinking intentions and increased valuing of alcohol treatments. This hypothesis was not borne out, as in none of the three two-way MANOVAs described above the main effects of the ad type were statistically significant: $F(4, 196) = .995$, $p = .412$, $F(4, 196) = 1.03$, $p = .391$, and $F(4, 196) = 1.02$, $p = .400$, respectively.

3.7.1.1 Mediation Analyses for Hypothesis 1

In the interest of further exploring what could account for the observed association between a higher promotion focus and the inclination to seek treatment for an alcohol-related problem, mediation analyses for the ad rating variables that qualified as possible mediators were conducted.

As per Preacher and Hayes (2004, 2008), only variables that correlate with both the independent variable (in this case, chronic promotion focus) and the dependent variable (in this case, the inclination to seek treatment for a drinking problem) could qualify as potential mediators. Once those variables are identified, their mediational role can be assessed by evaluating the extent to which the impact of the independent variable and dependent variable is diminished after controlling for the proposed mediator.

In this and all forthcoming mediational analyses, the strength of the mediational effect was assessed by the Sobel (z) test (Preacher & Leonardelli, 2013).

Based on partial correlations between ad ratings, chronic promotion focus, and intentions to seek professional help in the face of a drinking problem, while controlling for the effects of the AUDIT score and ad order, only message effectiveness, credibility and absurdity met the criteria for mediation (Table 7). That is, effectiveness, credibility, and absurdity were significantly associated with both chronic promotion focus and intentions to seek professional help for a potential drinking problem. Sobel tests showed that while message absurdity and credibility were marginally significant ($z = 1.94, p = .052$ and $z = 1.79, p = .072$, respectively), message effectiveness was a not a significant

Table 7: Partial Correlations for Variables of Interest in the Mediation Analyses

Table 7

Partial Correlations¹ for Variables of Interest^{3,4} in the Mediation Analyses (N = 208)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Gender ²										
(2) Chronic Promotion Focus	.23**									
(3) Trait Reactance	-.03	-.03								
(4) Drinking Intentions	-.14*	.07	-.08							
(5) Alcohol-reduction	.09	.04	-.11	-.23**						
(6) Help-seeking	.03	.26***	-.21**	.03	.14*					
<i>(7) Message Effectiveness</i>	.21**	.16*	-.16*	-.16*	.07	.18*				
<i>(8) Message Credibility</i>	.26***	.24**	-.10	-.14	.02	.19**	.80***			
<i>(9) Message Absurdity</i>	-.16*	-.28***	.16*	-.10	-.03	-.23**	-.16*	-.24**		
<i>(10) Self-referent Promotion</i>	-.03	-.12	.16*	-.18**	.15*	-.02	.10	.13	.31***	
<i>(11) State Reactance</i>	-.18*	-.24***	.22**	-.15*	.06	-.07	-.03	-.04	.44***	.62***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

¹Controlling for the AUDIT (except for those involving the AUDIT) and ad order.

²1 = male, 2 = female.

³Correlations pertaining to the advertisement reactions measures are italicized.

⁴Correlations pertaining to the dependent variables are emboldened.

mediator of the relationship between chronic promotion focus and intentions to seek professional help for a potential drinking problem ($z = 1.64, p = .100$).

3.7.2 Hypothesis 2: The Main Effect of Trait Reactance

We predicted a main effect of trait reactance on drinking intentions and the valuing of alcohol treatments. That is, students with high trait reactance would rate the ads negatively and would report no improvements in their drinking intentions and valuing of alcohol treatments after seeing the ads. A one-way MANOVA on the drinking intentions and the valuing of alcohol treatments with the trait reactance (high vs. low) as a fixed factor yielded a significant main effect for trait reactance, $F(4, 197) = 3.32, p = .012, \eta_p^2 = .063$. One-way UNIANOVAs revealed that this main effect of trait reactance was driven by a statistically significant effect on the intent to seek professional help in the face of a drinking problem, $F(1, 200) = 5.34, p = .022, \eta_p^2 = .026$. Participants with high trait reactance were less inclined to seek professional help for a potential drinking problem ($M = 3.88, SD = 1.85$) than those low in trait reactance ($M = 4.46, SD = 1.58$).

3.7.2.1 Mediation Analysis for Hypothesis 2

Based on partial correlations between ad ratings, trait reactance, and intentions to seek professional help in the face of a drinking problem, while controlling for the effects of the AUDIT score and ad order, only message effectiveness and absurdity met the criteria for mediation (Table 7). That is, message effectiveness and absurdity were significantly associated with both trait reactance and intentions to seek professional help in the face of a drinking problem. Sobel tests indicated that message absurdity was a marginally significant mediator of the relationship between trait reactance and the intentions to seek help for a potential drinking problem ($z = -1.84, p = .065$) whereas message-referent effectiveness was not a mediator ($z = -1.47, p = .141$).

3.7.3 Hypothesis 3: The Main Effect of Gender

(a) We predicted a main effect of gender on drinking intentions and the valuing of alcohol treatments and also on ad ratings, with females responding to the ads better with lower drinking intentions and higher valuing of alcohol treatments than males.

We conducted a one-way MANOVA on drinking intentions and the valuing of alcohol treatments with gender as the fixed factor. As hypothesized, there was a significant main effect of gender, $F(4, 197) = 2.69, p = .032, \eta_p^2 = .052$. One-way UNIANOVAs revealed that the main effect of gender was driven by statistically significant effects on the intended monetary contribution amount to a hypothetical UWO alcohol problem intervention and treatment program, $F(1, 200) = 6.18, p = .014, \eta_p^2 = .030$, and drinking intentions over the next three months, $F(1, 200) = 4.22, p = .041, \eta_p^2 = .021$. Females expressed significantly higher intentions to financially support a potential UWO alcohol treatment program ($M = 86.73, SD = 95.92$) compared to males ($M = 54.54, SD = 83.68$), and females reported lower intentions to drink over the next three months ($M = 1.46, SD = .86$) than males ($M = 1.81, SD = .85$).

As per the gender differences in ad ratings presented in Table 5 and the partial correlations in table 7, as noted earlier, females regarded the ads as more effective, credible, and less absurd than males and responded with less reactance.

3.7.3.1 Mediation Effect of Gender

Partial correlations between ad ratings, gender, independent variables, and dependent variables, while controlling for the effects of the AUDIT score and ad order, showed that only message effectiveness and state reactance were potential mediators of the relationship between gender and drinking intentions over the next three months (Table 7). Sobel tests revealed that ad effectiveness' mediation effect was not significant ($z = -1.61, p = .110$) whereas state reactance

was a marginally significant mediator of the relationship between gender and drinking intentions ($z = 1.92, p = .055$).

(b) We wanted to explore the possible interaction between gender and ad type to determine whether there was interaction between gender and message framing that affected drinking intentions and the valuing of alcohol treatments.

A two-way MANOVA on drinking intentions and the valuing of alcohol treatments with gender and ad type as the fixed factors was significant, $F(4, 195) = 2.83, p = .026, \eta_p^2 = .055$. One-way UNIANOVAs revealed that the gender \times ad type interaction was driven by a statistically significant effect on intended monetary contribution amount to a hypothetical UWO alcohol treatment program, $F(1, 198) = 4.27, p = .040, \eta_p^2 = .021$. Females who viewed the loss-framed ads were more inclined to financially support a hypothetical UWO alcohol treatment program ($M = 100.10, SD = 103.86$) than males who viewed the same ads ($M = 45.52, SD = 76.46$). This interaction is described in Figure 3. As can be seen, even though females reported slightly higher contribution amounts across the board, gain-framed ads did not cause significant differences in contribution amounts between males and females. However, males who viewed the loss-framed ads reported the lowest contribution amounts, whereas females who viewed the

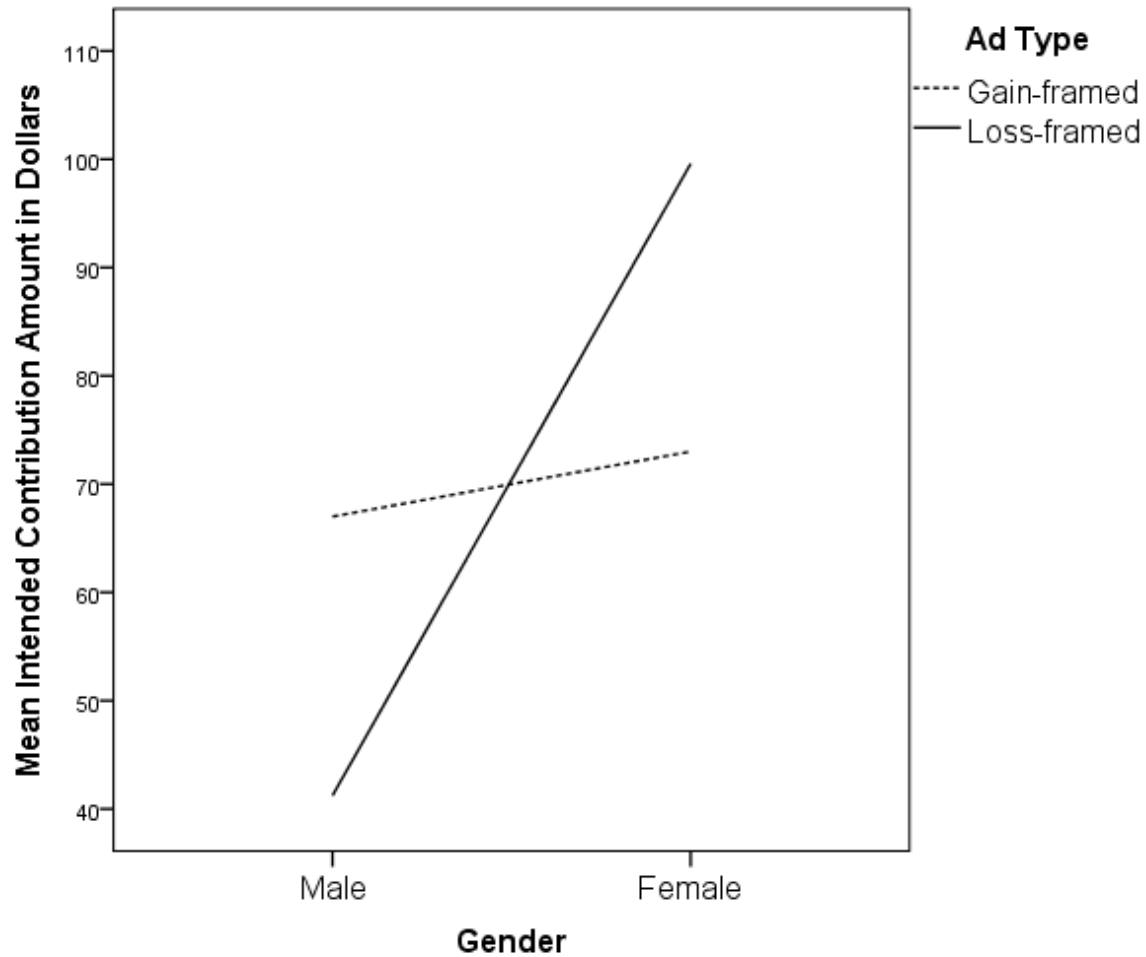


Figure 3: Gender by Ad Type Interaction on the Hypothetical Contribution Amount

loss-framed ads reported the highest contribution amounts. Based on this interaction, it appears that gain-framed ads are better received by males than loss-framed ads, and moreover, presenting males with loss-framed messages may actually backfire.

Chapter 4 : Discussion

In the sections that follow, the key findings pertaining to the three hypotheses will be discussed in sequence. Next, the implications of the most notable findings will be considered, followed by study limitations and future directions.

This was the first study to directly test regulatory fit – either manipulated or dispositional – as it is applied to framing persuasive appeals to minimize hazardous drinking at a Canadian university. Furthermore, we also aimed to add to the literature by investigating whether trait reactance and gender affected receptivity to promotion versus prevention oriented ads.

1 Regulatory Fit

1.1 Regulatory Focus Priming and Advertisement Message Framing

We found no evidence for regulatory fit. That is, ad type did not interact with any of the three dispositional regulatory measures (chronic promotion focus, chronic prevention focus, and their composite, chronic regulatory focus), gender or trait reactance to influence drinking intentions and the valuing of alcohol treatments.

This finding is inconsistent with the literature on inducing regulatory fit through matching the prime with the message frame. This effect was first demonstrated by Lee and Aaker (2004) who were able to prime their participants with either health-promotion or disease-prevention messages prior to exposing them to gain- or loss-framed health messages about keeping arteries unclogged. The regulatory fit between the prime and the message frame led to more favorable attitudes towards engaging in health-promotion behaviors. Similar effects of regulatory fit – achieved through matching the prime with

the message frame – have been demonstrated by Kim (2006) and Haaga et al. (2008) in the context of cigarette smoking reduction.

In contrast, our regulatory focus priming task did not produce regulatory fit. Given the findings of Lee and Aaker (2004), Kim (2006), and Haaga et al. (2008), one would expect that the students who received ads that fit their induced regulatory focus to experience regulatory fit and rate the ads more favorably, report lower drinking intentions and higher valuing of alcohol treatments. However, we found no evidence that the priming task worked.

The ineffectiveness of regulatory focus priming may be due to the dosage of the priming task we used. It might not have been sufficient to have students think about one positive or negative academic outcome that they want to achieve or avoid and then write down three strategies to promote or prevent this outcome to induce a promotion or a prevention focus. Thus, future directions in this area may involve increasing the intensity of the priming task or using multiple priming tasks.

Another explanation for the ineffectiveness of the regulatory focus priming task may be related to its topic. The studies that were able to prime regulatory focus used priming messages and tasks that were somehow related to the target health-promotion behaviors described in the ads. Lee and Aaker (2004) primed participants by a paragraph about the health effects of drinking juice in the context of promoting unclogged arteries, and Kim (2006) used a priming paragraph about the health benefits of drinking soymilk followed by the main messages aimed at decreasing smoking. On the contrary, we asked participants to think about their academic goals to induce regulatory focus in a study that ultimately aimed at reducing drinking intentions. The discrepancy between the topic of

the academic goals prime and the binge drinking reduction ads might have led to the regulatory mismatch between the regulatory focus prime and the message frame.

1.2 Chronic Regulatory Focus and Message Framing

We did not find any evidence to support the prediction that a message frame that is congruent with a participant's chronic regulatory focus would be more effective than one that is not.

This failure to observe an interaction between regulatory focus and message frame is inconsistent with the findings of Daryanto et al. (2010) who were able to increase the valuing and intensity of exercise in a health club through matching message frames to customers' chronic regulatory focus. Similarly, Avnet and Higgins (2003) found that participants were willing to pay "over 40% more for a product when it was chosen with a strategy that fit their regulatory orientation" (p. 525). Moreover, Cesario et al. (2004) increased healthy diet messages' persuasiveness through matching their frame to participants' regulatory focuses.

The absence of evidence for regulatory fit in our study might be due to the students' approaches to the ads. Students might not have thought of the ads as "gain" or "loss" framed. Even though the students rated the promotion and prevention ads significantly differently in terms of their message-referent features, plot- and self-referent emotions that are usually associated with either a promotion or a prevention focus, given the overall low ratings for the ads, it appears that none of the ads were striking or particularly arousing.

Future studies may overcome such issues by piloting their ads on larger samples multiple times until the ads reach an optimal level of engrossment that strongly activates a promotion or a prevention focus.

Furthermore, in the present study, the mediating effects of ad features were marginally statistically significant at best. This may be thought to indicate that the ads had very little effect on participants' drinking intentions and the valuing of alcohol treatments. Given that we did find significant main effects for chronic promotion focus, trait reactance, and gender, this may indicate that these individual difference variables may actually be more important than induced regulatory focus or the ad features in reducing drinking intentions among university students.

1.3 The Effects of Chronic Promotion Focus

Although this was not anticipated, we found that, regardless of the type of ad they saw, those high in chronic promotion focus were more inclined to seek treatment for a potential drinking problem than those low in chronic promotion focus. This finding is consistent with those of Cesario et al. (2004) and Latimer et al. (2007), who found that regulatory concerns associated with a promotion focus boost behaviors that are associated with health-promotion. A chronic prevention focus, on the other hand, has been associated with energizing behaviors that are related to disease detection such as getting a mammogram (Finney & Iannotti, 2002; Rothman, Salovey, Turvey, & Fishkin, 1993).

The behaviors that our ads encouraged, namely, drinking responsibly to enjoy its social benefits (gain-framed) versus not binge drinking to avoid its negative social repercussions (loss-framed) both happen to be health-promotion behaviors. Based on the emotions they evoked, our loss-framed ads did appear to have induced a prevention

focus. However, it could be argued that avoiding binge drinking is actually a health-promotion behavior. Therefore it makes sense that these ads would be more effective on people who are primarily motivated by eagerly maximizing gains rather than vigilantly avoiding losses.

Given the majority of our sample ($n = 152$; 73.1%) were chronically promotion focused according to the GRFM, this finding is encouraging. The finding that university students tend to be promotion focused has been replicated across studies (Higgins et al., 2001; Higgins, 2005). This is positive because a chronic promotion focus by itself can boost the effectiveness of any type of anti-binge drinking message since the act of abstaining from alcohol itself is a behavior that is highly consistent with a promotion focus.

2 Trait Reactance

2.1 Effects of Trait Reactance

As predicted, we found that those high in trait reactance were less inclined to seek professional help in the event of a drinking problem than those low in trait reactance. This result is consistent with the findings of Dillard and Shen (2005) and Jung et al. (2010) which show that messages that discourage hazardous drinking are perceived as freedom-threatening by university students, especially by those with high dispositional reactance. It appears that regardless of the message content, presenting university students with recommendations by itself causes reactance (Bushman & Stack, 1996; Fitzsimmons & Lehmann, 2004). Moreover, Karno and Longabaugh (2005) have found that high trait reactance predicted dropping out of alcohol treatment. In light of these findings, it makes sense that, students who are very prone to feeling a threat to their

freedom by viewing hazardous drinking moderation ads would also be less inclined to seek professional help in the face of a drinking problem. Students high in trait reactance already do not like being told what to do – even by a seemingly noncontrolling ad – and thus it is natural that the thought of seeing a professional for guidance with a drinking problem would not appeal to them.

This finding confirms the importance of creating ads that circumvent reactance for university students. Considering that our ads evoked minimal levels of reactance in our sample, their main features – non-prescriptiveness, gender neutrality, depiction of social consequences of drinking, and inclusion of helpful drinking reduction strategies – could be used to guide efforts to craft persuasive appeals to minimize hazardous drinking among university students.

Reactance is an important issue in framing messages to minimize hazardous drinking in this population (Campo & Cameron, 2006; Quick & Bates, 2010). A future direction in this area might be investigating the costs and benefits associated with binge drinking among students with high trait reactance. Then, this information could be used – in ads or other interventions – to create discrepancy between students' ideals and current hazardous drinking in an effort to moderate it.

3 Gender

3.1 The Effects of Gender

We predicted a main effect of gender on drinking intentions, valuing of alcohol treatments, and ad ratings. Consistent with this hypothesis, females were more inclined to contribute higher amounts to a hypothetical UWO alcohol problem prevention and treatment program than males. Females also reported lower intentions to drink over the

next three months, regarded the ads as more effective, credible, and less absurd than males, and responded with less reactance.

These findings are consistent with the literature on gender differences in alcohol consumption and the related consequences. Ham and Hope (2003) found that, overall, male students drink more and experience a higher number of negative consequences. Furthermore, Kelly-Weeder (2008) suggested that female students are more open to treatment for a variety of issues including alcohol problems. Given that it appears to be relatively easier to moderate binge drinking among female students, more research specifically targeting male students is needed.

3.2 The Interaction of Gender and Message Framing

We also predicted and observed a gender by ad type interaction. Females who viewed the loss-framed ads were inclined to provide more monetary support for a campus-wide alcohol treatment effort than males who viewed loss-framed ads and females who viewed gain-framed ads.

One possible explanation as to why loss-framed ads were more effective particularly among females might come from considering the likely effects of perceived power differences between men and women. In the only study regarding the gender differences in chronic regulatory focus that we were able to find, Sassenberg, Brazy, Jonas, and Shah (2012) suggested that associating oneself with low versus high power groups affected chronic regulatory focus. They found that women who view themselves as members of low-power groups tend to be more concerned with security and thus adopt a prevention focus, whereas men tend to associate with high-power groups, care more about accomplishment and in turn adopt a promotion focus. This finding might explain

why loss-framed ads resonated more with female students. However, the fact that women were more chronically promotion oriented than men in our sample is inconsistent with the findings of the only study on the relationship between gender and chronic regulatory focus. Clearly, more research is needed to explore the gender and chronic regulatory focus relationship.

One implication of this finding is that a gender-based approach to message framing in efforts to moderate hazardous drinking may be fruitful. How might one implement a gender-specific ad campaign on university campuses? University students use social media very frequently and websites like Facebook ask for users' gender. They then use this information to send their users gender-specific advertisements such as condom ads for men and perfume ads for women. A similar approach to alcohol reduction campaigns can be adopted by organizations. For example, universities may try to send loss-framed anti-binge drinking ads to only females. Moreover, due to their higher baseline levels of both binge drinking and trait reactance, it might be more appropriate to present male students with noncontrolling messages regarding the social consequences of binge drinking.

It is certain that further research is required to tease apart the relationships between gender, chronic regulatory focus, trait reactance, message framing, and drinking.

4 Limitations

This study is limited in that it involved a relatively small sample on only one university campus. Another limitation is that the results depend on self-report data regarding future drinking intentions and the inclinations to value alcohol treatments.

There is no guarantee that the intentions that students reported reflect or will reflect their actual behaviors.

Nevertheless, we found that the experiencing of regulatory fit while viewing gain- or loss-framed ads may not be as crucial in the promotion of health behaviors as previously thought. We have discovered that individual differences in gender, regulatory focus, and trait reactance, as well as specific ad features such as optimism and absurdity may in fact be more important factors than the particular message frame in health behavior change.

These findings cast doubt on the argument that regulatory fit – either natural (i.e., individual's chronic regulatory focus) or induced – boosts the effects of gain- or loss-framed health-promotion messages.

Another limitation of this study may be the absence of baseline measures of intentions to employ alcohol-reduction strategies, intentions to seek professional help for a potential drinking problem, and inclinations to financially contribute to a hypothetical alcohol problem prevention and treatment program. Because we did not have the pre-test values for any of our dependent measures except for drinking intentions over the next three months, we were unable to analyze how each of the four dependent variables changed after exposure to ads. However, including these three baseline measures would have alerted the participants to the true purpose of our study, which likely would result in increased reactance and defensive responding.

A final limitation of this study is that, due to the length and repetitiveness of the survey items, fatigue may have affected the quality of responses. The survey took about an hour to complete and because each of the three ads were followed by the same 44

items, students might have responded carelessly in an effort to finish up the survey as quickly as possible to receive their academic credit. Further research should aim at using a smaller number of ads and items developed through extensive piloting.

5 Future Directions

Excessive alcohol consumption is a serious problem on Canadian campuses, including the university in which this study was conducted; over 50% of the sample evidenced signs of high-risk or hazardous drinking. Yet, good research effectiveness of advertisement-based drinking moderation campaigns is scarce (Perkins, 2007)

Although this study's findings did not support the notion of 'regulatory fit', regulatory focus theory, in part because it suggests an alternative to the prescriptive tone of many anti-alcohol campaigns, remains a viable alternative to crafting persuasive appeals to young adults who bristle at being told what (not) to do.

Moreover, the results suggest that, beyond framing, individual factors such as gender and trait reactance as well as particular features of the ads that are not directly related to the ads' frame (i.e., their perceived credibility, absurdity, and effectiveness) should also be considered. In creating binge drinking moderation ads, university administrators should be attuned to the newly emerging and complex gender differences in reactions to specific alcohol-reduction or alcohol-related help-seeking goals. Clearly, more research is needed to identify the specific features that affect gain- versus loss-framed ads' effectiveness.

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Appendices

Appendix A: Preliminary Advertisements



A gain-framed responsible drinking promotion ad.



A loss-framed binge drinking prevention ad.

The image shows a screenshot of a Facebook profile for a student named Chris Hurley. The profile header includes the name "Chris Hurley" and a cover photo of a football team in purple and white uniforms. The profile information section lists "Lives in London, Ontario" and "From Toronto, Ontario". The main content area shows a status update from Alana Baker, a comment from Chris Hurley, and a post from Ashley Harris. A large photo of a group of people is visible at the bottom of the profile. At the very bottom of the page, there is a responsible drinking promotion ad with the text: "Less alcohol doesn't mean less fun. Binge drinking won't better your university experience. How do you want to be remembered?" and the Western University logo.

A gain-framed responsible drinking promotion ad in the form of a student's facebook profile.

The image is a screenshot of a Facebook profile for Ashley Harris. The profile header includes the name "Ashley Harris" and navigation options like "Update Info" and "Activity Log". The bio lists "Lives in London, Ontario", "From London, Ontario", "Female", and "UWO". The profile picture is a collage of photos, including a group of friends in purple shirts and a person in a white bikini. The main content area shows a status update from Alana Baker, a tweet from Jayne Ford, and a photo from Greg Morrison. The right sidebar shows a list of friends including Chris Hurley, Greg Morrison, Jayne Ford, and Alana Baker. The bottom of the profile features a navigation bar with "Status", "Photo", "Place", and "Life Event" options.

facebook 34 Search Ashley Harris

Now
March
2012
2011
2010
2009
2008
2007
Born

Ashley Harris Update Info Activity Log

Lives in London, Ontario
From London, Ontario
Female
UWO
About Friends 851 Photos 827 Map 77 Likes 109

Status Photo Place Life Event

What's on your mind?

Alana Baker
1 hour ago near London ✨
Wooah you loooked soo messy last night..you've got some serious untagging to do.
Like - Comment

Jayne Ford
15 minutes ago via Twitter
omg @Ashesanddust you puked all over my new coat last night!! you better come wash it...i'm not touching that.
@JayneWO12 on Twitter - via Twitter

Activity Recent

Photo Ashley was tagged in 34 photos in Chris Hurley's album JBRS Birthdays feat. drunk Ashley.

Greg Morrison
March 31 via Instagram
Oh shiiiiit with Ashley Harris

Maddison Sonke likes this.

Chris Hurley
153 mutual friends

Greg Morrison
114 mutual friends

Jayne Ford
87 mutual friends

Alana Baker
5 mutual friends

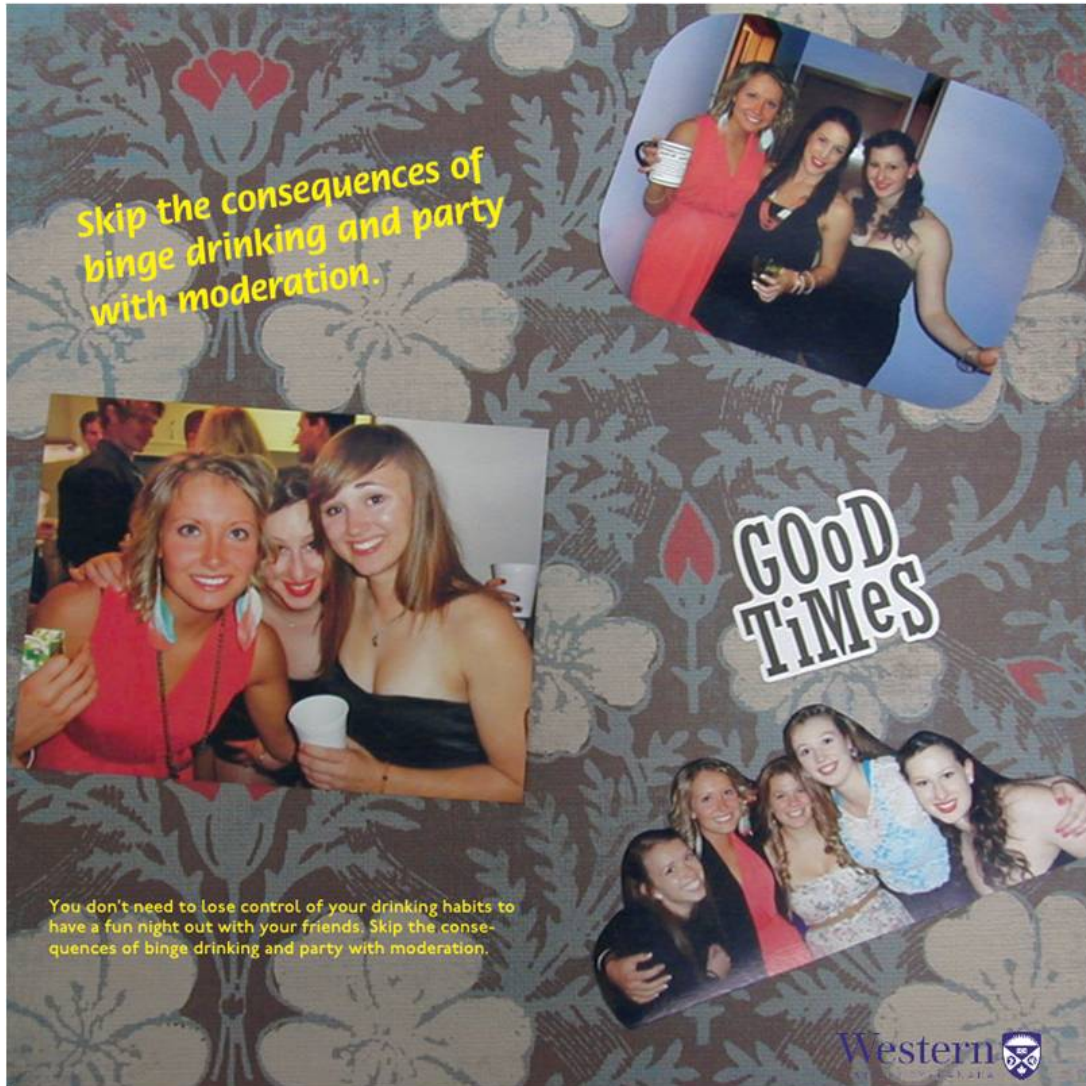
Greg Morrison
8 hours ago via Facebook Mobile
HAHAHA you owe Chris Hurley. And you might want to talk to him about that you said last night....

Like - Comment
Maddison Sonke likes this.
Maddison Sonke poor Chris. glad it's not me...
March 31 1:35 am
Write a comment...

Ashley Harris
March 31
Shot s bliitchhhsssss1 i nerhi had a jayne's bifdayy!
Like - Comment

More alcohol doesn't mean more fun. Binge drinking won't better your university experience. How do you want to be remembered?
WESTERN

A loss-framed binge drinking prevention ad in the form of a student's facebook profile.



A gain-framed responsible drinking promotion ad.



**Hazy memories suck.
Make your night memorable.
Drink with moderation.**

A fun night on the town shouldn't go out of control. Vomiting and the spins don't make good memories do they? Make tonight memorable, instead of a blacked out blur. Skip the consequences of binge drinking and party with moderation.

Western
UNIVERSITY OF
OREGON

A loss-framed binge drinking prevention ad.

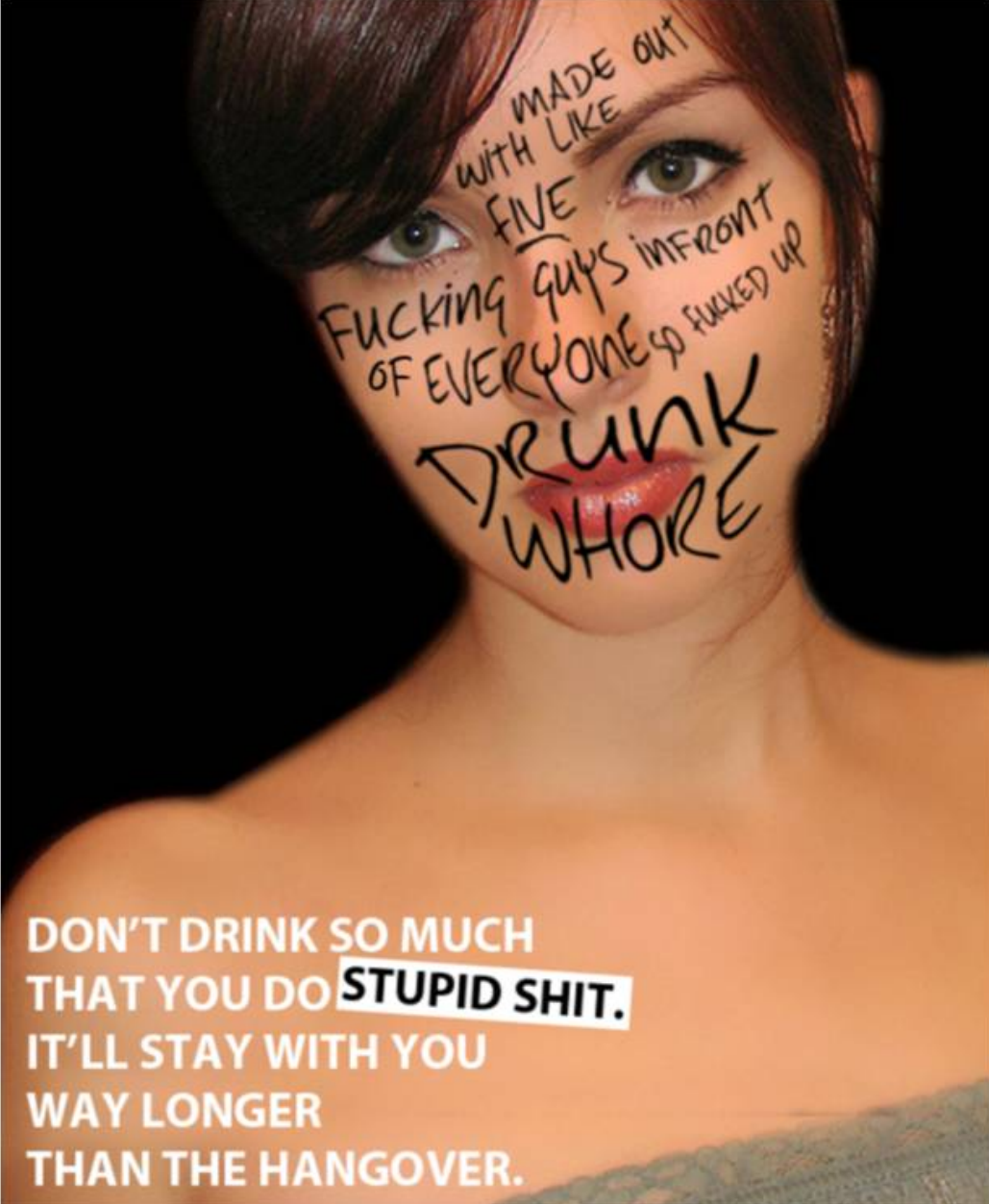
TRY BEING THE ONLY ONE
NOT DOING **STUPID SHIT.**
WHEN YOU DON'T BLACK OUT,
YOU STAND OUT



MISTAKES DON'T WASH OFF IN THE MORNING



A gain-framed responsible drinking promotion ad.



WITH MADE OUT
FIVE
FUCKING GUYS INFRONT
OF EVERYONE SO FUCKED UP
DRUNK
WHORE

DON'T DRINK SO MUCH
THAT YOU DO **STUPID SHIT.**
IT'LL STAY WITH YOU
WAY LONGER
THAN THE HANGOVER.

YOUR MISTAKES DON'T WASH OFF IN THE MORNING  **Western**
UNIVERSITY - CANADA

A loss-framed binge drinking prevention ad.

Appendix B: The Three Pairs of Advertisements that were Used in the Pilot Study

Self Control is Self Respect.

Sober just saved you a \$25 cab ride.

Controlling your drinking can help your grades, social life and health.

- ✓ It's okay to skip a round.
- ✓ Try to have not more than one drink per hour.
- ✓ Make sure you eat something before your night out.
- ✓ Drink water between drinks.



A gain-framed responsible drinking promotion ad.

Stop Drinking While You're Still Thinking.

VIRGIN 3G 3:20 AM

U miessed anm awersoon night. Inn so drubnk rught bow and weaned go homne. You haber got ta comb get mne abd tithes hoty from de bar.

Hey, I can hardly understand you. I am not getting out of bed to drive you and another drunk home. Puke in a taxi, not my car.

Pleath pleath opleath. I ill tiotally biee yuou a hawdog.

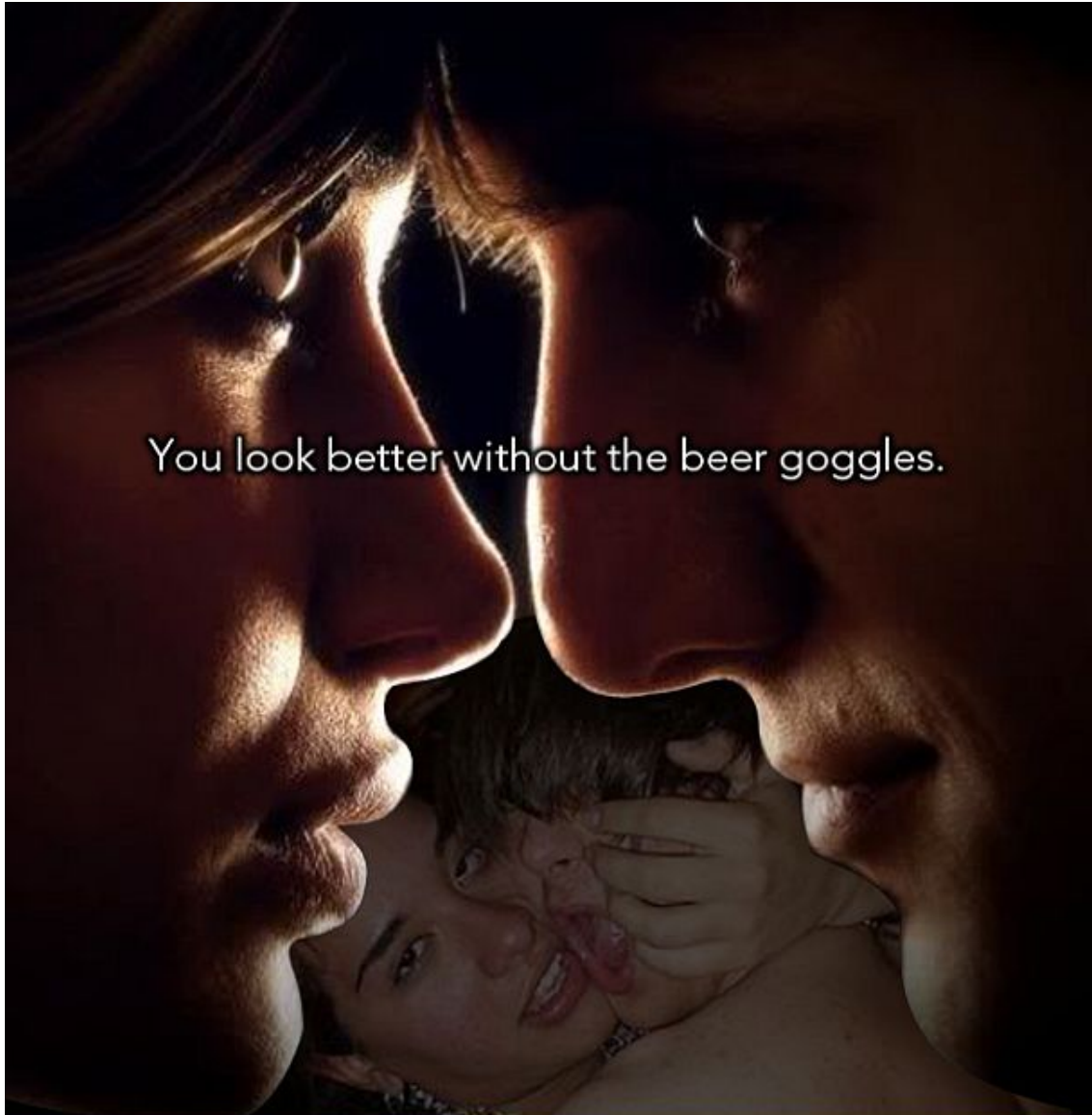
Goodnight.

Drunk dialing doesn't get you far.

Binge drinking can hurt your grades, social life and health.

- X Skip the beer pong.
- X Don't drink more than one drink per hour.
- X Avoid drinking on an empty stomach.
- X Beware of dehydration.

A loss-framed binge drinking prevention ad.



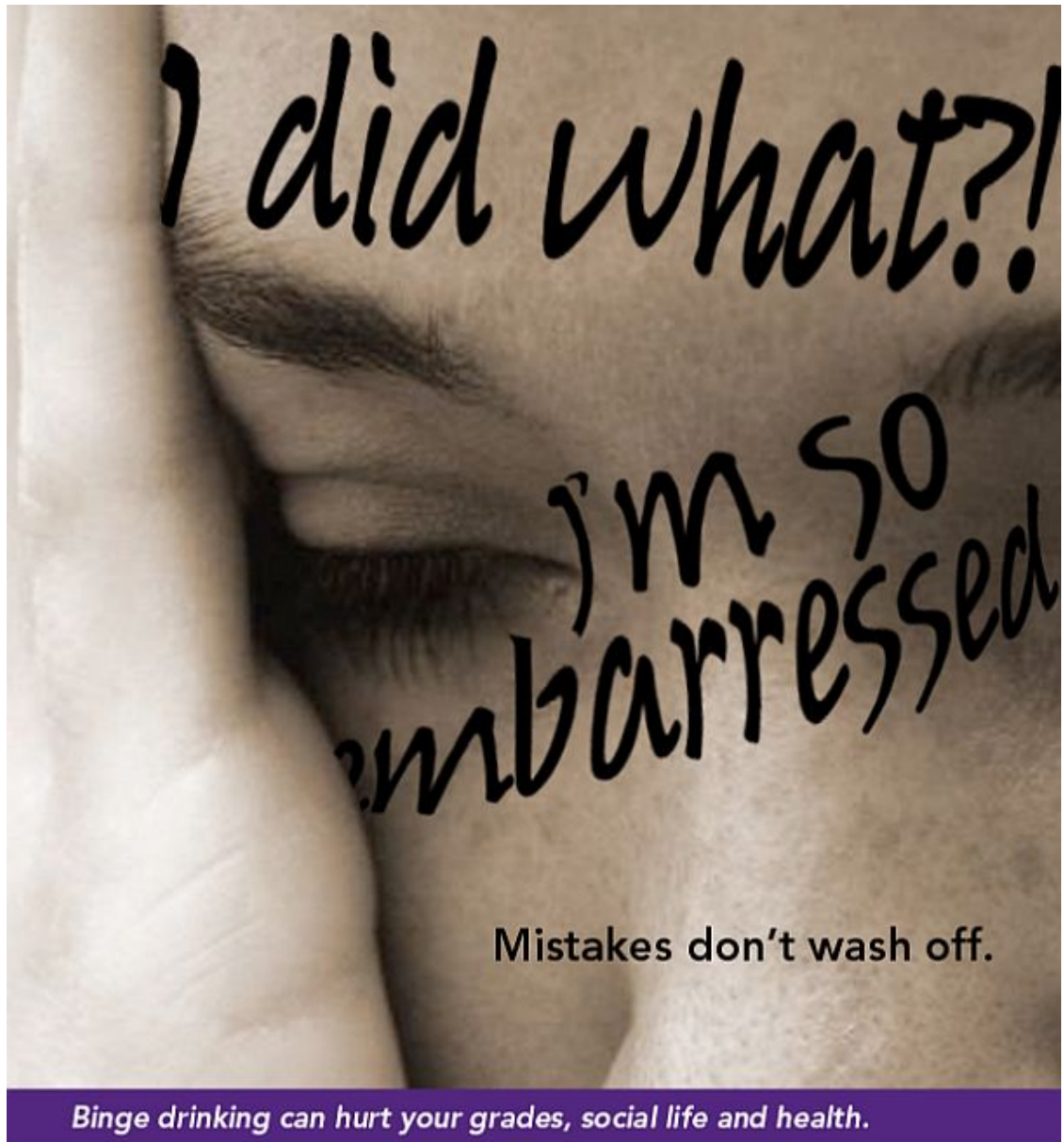
You look better without the beer goggles.

Controlling your drinking can help your grades, social life and health.

- ✓ It's okay to skip a round.
- ✓ Try to have not more than one drink per hour.
- ✓ Make sure you eat something before your night out.
- ✓ Drink water between drinks.

Western
UNIVERSITY • CANADA 

A gain-framed responsible drinking promotion ad.



I did what?!

I'm so embarrassed

Mistakes don't wash off.

Binge drinking can hurt your grades, social life and health.

- X** Skip the beer pong.
- X** Don't drink more than one drink per hour.
- X** Avoid drinking on an empty stomach.
- X** Beware of dehydration.



A loss-framed binge drinking prevention ad.

**Sunrise belongs to
Moderate Drinkers.**

Stay within your limits to experience
everything the night has to offer.

Controlling your drinking can help your grades, social life and health.

- ✓ It's okay to skip a round.
- ✓ Try to have not more than one drink per hour.
- ✓ Make sure you eat something before your night out.
- ✓ Drink water between drinks.

Western
UNIVERSITY • CANADA

A gain-framed responsible drinking promotion ad.



Another night wasted...
It's not a race. Remember to pace.

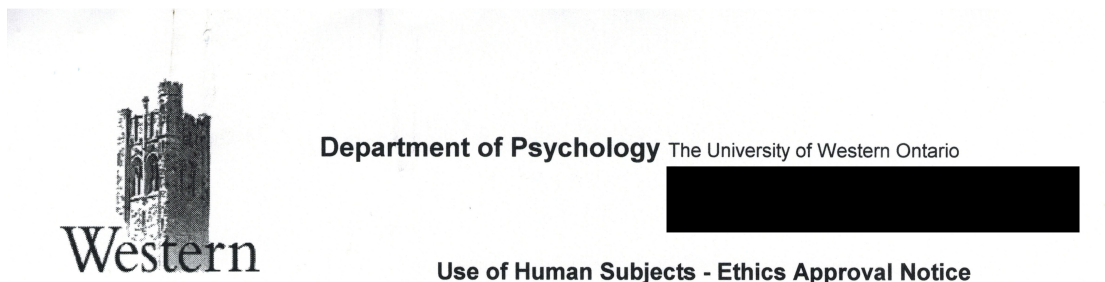
Binge drinking can hurt your grades, social life and health.

- X** Skip the beer pong.
- X** Don't drink more than one drink per hour.
- X** Avoid drinking on an empty stomach.
- X** Beware of dehydration.



A loss-framed binge drinking prevention ad.

Appendix C: Ethics Approval for the Pilot Study



Review Number	12 11 04	Approval Date	12 11 05
Principal Investigator	Leora Swartzman/Barlas Gunay	End Date	12 12 15
Protocol Title	Advertising and Western Students' health – pilot study		
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: <http://www.uwo.ca/research/ethics/>)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:

- changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- all adverse and unexpected experiences or events that are both serious and unexpected;
- new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2012-2013 PREB are: Mike Atkinson (Introductory Psychology Coordinator), Rick Goffin, Riley Hinson Albert Katz (Department Chair), Steve Lupker, and TBA (Graduate Student Representative)

CC: UWO Office of Research Ethics

This is an official document. Please retain the original in your files

Appendix D: First Pair of Advertisements that were Used in the Main Study

VIRGIN 3G 3:20 AM

Hey, wish you came out tonight. Had a great time. Any chance you could pick us up from the bar? I'd owe you one.

Happy to hear that, but I'm already in bed.

Sorry it's so late, I'll buy you breakfast in the morning as thanks.

Ok. See U in 20

Sober just saved you a \$25 cab ride

Controlling your drinking can help your grades, social life and health.

- ✓ Make sure you eat something before your night out.
- ✓ Try to have not more than one drink per hour.
- ✓ It's okay to skip a round.
- ✓ Drink water between drinks.



Gain-framed responsible drinking promotion ad#1: “Sober just saved you a \$25 cab ride”.

VIRGIN 3G 3:20 AM

U miessed anm awersoon night. Inn so drubnk rught bow and weaned go homne. You haber got ta comb get mne abd tithes hoty from de bar.

Hey, I can hardly understand you. I am not getting out of bed to drive you and another drunk home. Puke in a taxi, not my car.

Pleath pleath opleath. I ill tiotally biee yuou a hawdog.

Goodnight.

Drunk dialing doesn't get you far

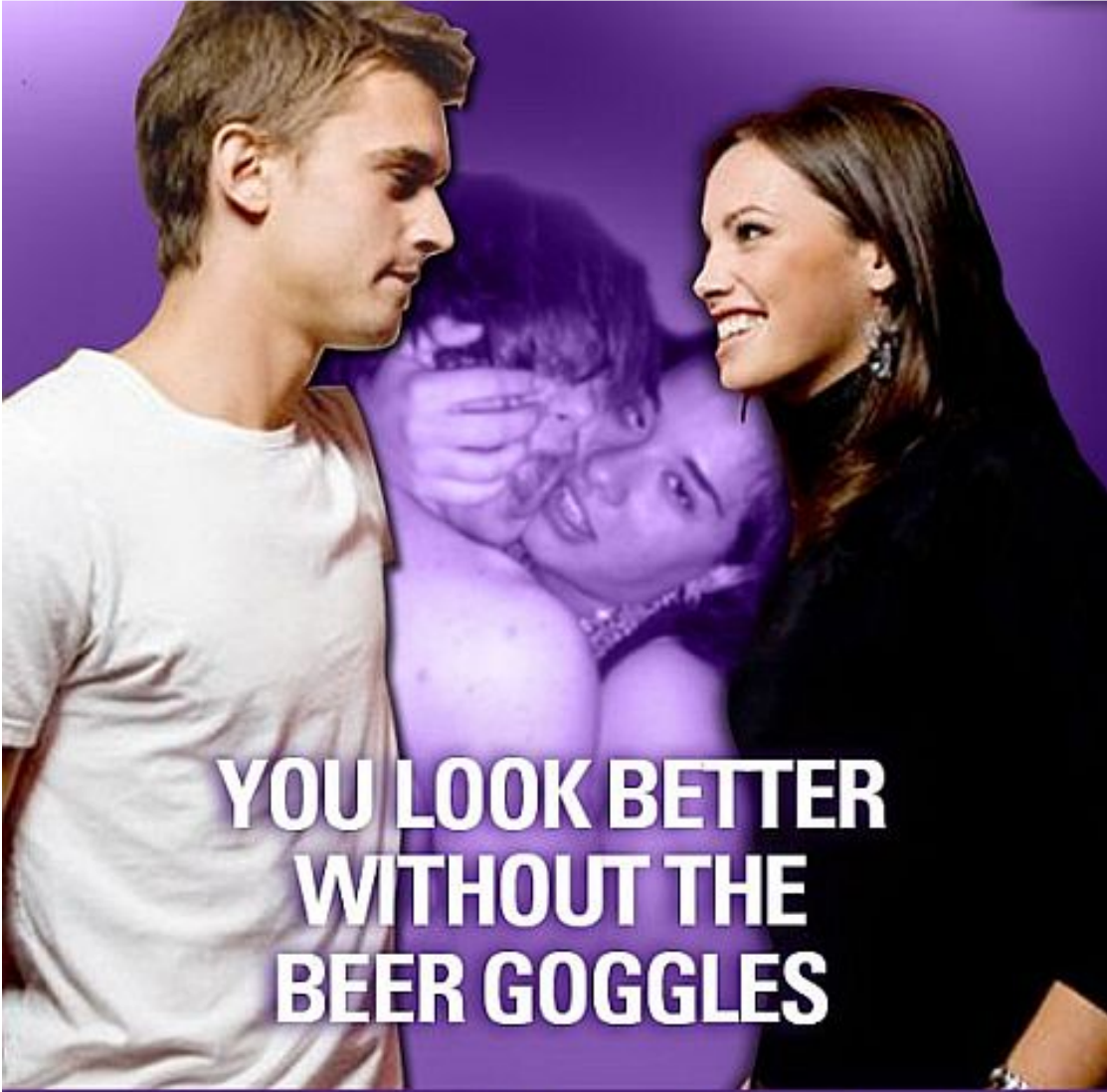
Binge drinking can hurt your grades, social life and health.

- x Avoid drinking on an empty stomach.
- x Don't drink more than one drink per hour.
- x Skip drinking games.
- x Avoid dehydration.



Loss-framed binge drinking prevention ad#1: "Drunk dialing doesn't get you far".

Appendix E: Second Pair of Advertisements that were Used in the Main Study



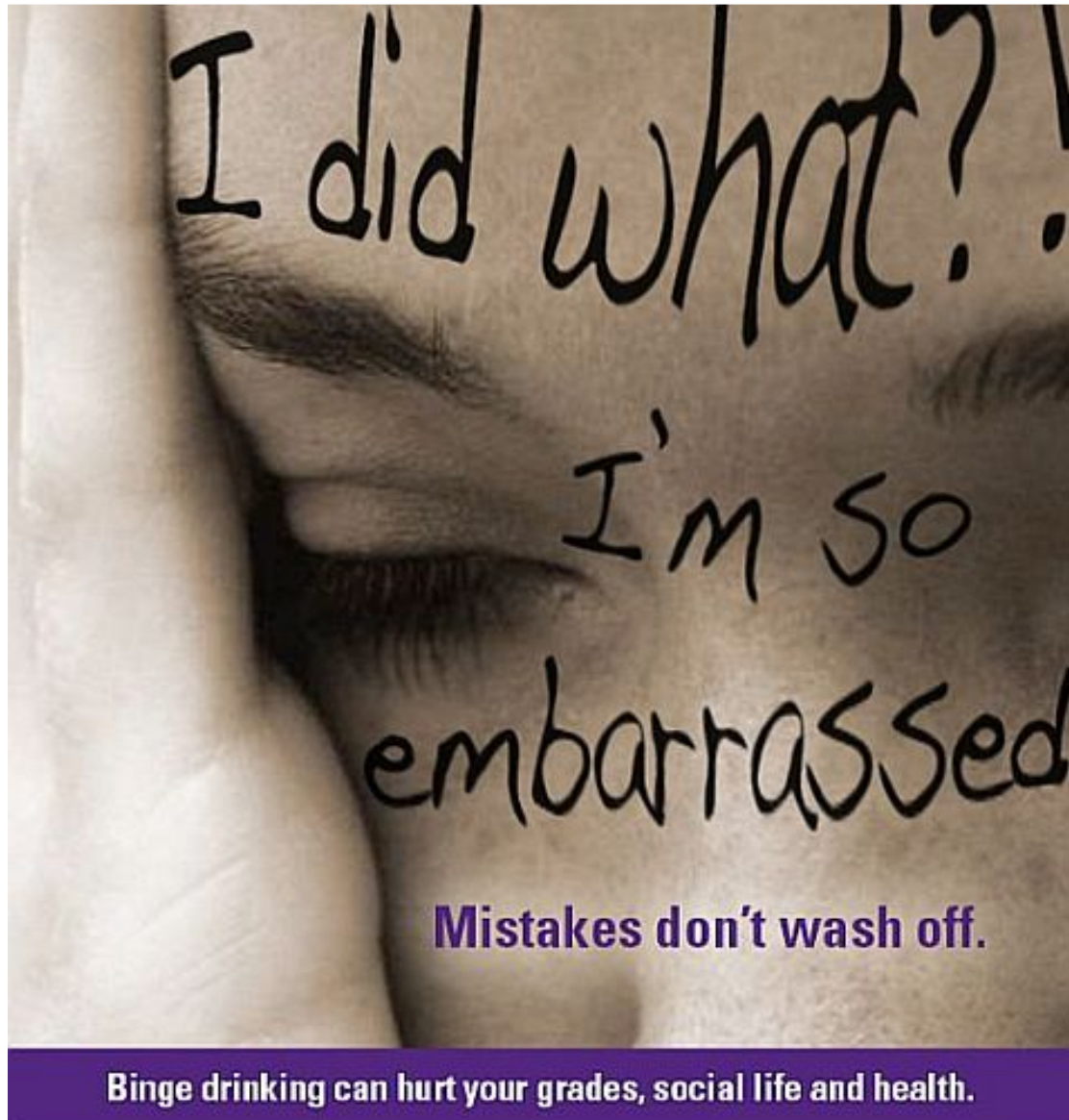
**YOU LOOK BETTER
WITHOUT THE
BEER GOGGLES**

Controlling your drinking can help your grades, social life and health.

- ✓ Make sure you eat something before your night out.
- ✓ Try to have not more than one drink per hour.
- ✓ It's okay to skip a round.
- ✓ Drink water between drinks.

Western
UNIVERSITY • CANADA

Gain-framed responsible drinking promotion ad#2: “You look better without the beer goggles”.



I did what?!
I'm so
embarrassed

Mistakes don't wash off.

Binge drinking can hurt your grades, social life and health.

- x Avoid drinking on an empty stomach.
- x Don't drink more than one drink per hour.
- x Skip drinking games.
- x Avoid dehydration.



Loss-framed binge drinking prevention ad#2: "Mistakes don't wash off".

Appendix F: Third Pair of Advertisements that were used in the Main Study



Oh, the things you could do...


...if you weren't hungover



- ✓ Make sure you eat something before your night out.
- ✓ Try to have not more than one drink per hour.
- ✓ It's okay to skip a round.
- ✓ Drink water between drinks.



Gain-framed responsible drinking promotion ad#3: “Oh, the things you could do... if you weren't hungover”.



WASTED

Binge drinking can hurt your grades, social life and health.

- x Avoid drinking on an empty stomach.
- x Don't drink more than one drink per hour.
- x Skip drinking games.
- x Avoid dehydration.



Loss-framed binge drinking prevention ad#3: "Wasted".

Appendix G: Ethics Approval for the Main Study



Department of Psychology The University of Western Ontario

Use of Human Subjects - Ethics Approval Notice

Review Number	13 02 15	Approval Date	13 02 14
Principal Investigator	Leora Swartzman/Barlas Gunay	End Date	13 05 19
Protocol Title	Advertising and Western students' health		
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

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This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.


During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:

- a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) all adverse and unexpected experiences or events that are both serious and unexpected;
- c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.


Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2012-2013 PREB are: Mike Atkinson (Introductory Psychology Coordinator), Rick Goffin, Riley Hinson Albert Katz (Department Chair), Steve Lupker, and TBA (Graduate Student Representative)

CC: UWO Office of Research Ethics

This is an official document. Please retain the original in your files

Appendix H: Letter of Information and the Informed Consent Form

Letter of Information:

Project Title: Advertising and Western Students' Health

Investigators: Dr. Leora Swartzman & Barlas Gunay (MSc. Candidate)

Dear Student:

Help us develop a series of print advertisements designed to influence health-related behaviors, such as responsible drinking, among Western students. To be effective, these ads should be compatible with students' general approach to life.

The purpose of this letter is to provide you with information to make an informed decision about whether or not to participate in this 50-60 minute on-line survey study.

The main part of the study involves you evaluating of a series of print ads designed primarily to curb binge drinking on campus. We are interested in what you think and feel about the ads, your judgment of their likely effectiveness for Western students, and any suggestions you have for how they can be improved. You also will be asked some questions about your health and study habits and about how you approach your goals in life.

There are no known risks to participating in this study. No identifying information will be collected and the data will be encrypted and stored on a secure server. Responses to the open ended questions also will be anonymous.

Please note that your participation is entirely voluntarily. By completing the survey you indicate consent to participate in the study. You may stop participating or chose to skip any question that you do not wish to answer without losing the full (1.0) research credit. You may exit the survey at any time by clicking through the pages and then clicking on either the "Submit" button, or by closing your web browser. Once you click on the "Submit" button, your data cannot later be withdrawn. But if you close your web browser without clicking on the "Submit" button, none of your responses will be included in the survey.

You will also receive written feedback about the study at the end of the survey. If you have any questions about any aspect of this study, you may contact Barlas Gunay or Dr. Leora Swartzman. If you have any questions about the conduct of this study or your rights as a research subject, you may contact the Office of Research Ethics, Western University. Your participation is highly valued and greatly appreciated.

Sincerely,

Dr. Leora Swartzman (Associate Professor) &
Barlas Gunay (MSc. Candidate)

Feel free to print (Ctrl+P) or save (Ctrl+S) this page for future reference.

Informed Consent Form:

This statement will be placed at the beginning of all versions of the online survey following the above Letter of Information:

Advertising and Western Students' Health

"I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction".

If you agree with the statement above, please indicate your consent to participate in this survey by clicking the NEXT button at the bottom of the screen.

If you do not wish to participate in this study, simply close this browser window.

Appendix I: Debriefing Letter

Debriefing / Feedback Sheet:

Advertising and Western Students' Health

Thank you for your participation.

Binge drinking is a serious problem on university campuses (Pedrelli et al., 2011). Previous attempts at curbing binge drinking among university students through ad campaigns have produced contradictory results at best, in part because the ads tend to be 'preachy' and some students may have reacted against being told what to do; the psychological term for this is "reactance" (Arbour-Nicitopoulos et al., 2010).

Regulatory Focus Theory (RFT, Higgins, 1997) suggests another approach to designing messages to decrease binge drinking on college campuses. RFT argues that our behavior is driven by our desires to have good things happen to us (promotion/gain) and/or to avoid negative ones (prevention/loss): Some of us sometimes act in order to maximize gains, while some others sometimes act to minimize losses. According to RFT, if there is a psychological "match" between an individual's regulatory focus and how a message is framed, the individual is more likely to engage in that behavior (Higgins, 2005). To date, RFT has been applied to a range of health-related behaviors such as exercise, diet, skin care, dental hygiene, and smoking cessation, but not yet to alcohol consumption among university students (Latimer et al., 2007).

The goal of this study was to explore whether ads we designed to either focus on the positives of responsible drinking (promotion focused) or on the negatives of binge drinking (prevention focused) were effective at reducing your drinking intentions. You were randomly assigned to one of two groups: One group viewed and rated promotion focused advertisements and the other viewed and rated prevention focused ads, either with a matching or non-matching regulatory focus induction task (the academic goals and strategies tasks that you might have been presented with) or with no regulatory focus induction task. Promotion framed ads that you might have seen were designed to evoke positive feelings such as pride and hope, which would lead to higher ratings of ads and to more intentions to reduce drinking, whereas prevention framed ads that you might have seen were crafted to evoke negative feelings such as shame and fear, which would lead to lower ratings of ads and to little or no changes to your drinking intentions. Also, because they may come across as less 'preachy', the promotion focused ads would evoke less reactance; that's why we asked you questions about how angry each ad made you feel and whether you found it manipulative. For this reason, we also predict that those of you who saw the prevention oriented ads will be less inclined than those who saw the promotion oriented ads to cut down on your drinking.

Our hope is that, in the future, the ads that prove to be the most effective in this study will be used in actual Western on-campus campaigns to encourage responsible drinking.

If you have questions about your rights as a research subject, please contact the Director of the Office of Research Ethics.

Sincerely,

Dr. Leora Swartzman (Associate Professor)

Barlas Gunay (MSc Candidate)

Clinical Psychology

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Latimer, A. E., Rivers, S. E., Rench, T. A., Katulak, N. E., Hicks, A., Hodorowski, J. K., Higgins, E. T., & Salovey, P. (2007). A field experiment testing the utility of regulatory fit messages for promoting physical activity. *Journal of Experimental Social Psychology, 44*, 826-832.

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Appendix J: Regulatory Focus Priming Task: Academic Strategies

PROMOTION: Your Approach to Achieving Positive Academic Outcomes

We are curious about what types of strategies Western students use to accomplish positive academic outcomes.

Please think about a course that you are currently taking. In the boxes below, write down a positive outcome that you might want to accomplish, and then describe up to three strategies that you could use to successfully achieve this outcome:

A Positive Academic Outcome:

My strategies to achieve it:

1. _____
2. _____
3. _____

PREVENTION: Your Approach to Avoiding Negative Academic Outcomes

We are curious about what types of strategies Western students use to avoid negative academic outcomes.

Please think about a course that you are currently taking. In the boxes below, write down a negative outcome that you might want to avoid, and then describe up to three strategies that you could use to prevent this outcome:

A Negative Academic Outcome:

My strategies to prevent it:

1. _____
2. _____
3. _____

Appendix K: Academic Motivation Scale

Click on the appropriate box for each of the following items concerning your study habits from now until the end of the semester.

	Not at all true						Extremely true
1. I plan to put more time into my schoolwork	1	2	3	4	5	6	7
2. I plan to study harder for tests and exams	1	2	3	4	5	6	7
3. I plan to spend less time partying with friends	1	2	3	4	5	6	7
4. I plan to put extra effort into the rest of my term papers	1	2	3	4	5	6	7
5. I plan to keep up with reading assignments	1	2	3	4	5	6	7
6. I plan to procrastinate less	1	2	3	4	5	6	7
7. I plan to start studying for finals before the term ends	1	2	3	4	5	6	7
8. I plan to spend more time at the library	1	2	3	4	5	6	7
9. I plan to stop engaging in social activities that interfere with schoolwork	1	2	3	4	5	6	7
10. I plan to avoid wasting time	1	2	3	4	5	6	7
11. I plan to be more organized	1	2	3	4	5	6	7
12. I plan to avoid missing work deadlines	1	2	3	4	5	6	7
13. I plan to be less casual about schoolwork	1	2	3	4	5	6	7
14. I plan to focus more on my studies	1	2	3	4	5	6	7

Appendix L: AUDIT

	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have six or more drinks on one occasion?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
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?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year

Appendix M: General Regulatory Focus Measure

We would like to learn about your approaches to challenges in your life. Please indicate your answer to each question by selecting the appropriate option.

	Not at all true of me								Very true of me
In general, I am focused on preventing negative events in my life.	1	2	3	4	5	6	7	8	9
I am anxious that I will fall short of my responsibilities and obligations.	1	2	3	4	5	6	7	8	9
I frequently imagine how I will achieve my hopes and aspirations.	1	2	3	4	5	6	7	8	9
I often think about the person I am afraid I become in the future.	1	2	3	4	5	6	7	8	9
I often think about the person I would ideally like to be in the future.	1	2	3	4	5	6	7	8	9
I typically focus on the success I hope to achieve in the future.	1	2	3	4	5	6	7	8	9
I often worry that I will fail to accomplish my academic goals.	1	2	3	4	5	6	7	8	9
I often think about how I will achieve academic success.	1	2	3	4	5	6	7	8	9
I often imagine myself experiencing bad things that I fear might happen to me.	1	2	3	4	5	6	7	8	9
I frequently think about how I can prevent failures in my life.	1	2	3	4	5	6	7	8	9
I am more oriented toward preventing losses than I am toward achieving gains.	1	2	3	4	5	6	7	8	9
My major goal in school right now is to achieve my academic ambitions.	1	2	3	4	5	6	7	8	9
My major goal in school right now is to avoid becoming an academic failure.	1	2	3	4	5	6	7	8	9
I see myself as someone who is primarily striving to reach my “ideal self” – to fulfill my hopes, wishes, and aspirations.	1	2	3	4	5	6	7	8	9
I see myself as someone who is primarily striving to become the self I “ought” to be – to fulfill my duties, responsibilities, and obligations.	1	2	3	4	5	6	7	8	9
In general, I am focused on achieving positive outcomes in my life.	1	2	3	4	5	6	7	8	9
I often imagine myself experiencing good things that I hope will happen to me.	1	2	3	4	5	6	7	8	9
Overall, I am more oriented toward achieving success than preventing failure.	1	2	3	4	5	6	7	8	9

Appendix N: Hong's Psychological Reactance Scale

The following statements concern your general attitudes. Read each statement and please indicate how much you agree or disagree with each statement by clicking in the appropriate box.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Regulations trigger a sense of resistance in me.	1	2	3	4	5
I find contradicting others stimulating.	1	2	3	4	5
When something is prohibited, I usually think, "That's exactly what I am going to do".	1	2	3	4	5
The thought of being dependent on others aggravates me.	1	2	3	4	5
I consider advice from others to be an intrusion.	1	2	3	4	5
I become frustrated when I am unable to make free and independent decisions.	1	2	3	4	5
It irritates me when someone points out things which are obvious to me.	1	2	3	4	5
I become angry when my freedom of choice is restricted.	1	2	3	4	5
Advice and recommendations usually induce me to do just the opposite.	1	2	3	4	5
I am content only when I am acting of my own free will.	1	2	3	4	5
I resist the attempts of others to influence me.	1	2	3	4	5
It makes me angry when another person is held up as a role model for me to follow.	1	2	3	4	5
When someone forces me to do something, I feel like doing the opposite.	1	2	3	4	5
It disappoints me to see others submitting to standards and rules.	1	2	3	4	5

Appendix O: Intentions to Employ Alcohol-reduction Strategies Measure

Over the **NEXT 10 TIMES** you drink alcohol, how likely is that you would engage in each of the strategies below?

	Not at all likely	A little likely	Somewhat likely	Very likely	Extremely likely	Does not apply in this situation
1. Leave at least 15 minutes in between each drink	1	2	3	4	5	0
2. Stay away from the refrigerator, keg, or bartender where alcohol is easily available	1	2	3	4	5	0
3. Have a nonalcoholic drink in between each alcoholic drink	1	2	3	4	5	0
4. Set a limit on the total number of drinks you'll have before you start drinking	1	2	3	4	5	0
5. Set a predetermined time to stop drinking	1	2	3	4	5	0
6. Sip your drink, rather than gulp or chug	1	2	3	4	5	0
7. Avoid finishing a beer or other drink you don't want	1	2	3	4	5	0
8. Wait at least 20 minutes past the time you'd normally start drinking	1	2	3	4	5	0
9. Avoid adding more alcohol to a drink you have not finished	1	2	3	4	5	0
10. Avoid starting a new drink until you've finished the one you have	1	2	3	4	5	0
11. Avoid "catching up" if you start drinking after others	1	2	3	4	5	0
12. Say "no" to offers of drinks you don't want	1	2	3	4	5	0
13. Leave the place where you are drinking at a predetermined time	1	2	3	4	5	0
14. Ask the person making your drinks to make them weak	1	2	3	4	5	0
15. Put extra ice in your drink	1	2	3	4	5	0

Appendix P: Advertisement Reactions Measures

Message-referent Features:

This ad is...

	Not at all	Slightly	Moderately	Very	Extremely
1. Believable	1	2	3	4	5
2. Realistic	1	2	3	4	5
3. Visually appealing	1	2	3	4	5
4. Convincing	1	2	3	4	5
5. Original	1	2	3	4	5
6. Stupid	1	2	3	4	5
7. Memorable	1	2	3	4	5
8. Creative	1	2	3	4	5
9. Ridiculous	1	2	3	4	5
10. This ad would be effective for Western students	1	2	3	4	5

I...

	Not at all	Slightly	Moderately	Very	Extremely
11. Like this ad	1	2	3	4	5
12. Can relate to this ad	1	2	3	4	5
13. Think my peers can relate to this ad	1	2	3	4	5

Item Gauging Gender-neutrality:

This ad appears to target...

Only Males			Males and Females Equally			Only Females
1	2	3	4	5	6	7

Plot-referent Promotion and Prevention Emotions:

Placing yourself in the position of one of the characters in the ad, how do you think you would feel?

	Not at all	Slightly	Moderately	Very	Extremely
1. Afraid	1	2	3	4	5
2. Happy	1	2	3	4	5
3. Guilty	1	2	3	4	5
4. Proud	1	2	3	4	5
5. Embarrassed	1	2	3	4	5

6. Pleased	1	2	3	4	5
7. Ashamed	1	2	3	4	5
8. Hopeful	1	2	3	4	5
9. Content	1	2	3	4	5
10. Hopeless	1	2	3	4	5
11. Excited	1	2	3	4	5
12. Worried	1	2	3	4	5

Self-referent Promotion and Prevention Emotions:

How did this ad make you feel?

	Not at all	Slightly	Moderately	Very	Extremely
1. Irritated	1	2	3	4	5
2. Amused	1	2	3	4	5
3. Angry	1	2	3	4	5
4. Inspired	1	2	3	4	5
5. Annoyed	1	2	3	4	5
6. Energized	1	2	3	4	5
7. Aggravated	1	2	3	4	5
8. Optimistic	1	2	3	4	5
9. Offended	1	2	3	4	5
10. Confident	1	2	3	4	5
11. Anxious	1	2	3	4	5

Threat to Freedom Component of the State Reactance Measure:

This ad...

	Not at all	Slightly	Moderately	Very	Extremely
Threatened my freedom to choose	1	2	3	4	5
Tried to make a decision for me	1	2	3	4	5
Tried to manipulate me	1	2	3	4	5
Tried to pressure me	1	2	3	4	5

***Bold items make up the State Reactance scale.**

Open-ended Items:

We hope that one of the next steps of this research is to use these ads in actual on-campus anti-binge drinking campaigns.

So we please feel free to tell us what you like and don't like about this and how, in your opinion, we can make it better!

1. What do you like most about this ad?
2. What do you like least about this ad?
3. How would you change this ad to make it more effective at curbing binge drinking among Western students?

Appendix Q: Advertisement Engagement Measure

We are curious about how memorable the ads we have created are. Please help us find out by answering the questions about the 3 ads you saw in this survey.

PROMOTION:

1. All 3 ads you viewed included the following line: “Controlling your drinking can help your grades, social life, and health”.

True False

2. One of the ads you viewed had an image of people dancing at a bar.

True False

3. One of the ads you viewed had an image of people fighting at a bar

True False

4. All 3 ads included a few tips about drinking responsibly at the bottom

True False

5. One of the ads included images of students at a football game.

True False

6. One ad was about a student failing an exam due to being hungover.

True False

7. One of the ads featured a cell phone text conversation in which one person apologized to the other for ruining their birthday celebration.

True False

8. One ad featured this catchphrase: “You Look Better without the Beer Goggles”

True False

9. One of the ads included this catchphrase: “Mistakes don’t wash off”

True False

10. One of the ads had this catchphrase: “Oh, the things you could do... If you weren’t hungover”

True False

PREVENTION:

1. All 3 ads you viewed included the following line: “Binge drinking can hurt your grades, social life and health”.

True False

2. One of the ads you viewed had an image of people dancing at a bar
True False
3. One of the ads you viewed had an image of people fighting at a bar.
True False
4. All 3 ads included a few tips about drinking responsibly at the bottom.
True False
5. One of the ads included images of students at a football game.
True False
6. One ad was about a student failing an exam due to being hungover.
True False
7. One of the ads featured a cell phone text conversation in which one person apologized to the other for ruining their birthday celebration.
True False
8. One of the ads included this catchphrase: "Mistakes don't wash off"
True False
9. One of the ads included this catchphrase: "You Look Better Without the Beer Goggles"
True False
10. One of the ads had the word "Wasted" in large print.
True False

Curriculum Vitae

NAME: Barlas Gunay

EDUCATION

2004 – 2008 Earlham College, Richmond, IN
BA, College Honors. Supervisor: Dr. Vince Punzo

2011 – 2013 University of Western Ontario
M.Sc., Clinical Psychology, Supervisor: Dr. Leota Swartzman

2013 – 2018 (expected) University of Western Ontario
Ph.D., Clinical Psychology, Supervisor: Dr. Rod Martin

AWARDS and SCHOLARSHIPS

2011- Present International Graduate Teaching Assistantship
The University of Western Ontario
Value: \$30,000

2004 – 2008 International Student Scholarship (based on merit)
Earlham College
Value: \$ 22,000

SELECTED CONFERENCE PRESENTATIONS and PAPERS

Ak, M., Bozkurt, A., Cinar, M., A., Doruk, A., **Gunay, B.**, & Ozdemir, B. (2011). The relation of impaired mind reading and antisocial personality disorder (Presented as a “Young Investigator Poster” at the American Psychiatric Association’s 2011 Annual Meeting in May 14-18 in Honolulu, Hawaii)

TEACHING EXPERIENCE

2011-Present Teaching Assistant
Department of Psychology, The University of Western Ontario
Courses:
PSYCH 2010, The Human Mind
PSYCH 2036, Psychology of Physical Health and Illness
PSYCH 2310, Abnormal Psychology

AFFILIATIONS WITH PROFESSIONAL ASSOCIATIONS

2011-Present	Canadian Psychological Association (Student Affiliate)
2011-Present	London Regional Psychological (Student Affiliate)
2011-Present	Association for Psychological Science (Student Member)