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## Individual Difference Variables and Social Learning: An Investigation into Expectancies

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EXPECTANCIES

Individual Difference Variables and Social Learning: An Investigation into Expectancies

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Master of Science

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By

Philip Andrew Williamson

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### Abstract

Bandura (1969, 1985) proposed social learning theory (SLT) as a theoretical framework through which behaviors can be predicted. SLT offers an explanation to thoughts, feelings, and behaviors are learned. Alcohol outcome expectancies (AOEs) are defined as the physiological or psychological consequences that are anticipated following the consumption of alcohol (Goldman, Boca, & Darkes, 1999). Expectancies enhance or diminish a person's willingness to engage in drinking behaviors. SLT and AOEs converge as children watch adults and the media either consume and glorify alcohol or conversely vilify alcohol and shun its consumption. This study investigated whether individual difference variables (i.e., suggestibility, prior held alcohol expectancies, neuroticism, openness to experience, and sensation seeking) impact the strength of social learning, manifested by learned beliefs of effect of a novel and neutral substance, state mood change, and future behavioral prediction. Results indicated peer modeling combined with expert instruction was more powerful in shaping participant's beliefs of beverage effect versus expert instruction alone. Participants with higher scores of physiological suggestibility and consumer suggestibility reported higher positive beliefs about the novel beverage than those lower in these variables. Understanding that one is susceptible to believing positive claims of substances may help protect against making potentially unhealthy decisions.

Keywords: alcohol outcome expectancies, modeling, social learning theory, vicarious learning

### **Individual Difference Variables and Social Learning: An Investigation into Expectancies**

Individuals move through their days with the belief that they are in control of their behaviors when in fact there are numerous factors, which conflate to bring rise to behavior. Societal and familial traditions, norms, prior learning, and novelty all influence and guide behavior. These factors work together to form expectancies, which motivate behavior by their association with outcomes or consequences expected from behaviors. Expectancies can be understood as the consequences a person anticipates will follow a specific stimulus or behavior (Goldman et. al., 1999).

### **Social Learning Theory**

Expectancy theory holds that a person's thoughts effect their behavior and consequences experienced related to drug or alcohol use. Although the thoughts or expectancies a person holds are learned, either directly or indirectly through others (Brown, 1993); research has found that societal influences can shape children's and adolescent's expectancies by manipulating their opinions of alcohol. Exposure to alcohol advertising is shown to be predictive of increased positive expectancies in children and has led to lower estimates of alcohol potency in those who consumed alcohol (Grube & Wallack, 1994). In middle school aged children, significant relationships were seen between alcohol advertising exposure and favorable attitudes towards alcohol, as well as engagement in binge drinking (Morgenstern, Isensee, Sargent, & Hanewinkel, 2011). Exposure to alcohol advertisements as well as family drinking patterns contributed to children holding more favorable beliefs about drinking as well as these children planning to drink more frequently as adults (Grube & Wallack, 1994; Martino, Collins, Ellickson, Shell & McCaffrey, 2005; Morgenstern et al., 2011).

In 1963, Bandura and Walters expanded the boundaries of what was held as traditional learning theories. Traditional learning was said to come by the behavioral psychology concepts known as operant conditioning. This type of conditioning asserts that external stimuli hold primary influence on human functioning or behaviors, with only slight influence from internal processes. Contingencies and relationships are established between action and consequences with no room afforded to the 'un-measurable' cognitive processes.

It was 1963 that Bandura published one of the best known and often-cited experiments relating to SLT. Colloquially known as 'The Bobo Doll Experiment,' this study was a test of the transmission of aggressive behavior to children via the observation of others. The experiment had children watch models (i.e., adults, other children, and cartoons) perform aggressive acts, non-aggressive acts on or towards a Bobo doll, depending on condition. These acts included insulting and/or yelling at the doll as well as striking the doll with hand and bat or conversely, playing quietly in a subdued manner with the bobo doll. Following this modeling of behavior, the children were placed in a similar environment with the Bobo doll, and other toys, and the researchers watched as the children began interacting with the toy(s) and the doll. The children who had witnessed the adults behaving aggressively appeared to have learned the aggressive behavior as evidenced by these children's reenactments of the adult behavior (Bandura, Ross, & Ross, 1963). Not only did the children mimic the intent of the adults' actions, which was aggression, they also mimicked the exact behavior. The children were noted to have used the same tone, insults, and violent actions they had witnessed the adults engage in. Bandura's (1963) study demonstrated that children could learn concepts, behaviors, and even states of emotion via exposure to a model.

Bandura and Walters (1969) helped to usher in a new paradigm, one that focused more on the cognitive processes and their impact on behavior and learning. Social learning theory was proposed as the concept of human functioning that leads to adoption of new behavior (Bradizza & Carey, 1999). This theory combined aspects of cognitive and behavioral psychology as it explained the adoption of new behaviors and continuation of current behaviors. This theory amalgamated various processes including cognitive, vicarious, self-regulatory, and self-reflective processes as its central components, all of which lead to adaptation and change of a behavior (Bandura, 1969).

At its core, social learning theory (SLT) can be understood as an interactional theory. SLT contends that behavior results from the interaction between the environment and a collection of individual traits. Albert Bandura, who is considered the father of social learning theory and one of the most well-known and often cited sources for this theory, began releasing papers defining SLT and expounding on its contributions to the learning of social mores and socially acceptable behaviors (Bandura, 1969). Here, Bandura proposed that children watch the behaviors of their family, as well as society at large, as these children begin learning public and private behaviors that are acceptable in society at large. Children's watching and learning from others leads to acquisition of new or novel behaviors (Bandura, 1969).

SLT posits that new and novel behaviors are learned and acquired via observation of others. In 1969 Bandura investigated how cultural norms can serve to define alcohol use. He stated that consuming alcohol might begin as a socializing process. SLT operates from four key principles: differential reinforcement, vicarious learning, cognitive processes, and reciprocal determinism (Bandura 1969, as cited in Leonard & Blane, 1999). These pillars together highlight the interactional approach that this theory promotes.

The first pillar, differential reinforcement, is the process where-by consequences for behaviors are applied differentially based on the stimulus conditions, or setting. This pillar explains how a person's behavior can vary based on the context (Bandura 1969, as cited in Leonard & Blane, 1999). Whereas alcohol consumption at work may still give the consequence(s) experienced in the party setting but with the added, potentially more negative, consequences. In a work setting consumption of alcohol is not sanctioned and thus is likely to yield negative consequences. Said another way, the act of consuming alcohol is rewarded in certain contexts and punished in other contexts; the behavior is reinforced differentially due to context. Due to these differential consequences of behavior, drinking is likely to occur more frequently at a party rather than at work.

The second pillar of SLT is vicarious learning (also referred to observational learning and modeling). Bandura (1969) wrote that vicarious learning was the mechanism by which humans gained new ideas and learned new or different behaviors. Through this phenomenon behavioral acquisition occurs via the observation of others as well as by communication, such as writing or speaking the observation of others, or through other means of communication such as spoken words or written language. The mimicking or imitation of behaviors an effect of modeling, so too are testimonials, which can also serve as proof of modeling behavior. In both cases of mimicry and testimonials, modeling not only teaches what behaviors lead to reward but also which behaviors lead to punishment. Children may witness those influential forces around them drinking or hear exciting stories from their peers and develop drinking behaviors to experience the same results witnessed or heard.

Cognitive processes, the third element of SLT, refers to the encoding, organizing, and retrieval of information utilized to regulate behavior. According to Bandura (1969) cognitions

mediate environmental events and those subsequent behaviors (Bandura 1969, as cited in Leonard & Blane, 1999). Cognitive processes involve the anticipatory judgments of desirability a person assigns to a prospective outcome. The cognitive representations held regarding the future serve as a strong catalyst for actions in the present (Bandura 1985). That is, according to SLT, a person is their own agent of change, constantly evaluating the cost and benefit of behaviors before making decisions (Bandura 1985, as cited in Leonard & Blane, 1999). As one observes a model behave in a specific way, leading to a specific outcome, the observer determines, among other things, if they too desire that same outcome. If the answer to the questions is yes, then the observer follows the model's behavioral repertoire.

In the case of alcohol consumption, a child may witness an adult drinking at a party and experiencing a rewarding time. The behavior of drinking is paired with laughing, group engagement, and overall positive affect; this basis is what motivates alcohol advertising: showing people enjoying social events with drinks in hand. The desire of group inclusion leads to the mimicry of the behaviors represented. Thus, a child wishing to imitate the behavior of an adult wishing to be included in the fun and to feel like a part of the group will view alcohol consumption positively and engage in this behavior at some later point in an attempt to either engage in 'normal' behavior or receive the same outcome witnessed.

The final element of SLT is reciprocal determinism, which holds that the environment may control people's behavior, people's behavior may control the environment, and the personal traits of the learner impact both that behavior and that environment. Reciprocal determinism can be understood as a flow chart of sorts, plotting the relationships between trait differences, behavior, and environment, as they affect each other and in-turn are affected by one another. A simple example would be a heavy drinker who complains of the social rejection they feel

because of their drinking, which in turn leads them to drink even more heavily. In this example, although the drinker may not realize it, their heavy drinking is causing both the social rejection by others and the consequent isolation the drinker feels. Tragically, the drinker's sensitivity to social cues and the desire to be included impact both the drinking and the cognitions associated with their drinking behaviors and perception of their context.

The concept of social learning theory boldly explains human behaviors and the cognitions associated with these behaviors. The impact of SLT on behavior can be noted in many instances with the focus of alcohol expectation being the focus of this paper. The mechanism of modeling can be held as the most powerful engine moving SLT. Without visual input, new ideas cannot be processed or borne.

At its core, modeling refers to the influence of social processes on behavior, and in this way, it can be thought of as being situationally factored (Maisto, Carey, & Bradizza, 1999). The influence of others in each situation may strengthen or weaken the likelihood of another's behavior. By witnessing a model receive reward for a behavior, one is more likely to engage in that behavior, the converse is also true, witnessing a model being punished for a behavior leads the observer to be less likely to reenact that behavior (Maisto et al., 1999).

Modeling, or observational learning, is governed by four processes: attention, retention, production, and motivation. First in the process of modeling is the attentional aspect. Simply put, if a person does not attend to, or watch, a model then they have little chance of remembering and thus imitating a behavior; this selective observation that is employed serves to conserve energy as humans discriminate stimuli in their environment. Attentional processes are effected by several characteristics, the first being the complexity of the modeled behavior. Put plainly, the

more difficult or complex a behavior is the more focus and attention the observer must employ (Maisto et al., 1999).

There are other forces that influence our attention toward a model as well. Individuals are more likely to imitate those who are most like them in a variety of ways. This could be age, social economic status, ethnicity, culture, or physical appearance (Martin & Pear, 2005). The more similar a model is to the observer, the more attention the observer will give to the model as the observer attempts to recreate the model's behavior (Bandura, 2004). Finally, the cognitive abilities of the observer will influence one's ability to direct and hold their attention to a model (Bandura, 2004; Chen, Nabi, Parajes, & Prestin, 2009).

After examining attentional factors, we turn to the memory factors. The behaviors observed must be retained in a person's memory if they are going to be reenacted. This is the process of cognitive representation, and it is influenced by how the event or behavior is perceived. The degree to which the event is remembered or encoded, positively or negatively, will have an impact on its retention (Kuhlmann, Piel, & Wolf, 2005). Additionally, the level of rehearsal and practice necessary for the behavior will have influence on the retention of a behavior (Bandura, 2004; Duerfeldt & Kanfer, 1967).

Once a person has attended to and encoded a behavior into memory they may attempt to recreate it. This reproduction process is mediated by the behavioral representation the observer holds. These cognitive representations guide the formation and implementation of behavioral patterns (Bandura, 2004). Corrective adjustments are most common in this stage as the behaviors begin moving through approximations of the target behavior, bringing it closer to the desired outcome (Bandura, 2004; Chen et al., 2009). Related to this, Martin and Pear (2005) added another important characteristic to consider when investigating the power of vicarious learning.

These researchers found that the accurate recreation of modeled behavior was more effective if it was paired with rules, verbal explanations, or other behavioral change tactics (Martin & Pear, 2005).

The final component to consider for modeling is the motivational element. As mentioned above, humans do not, and cannot, attend to everything in their environment. Additionally, not everything that a person attends to is recreated. Three types of motivators have effects on the reenactment of observed behavior. Firstly, rewarded behaviors are more likely to be replicated over punished behaviors; with direct experience or observation being the most powerful to move one towards or away from a behavior. Secondly, our imitation of behavior is not only impacted by first-hand experience with consequences, but also by our vicarious observation of the model's consequences. Finally, a self-produced motivation can spur on behavior. That is, the satisfaction derived from an imitated behavior motivates a person for more or less reenactment of that behavior (Bandura, 2004).

Social learning theory and its components serve as one way to explain how novel behaviors are learned and preformed. The learning that comes via the observation of models provides the information necessary for evaluation to create a unique behavioral repertoire. Research has demonstrated that the observation of others contributes more significantly to learning than does verbal or other instruction. Dickey (1991) found that students who received modeling instruction showed higher scores on tests relating to playing by ear and rhythmic movements of the hand, over those who had been verbally instructed. This research suggests that seeing and rehearsing a physical action contributes to greater learning over simply taught about it.

Further research compared verbal instruction and modeling regarding computer program skills. Tyner and Fienup (2016) investigated video modeling vs text-based instruction in the learning of Microsoft Excel skills. Their research showed that the participants in the video modeling group could construct graphs significantly faster and with fewer errors than those participants in the text-based instruction or no instruction groups. Their research again shows that the act of watching a model engage in an activity contributes significantly in the learner's reproduction and other manifest learning of the behavior.

Hersen, Eisler, Miller, Johnson, and Pinkston (1973) investigated the effects of practice, verbal instruction, and modeling on assertive behaviors of inpatient psychiatric patients. Their study found that verbal instruction plus modeling contributed more significantly to the non-assertive males becoming more assertive. Those participants who received verbal instruction in addition to modeling showed significant change (i.e., growth of assertiveness) compared to those participants who received instruction or modeling separately.

Bandura (1969) wrote that SLT and its variables contribute to the reinforcement of contingencies related to alcohol use. Drinking behaviors may initially begin because it is culturally acceptable. This social acceptance may come from parents or other family members, friends or peer groups, or the culture at large through influence of social-media and popular culture. Soon however the negative reinforcement that results from drinking, in the way of stress reduction, strengthens the behavior (Bandura, 1969). This could serve as one way that expectancies are modified. If one has negative expectancies but a positive experience a shift may begin to happen, the same can be said for the converse as well.

Bandura's (1969) writing relates alcohol consumption to the powerful effects family, peers, and the media have on the information gleaned about alcohol early in life. These sources

provide underage children information regarding alcohol consumption and its effects even before personal exposure; Bandura emphasizes modeling as a major source of drinking pattern acquisition (Bandura, 1969).

Bandura (1961) demonstrates that children will observe and replicate the behaviors modeled by the adults and authority figures in their life, be they parents, teachers, family members, or strangers. Colder (1997) investigated parental drinking habits and the effect these patterns have on children. It was seen that children with alcoholic fathers demonstrated greater positive expectancies regarding alcohol consumption than did the children with non-alcoholic fathers. Positive expectancies held by these children foretold escalating levels of heavy drinking during their adolescent years (Colder, 1997).

DeRicco and Nieman (1980) discovered that the number of models observed has effects on the likelihood that behavior was mirrored or not. These researchers found that the fewer models that are present the less behavioral changes that occur. Conversely the researchers noted that when the number of models grew higher, their participants drinking behavior was modified to a greater extent. Thus, the greater number of models, the more likely it was that their behavior is imitated (DeRicco & Niemann, 1980).

Studies have shown that modeling and social influence are a means by which grade-school children can form opinions and expectancies of events and stimuli, even before personal contact or exposure (Kraus, Smith, & Ratner, 1993). Stein (1967) found that children's ability to resist temptation was more heavily influenced by their observation of others, rather than the child's own personally held moral predisposition. Miller (1990) and his research team found that grade school children have expectancies related to alcohol use and noted that these expectancies tend to grow as children get older.

Bandura theorized that alcohol problems were, in part, related to a person's deficit in the skills necessary to cope with stressful life events (Bandura, 1969). Given this framework, it could be said that regular heavy drinkers are using alcohol as a generalized coping mechanism (Maisto et al., 1999). Negative mood regulation is a concept that arose from the work of Rotter (1954; 1982). Rotter posited that involvement in a specific behavior emerges from both the expected outcome of that behavior and the desirability of that outcome. Negative mood regulation expectancies are beliefs that some action, be it a behavior or cognition, will alleviate a state of affective distress. For example, someone with a high ability to regulate their negative mood would be likely to experience fleeting distress and employ more adaptive coping strategies, while those with low negative mood regulation would tend to have less confidence in their ability to manage negative or unpleasant moods. Those with low negative mood regulation would appear more likely to engage in more avoidant or less effective coping mechanisms such as drinking excessively (Kassel et al., 1999).

Outside of coping skills, or the lack thereof, and a person's self-efficacy, there are individual difference variables, which can contribute to a person's use, and therefore consequences of, of a substance. Research has shown there are differences which contribute to the likelihood of initiating and continuing in use of a substance. SLT and alcohol outcome expectancies (AOEs) are multilayered and complex constructs. They are not unlike a multicolor ball of yarn, each piece playing a role in the entity, each being connected to another, and each having a distinct beginning and end. A common thread in both constructs is that of self-efficacy. According to Bandura (1977; 1982), self-efficacy is the principle that determines behavioral repertoires and how a person's thoughts impact these collections of behavior (Bandura 1997; 1982). Many factors work together to determine the behaviors a person engages in any given

situation. Self-efficacy and coping skills are two of elements that influence behavior. It is this researcher's hypothesis that other individual differences exist which may impact a persons' learning and choices of behaviors.

SLT and its components serve as one way to explain how novel behaviors are learned. The learning that comes via the observation of models provides the information necessary for evaluation and the creation of unique behavioral repertoires. In specific relation to alcohol consumption there is a name for the anticipated consequences of alcohol consumption that motivates a person towards or away from alcohol, and it is called alcohol outcome expectancies.

### **Alcohol Outcome Expectancies**

AOEs are defined as the effects, or consequences, a person believes will result from the consumption of alcohol. That is, whatever outcome is expected to follow the consumption of alcohol represent the expectancies held for alcohol (Goldman et al., 1999). Goldman further explained that these expectancies can be positive or negative in nature. This assignment of good or bad results from the somewhat subjective rating of the anticipated outcome. Positive AOEs include beliefs that alcohol will make one feel more calm, brave, or social and negative including expectancies of embarrassing or injuring oneself or other negative consequence (Goldman et al., 1999).

AOEs can then be understood as factors, which would serve to motivate either drinking or abstinent behavior. Fromme (1993) theorized that additional factors working in concert with AOEs also play a role in the motivation of drinking behaviors, describing those factor's influence either towards an object or away from an object (in this case alcohol) as "valuations." Fromme suggested that valuations are based on the desirability of an expected outcome, following from the subjective assignment of "good" or "bad" to the perceived outcome. These

perceptions will then moderate the persons chosen behaviors based on the ultimate result they anticipate their choices will yield (Fromme, 1993; Zamboanga, 2006; Zamboanga, Schwartz, Ham, Jarvis, & Olthuis, 2009).

Ham and her colleagues investigated other factors influencing drinking behaviors, finding that expectancies could vary not only based on anticipated positive and negative results but by context as well, depending on an individual's traits (Goldman et al., 1999; Ham, Carrigan, Moak, & Randall, 2005). For example, those who suffer from social anxiety were found to hold specific expectancies for alcohol and its consumption in both social and non-social settings, and that these expectancies were generally negative. Yet, as stated before, the environment has been shown to influence the type of AOs a person holds. Also, important to note is that both categories of expectancy (positive or negative) influenced the amount of alcohol reportedly consumed (Ham, Zamboanga, Bridges, Casner, & Bacon, 2013). When those with social anxiety were in a social environment, their alcohol expectancies would shift from negative to positive as they began to rely on the relaxing properties of alcohol. However, when in personal-intimate settings those with social anxiety were less likely to consume alcohol due to negative expectancies, such as those of aggression or embarrassment (Ham et al., 2005). The expectancies held by those in the experiment shifted based on the context and the effect desired, leading those in a social setting to drink more and those in a non-social situation to abstain. Unsurprisingly these positive expectancies held by those with social anxiety were correlated with higher consumption of and dependence on alcohol (Ham et al., 2005).

Thus, expectancies can motivate engagement in or abstinence from drinking. Additionally, these expectancies can change based on the context and the information provided. Moreover, expectancies can be both positive and negative expectancies, with the subjective

assignment based, in part, on and the environment. In both cases the valuations regarding the outcome of alcohol behavior serves to bolster or undermine the expectancies held, possibly leading to healthy or unhealthy consequences.

Up to this point AOE's have been defined, their effects have been described, as well as their fluid nature. What has not been addressed is the etiology of these expectancies. Little evidence exists for an age at which these beliefs form and solidify, neither has the way they are learned been fully explained or tested. Certainly, direct experience and exposure with the substance can contribute to new learning and help form the beliefs one holds; evidence indicates that grade school children have strongly formed ideas, or expectancies, relating to the effect of alcohol use, meaning that these ideas are established even prior to personal experience with alcohol (Casswell, Gilmore, Silva, & Brasch, 1988). These expectations 8 and 9-year-old children have come from the learning that occurred from watching and observing their parents, as well as other family members, and society at large via popular media (Casswell et al., 1988; Kraus et al., 1993).

Though expectancies for alcohol form early in childhood, research indicates expectancies are likely to undergo a metamorphosis later as children grow into adolescents and adults. As children age, there is greater exposure to societal information regarding alcohol, in addition to greater peer influence, and a progression away from parent held convictions and beliefs towards those held by peers (Barber, Clements, Eccles, & Fuligni, 2001; Eccles & Fuligni, 1993; Goldman, Miller, & Smith, 1990; Jones, 2011).

One hypothesized way that information for new or novel behaviors is learned SLT, as evidenced by AOE's emerging early in life of a child and evolving as they age (Casswell et al., 1988; Kraus et al., 1993; Miller et al., 1990). Both the personal experiences one has with alcohol

along with the witnessed effects of these experiences serve to modify or solidify a person's expectation (Barber et al., 2001; Eccles & Fuligni, 1993; Goldman et al., 1990). However, the components of social learning theory and their contribution to the development of AOE, compounded with individual differences, has not been as dutifully researched. The impact of SLT along with the modification and generalization of expectancies are to be investigated for this research project.

A major contributor to the early development of alcohol expectancies is SLT which is manifest as the powerful influences of culture and a child's parental figures. The expectancies held by children are fluid early in life, but grow as the children begin to experience more social and alcohol influence; thus, solidifying their expectancies (Cumsille, Graham, & Sayer, 2000). While previous studies have presented positive expectancy models, few have presented both a modeling and expert instruction learning situation in addition to a novel and neutral substance. The present study will rely on two principles of SLT (expert instruction and peer modeling) to attempt to influence participants' beliefs for a novel and neutral substance. In addition, SLT this study will measure certain individual difference variables to investigate which contributes more significantly to beliefs for a novel and neutral substance.

Thus, far it has been demonstrated how AOE can be learned and the impact they have on beliefs and behaviors. Behaviors have been shown to be differentially affected by social learning and the expectancies they hold. Investigating the differences inherent to individuals that contribute to a differential effect of social learning as well as expectancies is needed. Wilson (1988) created a flowchart which helps to visually highlight the interplay of personal characteristics, the environment, and behavior. His visual aid placed behaviors in the lower left corner with double arrows traveling to the right to the environment, which then had double

arrows going up towards the cognitive processes, which then had double arrows culminating back at behavior. This chart shows the circular nature of the three variables and how they influence one another. As behaviors are manifest of the social environment and the learning which took place therein, the cognitions and personal difference variables serve to modify the influence of the environment and thus the learning and behaviors that occur (Wilson, 1988).

### **Suggestibility and Other Individual Difference Variables**

Kotov, Bellman, and Watson (2004), who created the Multidimensional Iowa Suggestibility Scale (MISS), define suggestibility by stating, "Suggestibility is a personality trait that reflects a general tendency to accept messages. Suggestibility is distinct from compliance because it involves internalization of a message, not simply a behavioral change" (p.2). Based on this definition, it can be seen how suggestibility may influence a person's (specifically developing children's) expectancies of substances and their beliefs and/or attitudes for a myriad of constructs.

As mentioned by Kotov et al. (2004), suggestibility is understood as a personality trait. As social learning is influenced by levels of suggestibility, so too do individual difference variables impact the way social stimuli is interpreted. Pires, Silva, and Ferreira (2013) investigated the effect of personality styles on suggestibility. Their research showed that suggestibility is not related to a psychological maladjustment, such as neuroticism, anxious, or pain-avoiding. This demonstrates that suggestibility is not, in and of itself, pathological. Research showed that certain personality characteristics can contribute to one being more susceptible to suggestibility. Those who reported being more suggestible tended towards stronger attachments to their peers, having higher levels of conforming, and cooperative/agreeing personality levels (Pires et al., 2013).

Zvolensky, Taha, Bono, and Goodwin (2006) studied personality traits and smoking and found that those with higher levels of openness to experience and neuroticism had a significant greater lifetime cigarette use than those lower in these personality traits. Neuroticism, specifically, was related to a progression from occasional to daily smoking. As mentioned earlier Ham et al. (2005) found that socially anxious persons held specific positive and negative expectancies for alcohol and would apply them differentially based on the context and anticipated outcome.

Research has shown that the behaviors and ideas can arise via social learning. Previous literature also indicates that concepts learned via SLT exhibit great influence on behavior. It has been seen that individual's traits influence expectancies and behaviors, such as drinking. It is hypothesized that individual difference variables, such as suggestibility, openness to experience, neuroticism, etc., can make one more or less open to engaging in certain behaviors. This impact of social learning can manifest in several ways, two of which are changes in mood and expectancies.

### **Present Study**

The literature reviewed to this point has provided a description of the nature and key components of AOE. As exemplified by SLT, AOE are often acquired through societal, cultural, and familial influences. In addition to learned behaviors, certain characteristics (e.g., previously held alcohol expectancies, suggestibility, neuroticism, openness to experience, and sensation seeking) have been shown to influence substance use behaviors. Research has shown that these characteristics mentioned above can influence the beliefs a person holds in addition to the behaviors they engage in. It has been seen that sensation seeking, neuroticism, anxiety, among other traits, can lead a person to drink more and more heavily, and can lead to increase smoking

(Ham et al., 2005; Magid & Colder, 2007; Zvolensky et al., 2006). What requires more thorough exploration is to what extent individual difference variables influence the power or potency of social learning regarding novel substances.

Therefore, the purpose of the present study was to examine whether individual variables (i.e., suggestibility, prior held alcohol expectancies, neuroticism, openness to experience, and sensation seeking) impacted the strength of social learning, as manifest by learned beliefs about a novel and neutral substance, state mood change, and future behavior prediction. In addition, individual difference variables were investigated to see which, if any, had more influence on social learning regarding a novel substance as evidenced by beliefs for a novel beverage and mood change. The difference variables were measured against two types of social learning, expert instruction and peer modeling. The individual difference variables were inspected closer to see which contributed more significantly to learning via observation. These variables were measured against a person's reported mood change, reported beliefs of a novel and neutral substance, as well other individual difference variables.

Participants were placed in one of two groups: Group 1 (the control group) experienced only expert instruction while Group 2 (the experimental group) received both modeling and expert instruction. Both groups were assessed on their baseline and preexisting mood and individual difference variables as well as any change in mood and expectations regarding the beverage. It was expected that modeling in conjunction with expert instruction would yield higher learning than expert instruction alone, as evidenced by positive mood change and positive beliefs of the novel substance.

### **Hypotheses**

Hypothesis 1a: It was hypothesized that the participants in the experimental group, who experienced both modeling and expert instruction, would experience a significant positive change in mood, after consumption of the novel and neutral beverage, compared to the control group due to the presented combined social learning manipulation (Barber et al., 2001; Cumsille et al., 2000; Eccles & Fuligni, 1993; Goldman et al., 1990; Jones, 2011). It was expected that general positive affect would rise as participants endorse a higher number of positive affect states and traits statements posttest; while general negative affect would decrease as participants endorse a fewer number of these mood states/traits statements posttest.

Hypothesis 1b: It was hypothesized that participants in the experimental group (which received exposure to the models) would endorse higher beliefs in the beverage's effect on their mood compared to those in the control group (which only received instructions regarding the beverage).

Hypothesis 1c: It was hypothesized that participants in the experimental group (which received exposure to the models) would endorse greater positive beliefs of mood effect for the beverage compared to the control group (which only received instructions regarding the beverage). In addition, it was expected that participants in the experiment group would hold less negative mood beliefs for the beverage compared to those in the control group.

Hypothesis 1d: It was hypothesized that participants in the experimental group (which received exposure to the models) would endorse greater likelihood of drinking the beverage again compared to the control group (which only received instructions regarding the beverage).

Hypothesis 2a: It was hypothesized that individual high in certain variables (i.e., previously held alcohol expectancies, suggestibility, neuroticism, openness to experience, and sensation seeking) would experience a greater belief in beverage effect, over those participants

lower in those variables. Positive alcohol expectancies, high levels suggestibility, high levels of neuroticism, high levels of openness to experience, and high levels of sensation seeking were expected to be associated with greater preference and desire for the beverage (Pires et al., 2013; Zvolensky et al., 2006).

Hypothesis 2b: It was hypothesized that high levels of suggestibility, neuroticism, sensation seeking, and openness to experience would be predictive of participants reporting greater changes in mood after consuming the beverage versus those lower in these variables. The variables were measured to see which individual difference variables accounted for the most variance in affect (Pires et al., 2013; Zvolensky et al., 2006).

Hypothesis 2c: It was hypothesized that individual high in certain variables (i.e., previously held alcohol expectancies, suggestibility, neuroticism, openness to experience, and sensation seeking) would experience an increased likelihood of drinking the beverage again, compared to those participants lower in those variables. Positive alcohol expectancies, high levels suggestibility, high levels of neuroticism, high levels of openness to experience, and high levels of sensation seeking were expected to be associated with a greater likelihood to drink the beverage again (Pires et al., 2013; Zvolensky et al., 2006).

## **Method**

### **Participants**

This study was conducted on the campus of the University of South Carolina Aiken in the Psychology Department. Ninety-Two participants were recruited to participate in this research. Participants in the study ranged from 18 years of age to 23, with the largest percentage (57.5%) being 18 years old.

### **Measures**

Table 2 provides a summary of descriptive statistics for the study variables. The measures that were given are presented below in alphabetical order:

**Alcohol Expectancy Questionnaire-III-Adult Form** (AEQ; Christiansen, Goldman, & Inn, 1987; see Appendix A). The AEQ was administered to measure participant's levels of alcohol outcome expectancies. This measure is a self-report assessment that measures an array of anticipated experiences associated with alcohol use. The full Adult Form contains 120 items arranged into 7 subscales; the subscales represent verbatim statements relating to alcohol and its effects taken from a sample of adult men. Each item consists of a statement that describes an outcome of alcohol. The outcome statements related to the expectation of: positive global changes in experience, sexual enhancement, social and physical pleasure, increased social assertiveness, relaxation/tension reduction, and arousal/interpersonal power. Respondents were asked to indicate if they either Agreed or Disagreed with each statement. This measure is usually administered in 10 – 15 minutes. Christiansen et al. (1987) reported that the AEQ had a mean Cronbach's coefficient alpha of .84, a mean internal coefficient alpha of .72, and a mean coefficient of .64 for rest-test reliability. Additionally, the AEQ was indicated to be internally consistent and reliable, holds good construct validity as well as predictive validity, in regards drinking patterns. Cronbach's alpha specific for the study sample was .89 for general positive change, .86 for enhanced sexuality, .82 for physical and social pleasure, .90 for increased social assertiveness, .84 for stress and tension reduction, and .67 for arousal and interpersonal power.

**Beverage Beliefs Questionnaire** (BBQ; see Appendix B). The BBQ is a specific and research-goal oriented questionnaire the researcher developed to measure the participant's levels of expectancies for the presented beverage. Participants were presented with eight contradictory mood states (i.e., tense, relaxed, irritable, calm, sad, happy, worried, and content). Participants

were given a 5-point Likert scale (1= Very Unlikely to 5= Very Likely) and asked to rate to what degree they expected the beverage to affect their positive and negative mood states.

**Big Five Inventory** (BFI: John & Srivastava, 1999; see Appendix C). The BFI is an inventory comprised of 44 statements that measure personality variables in relation to the Big Five Factors (dimensions) of personality. The factors which comprise the Big Five are: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. In this measure, participants are given 44 phrases describing character traits or how they view themselves (i.e., I am talkative, I am generally trusting, etc.). Participants are asked to rate these statements on a scale from 1 – 5 showing how strongly they agree or disagree that the statements are representative of them. John, Naumann, and Soto (2008) found the BFI to have a reliability coefficient alpha of .86, .79, .82, .87, and .83 for extraversion, agreeableness, conscientiousness, neuroticism, and openness, respectively. The researchers also found the BFI to have a validity mean coefficient of .93. For this study's sample the Cronbach's alpha is was .58 for extraversion, .45 for agreeableness, .51 for conscientiousness, .34 for neuroticism, and .67 for openness.

**Demographics Questionnaire** (see Appendix D). A specific and research-goal oriented questionnaire was developed by the researcher to ascertain important demographic information about each participant (i.e., gender, age, cultural background, etc.). In addition to the above listed information this measure would also assess the participant's usual intake of caffeine, nicotine, and alcohol. The demographic information was assessed through forced-choice response options along with open-ended response questions.

**Multidimensional Iowa Suggestibility Scale** (MISS; Kotov, Bellman, & Watson, 2004; see Appendix E). The MISS is a 95-item measure which was given to assess the suggestibility level of the participants. The measure includes seven suggestibility subscales which when

summed together yield a numerical score indicating the total level of suggestibility. The scale was utilized to measure the levels of suggestibility in a variety of areas, including: consumer suggestibility (CS), persuadability (PER), physiological suggestibility (PS), mental control (MC), physiological reactivity (PHR), unpersuadability (UNP), and peer conformity (PC).

Participants responding to the assessment were asked to read phrases related to suggestibility of the measure and indicate on a Likert Scale how well or not the phrase related to them; the Likert Scale ranges from Not at All or Very Unlikely (1) to A lot (5). Kotov et al. (2004) found that the MISS was reliable with a mean coefficient of .94, with an inter-scale correlation of .92. The authors of this measure also found the MISS to have an external validity of .31 in relation to other personality measures, specifically the BFI. The researchers also found the scale to have an internal validity of .92. For this study's sample, Cronbach's alpha was .80 for consumer suggestibility, .70 for persuadability, .81 for physiological suggestibility, .78 for physiological reactivity, .56 for peer conformity, .75 for peer conformity, and .77 for unpersuadability.

**Positive and Negative Affect Schedule - Expanded Form (PANAS-X; Watson & Clark, 1994; see Appendix F).** The PANAS-X is a 60-item survey designed to assess participants' levels of self-reported affect. The scale measures a myriad of affective states; including general dimensions of positive and negative affect, basic positive and negative emotions, and other affect states (such as fatigue, shyness, serenity, and surprise). The scale offers several words or phrases used to describe diverse emotional states and feelings. The measure is scored by summation of the participant's responses to specific items for each positive and negative subscale. Respondent scores were given for each category of mood: general negative affect (comprised of: fear, sadness, guilt, hostility, shyness, fatigue) and general

positive affect (comprised of: joviality, self-assurance, attentiveness, serenity, and surprise).

Participants were asked to rank each word or phrase on a 5 point Likert Scale, Very Unlikely/Not At All (1) to Extremely (5), to what extent the participant felt the presented word or phrase in the moment. The PANAS-X has good internal consistency with Cronbach's coefficient alpha's generally ranging from .83 to .90 for positive affect and from .85 to .90 for negative affect (Watson & Clark, 1994).

**Taste Perception Test (TPT;** see Appendix G). The TPT is a specific research goal oriented questionnaire created by the researcher to assess the subjective perception of and preference for the beverage and its effects. Participants were given a mix of forced choice and self-report questions relating to their taste preference and experience with the novel beverage.

### **Procedure**

Students were randomly assigned to one of two groups (the experiment group or control group). The participants were run individually in the laboratory offices of the USC Aiken Psychology Department. Upon arrival, participants were greeted by the experimenter and were given informed consent documentation, wherein they read and acknowledged their understanding of the study and consent (via signature) to participate. If participants had any questions or concerns the researcher addressed them at that time.

When the students agreed to participate, they completed baseline and preliminary measures. Participants first completed a demographic questionnaire followed by the BFI, MISS, and PANAS-X. To control for order effects, the measures were counterbalanced by varying the order of their administration.

After completing the pretest measures, participants were introduced to the novel beverage, which for the purposes of this study was tonic water, via a videotaped researcher. This

researcher, portrayed by a confederate, informed participants in both groups of the stated purpose of the study via pre-recorded message (Video A). Participants were told that they were taking part in a taste test for the Health and Wellness Department. Participants were led to believe that they were testing the flavor profile and possible effects a new vitamin water still in development. The participants in both groups were informed that the beverage contained “Cyanocobalamin”, which they were told is a derivative of B vitamins and that this compound has been shown to have effects on mood, specifically, that it has been shown to elevate mood as well as reduce stress and tension leading one to become happier and relaxed.

Following the establishment of a plausible backstory participants in the experimental group watched a pre-recorded video of a male and a female confederate consuming the tonic water in the same lab room (Video B). The experimental group was told that the video they were about to watch was a preliminary study during which participants agreed to be videotaped. The confederates were recorded drinking the tonic water in the same psychology laboratory room, to increase fidelity. After consumption, the videotaped confederates modeled a relaxation effect of the novel beverage as well as verbally described an elevation of mood and reduction of tension (see Appendix H for a procedural description and transcript of parts A & B of the video).

Following the manipulation (i.e., expert instruction in the control group, and expert instruction along with modeling in the experimental group), participants consumed the tonic water and were allowed 15 minutes for “absorption”. During this absorption time participants were asked to sit and listen to a podcast on gardening. Participants were asked to not look at their cellphones in case it would affect their moods. After the absorption time, participants in both groups completed the BBQ, TPT, and finally the PANAS-X again. As a final measure, participants were given the AEQ to complete before concluding the experiment. The time of the

experiment was one and a half hours per participant. After all participants had completed the study, they were debriefed, en masse, by the researcher via email. The participants were informed that the beverage they consumed was not a vitamin water being tested via the Department of Health and Wellness but tonic water, and that the study was intended to measure how individual difference variables affected social learning and in turn expectancies and mood state.

## Results

### Preliminary Analyses

Ten of the participants' data was removed from the data analysis due to prior relationships with the model used in the videotaped portions of the study. This prior relationship had the potential to influence the participant responses. One participant's data was dropped due to strange and erratic behavior as well as score anomalies on the measures (i.e., incorrect completion or incompleteness of study measures). An additional seven participants, comprising seven data points, had their data Winsorized on the TPT, BBQ, and PANAS-X measures due to their data points significantly outlying (greater than 3 SD) from the mean. These outlying scores were transformed by adjusting their score to the next highest or lowest score (as appropriate) within the acceptable range (Turkey, 1977). Table 2 provides a summary of descriptive statistics for the study variables.

A series of ANOVAs were run on study measures to check for preexisting group differences on the AEQ, BFI, Gender, MISS, PANAS-X Time One, TPT, and Years of Age. There was a statistically significant difference on agreeableness between the control and experimental groups [ $F(1, 77) = 4.3, p < .05$ ]. The experimental group's mean agreeableness score was higher than the control group's mean agreeableness score ( $M = 4.2$  vs.  $3.9$ ).

Physiological suggestibility was marginally significantly different [ $F(1, 77) = 2.0, p = .06$ ]. Results further indicated the groups were similar on the remaining test variables (see Table 3 for means). Due to the differences in agreeableness and physiological suggestibility, ANCOVAs were conducted on subsequent analyses to control for pre-existing group differences. The groups were gender balanced with the experimental group containing 27% men ( $n = 9$ ) and 73% women ( $n = 24$ ) versus the control with 38% men ( $n = 13$ ) and 72% women ( $n = 33$ ),  $X^2(1, N = 79) = .009, p > .05$ .

Additionally, participants were asked to rate on a scale of 1 – 5 their perception of the sweetness and saltiness of the beverage using the TPT. On average, participants across groups did not find the beverage to taste very sweet ( $M = 1.8$ ), with more of the participants reporting the beverage tasting salty ( $M = 3$ ). Most of the participants described the beverage as tasting strong, bitter, and/or sour. A few participants described the beverage as being nasty, gross, or terrible. None of the participants described the beverage in explicitly positive terms (i.e., good), they did, however, discuss the flavor being like Sprite, light and refreshing, bubbly, citrus-y, and various other fruit flavors/descriptors.

### **Effect of Beverage on Mood State by Group**

Hypothesis 1a stated that the participants in the experimental group (which received exposure to the models) would experience a greater positive change in mood state after consumption of the novel, neutral beverage compared to the control group (which received only instructions regarding the beverage). This mood change was predicted to be seen via comparison of pre-and posttest scores of the PANAS-X. It was expected that general positive affect would show a positive change as participants endorsed a higher number of positive mood state statements posttest. Additionally, it was expected that general negative affect would show a

decrease as participants endorsed fewer of these mood state statements posttest. Hypothesis 1a was tested using a repeated measures ANCOVA to measure change of scores on the PANAS from time one to two on the general positive and negative affect subscales, while controlling for agreeableness and physiological suggestibility.

Results of the repeated measures ANCOVA failed to yield a significant main effect of group [ $F(1, 75) = .014, p > .05$ ], interaction effect [ $F(1, 75) = .538, p > .05$ ], or a main effect of time [ $F(1, 75) = .869, p > .05$ ] for the positive subscale. This finding was, contrary to predictions (see Figure 1). Additionally, results of the repeated measures ANCOVA failed to yield a significant main effect of group [ $F(1, 75) = .161, p > .05$ ], interaction effect [ $F(1, 75) = .105, p > .05$ ], or a main effect of time [ $F(1, 75) = 1.32, p > .05$ ] for the negative subscale. This finding was contrary to predictions (see Figure 2).

### **Belief in Beverage Effect by Group**

Hypothesis 1b stated that participants in the experimental group (which received exposure to the models) would endorse greater belief in effect of the beverage (as measured by the TPT) compared to the control group (which only received instructions regarding the beverage). This hypothesis was tested using a series of one-way ANCOVAs to measure self-reported belief's regarding beverage effects, while controlling for agreeableness and physiological suggestibility. Analysis of scores showed the experimental group expected the beverage to have a greater effect on them compared to the control [ $M = 2.9$  vs.  $2.3$ ;  $F(3,75) = 6.98, p < .01$ ; see Table 4].

### **Belief in Beverage Effect on Mood by Group**

Hypothesis 1c stated that participants in the experimental group (which received exposure to the models) would endorse greater beliefs in positive mood effects for the beverage

(as measured by the BBQ) compared to the control group (which only received instructions regarding the beverage). In addition, it was expected that participants in the experimental group would hold less negative mood beliefs for the beverage compared to those in the control group. This hypothesis was tested using a series of one-way ANCOVAs to measure self-reports of their belief of beverage effects.

The experimental group reported expecting the beverage to make them more content, calm, and relaxed compared to the control group [ $M = 5.6$  vs.  $4.3$ ;  $F(3,75) = 3.40$ ,  $p < .05$ ], [ $M = 6.1$  vs.  $5.3$ ;  $F(3,75) = 2.73$ ,  $p \leq .05$ ] and [ $M = 5.8$  vs.  $5.0$ ;  $F(3,75) = 3.42$ ,  $p < .05$ ], respectively. Analysis of scores showed the control group expected the beverage to make them more irritable compared to the experimental group [ $M = 1.8$  vs.  $1.3$ ;  $F(3,75) = 2.97$ ,  $p < .05$ ]. Both the experimental group and the control group reported similar means on tense, sad, worried, and happy (see Table 4).

### **Effect of Social Learning on Likelihood to Drink Again**

Hypothesis 1d stated that participants in the experimental group (which received exposure to the models) would endorse greater likelihood of drinking the beverage again (as measured by the TPT) compared to the control group (which only received instructions regarding the beverage). This hypothesis was tested using a series of one-way ANCOVAs to measure self-reported belief of beverage effects, while controlling for agreeableness and physiological suggestibility. Analysis of scores indicated that the groups did not significantly differ in their likelihood of drinking the beverage again [ $M = 2.1$  vs.  $1.9$ ;  $F(1, 75) = .523$ ,  $p > .05$ ; see Table 4].

### **Individual Difference Variables Predictive of Belief in Beverage Effect**

Hypothesis 2a stated that individuals high in certain variables (i.e., previously held alcohol expectancies, suggestibility, neuroticism, openness to experience, and sensation seeking)

would experience higher belief in beverage effect, relative to participants lower in these variables. Hypothesis 2a was tested using a hierarchical regression to find which variable(s) accounted for the most belief in beverage effect.

Correlations were run among belief in beverage effect and personality, mood, and alcohol expectancy variables to aid in selecting significant variables for the regression. Examination of the correlations revealed significant relationships between physiological suggestibility, physiological reactivity, and peer conformity and belief in beverage effect (see Table 5). These select variables were placed in the subsequent hierarchical regression.

A hierarchical regression composed of two steps was run to examine the predictive power of group, physiological suggestibility, physiological reactivity, and peer conformity on belief in beverage effect. Group was entered in Step One, and the model was significant [ $F(1,77) = 5.87$ ,  $R^2 = .071$ ,  $p < .05$ ]. Physiological suggestibility, physiological reactivity, and peer conformity were entered into Step Two. This model was also significant [ $F(4,74) = 5.51$ ,  $R^2 = .230$ ,  $p < .01$ ]. At Step Two, physiological suggestibility ( $\beta = .385$ ,  $p < .01$ ) and group ( $\beta = .261$ ,  $p < .05$ ) were identified as significant predictors of belief in effect. Adding the individual difference variables to the model significantly increased the amount of variance accounted for [ $F$  change (3,74) = 5.08,  $p < .01$ ; see Table 6].

### **Individual Difference Variables Predictive of Total Positive Change**

Hypothesis 2b stated that high levels of suggestibility, neuroticism, sensation seeking, and openness to experience would be predictive of participants reporting greater positive changes in mood state after consuming the beverage than those lower on these variables. This change in mood levels was assessed by comparing PANAS-X scores with scores on the BBQ, BFI, MISS, and TPT. This hypothesis was tested using a hierarchical regression to find which variable(s)

accounted for more significant variance in total positive change, as measured by total positive difference. Total positive difference was a difference score calculated by subtracting PANAS positive affect time one from PANAS positive affect time two. This formulation yielded positive and negative scores. The positive or negative directionality of the scores indicated a rise or decrease in affect time two. As an example, if a person scored 42 on the PANAS positive affect scale at time one and 40 on the PANAS positive affect scale time two they would have a total negative difference scores of -2, showing a two-point decrease in positive subscale scores. Conversely, if a participant had a score of 25 on PANAS positive affect scale time one and 30 PANAS positive affect scale time two they would have a total positive difference score of 5, showing a five-point increase in positive subscale scores.

Correlations were run between total positive difference and personality, mood, and alcohol expectancy variables in order that significant variables could be selected for the regression. Examination of the correlations revealed a small significant relationship between consumer suggestibility and total positive difference [ $r(77) = -.247, p < .05$ ]. Consumer suggestibility was then placed in a hierarchical regression.

A hierarchical regression composed of two steps was run to examine the predictive power of group and consumer suggestibility on total positive change. Group was entered in Step One, and the model was nonsignificant [ $F(1,77) = .734, R^2 = .009, p > .05$ ]. Consumer suggestibility was entered into Step Two. This model was marginally significant [ $F(2,76) = 2.84, R^2 = .070, p = .065$ ]. Consumer suggestibility ( $\beta = -.245, p < .05$ ) was the only significant predictor of total positive difference. Adding the individual difference variables to the model did not significantly increase the amount of variance accounted for [ $F$  change (1,76) = 4.90,  $p > .05$ ; see Table 7].

### **Individual Difference Variables Predictive of Total Negative Change**

Hypothesis 2b stated that high levels of suggestibility, neuroticism, sensation seeking, and openness to experience would be predictive of participants reporting greater changes in negative mood state after consuming the beverage than those lower on these variables. This change in mood levels was assessed by comparing PANAS-X scores with scores on the BBQ, BFI, MISS, and TPT. A hierarchical regression was run to find which variable(s) accounted for more significant variance in total negative change, as measured by total negative change. Total negative change was a difference score calculated by subtracting PANAS negative affect time one from PANAS negative affect time two. This formulation yielded positive and negative scores. The positive or negative directionality of the scores indicated a rise or decrease in affect time two. As an example, if a person scored 42 on the PANAS negative affect scale at time one and 40 on the PANAS negative affect scale time two they would have a total negative difference score of -2, showing a two-point decrease in negative subscale scores. Conversely, if an participant had a score of 25 on PANAS negative affect scale time one and 30 PANAS negative affect scale time two, they would have a total negative difference score of 5, showing a five-point increase of five on negative subscale scores.

Correlations were run between total negative difference and personality, mood, and alcohol expectancy variables to report significant variables for the regression. Examination of the correlations revealed significant relationships between global positive change, sexual enhancement, physical and social pleasure, and arousal and power with total negative mood (see Table 8). Global positive change, sexual enhancement, physical and social pleasure, and arousal and power were then placed in a hierarchical regression.

A hierarchical regression composed of two steps was run to examine the predictive power of group, global positive change, sexual enhancement, physical and social pleasure, and arousal

and power on total negative difference. Group was entered in Step One, and the model was nonsignificant [ $F(1,77) = .277, R^2 = .004, p > .05$ ]. Global negative change, sexual enhancement, physical and social pleasure, and arousal and power were entered into Step Two. This model was also nonsignificant [ $F(5,73) = 1.95, R^2 = .118, p > .05$ ]. At Step Two, no individual predictor variables were shown to account for unique variance in total negative difference. Adding the individual difference variables to the model added a marginal increase of significance in the amount of variance accounted for [ $F$  change  $(4,73) = 2.37, p = .06$ ; see Table 9].

### **Individual Difference Variables Predictive of Likely to Drink Again**

Hypothesis 2c stated that individuals high in certain variables (i.e., previously held alcohol expectancies, suggestibility, neuroticism, openness to experience, and sensation seeking) would report a higher likelihood of drinking the beverage again, compared to those participants lower in the stated variables.

Correlations were run between likelihood of drinking again and personality, mood, and alcohol expectancy variables to identify significant variables which would be placed in the regression. Examination of the correlations revealed a moderate significant relationship between general positive affect at time two and likelihood of drinking again, [ $r(77) = .338, p < .01$ ]. General positive affect time two was then placed in a hierarchical regression.

A hierarchical regression composed of two steps was run to examine the predictive power of group and general positive affect time two on likelihood of drinking the beverage again (see Table 10). Group was entered in Step One, and the model was nonsignificant [ $F(1,77) = .356, R^2 = .005, p > .05$ ]. General positive affect Time 2 was entered into Step Two. This model was significant [ $F(2,76) = 5.00, R^2 = .116, p < .01$ ]. At Step Two, general positive affect Time 2 was identified as a significant predictor of likelihood of drinking again ( $\beta = .335, p < .01$ ) while

group was not identified as a significant predictor of likelihood of drinking again ( $\beta = .045, p > .05$ ). Adding the individual difference variables to the model significantly increased the amount of variance accounted for [ $F$  change (1,76) = 9.60,  $p < .01$ ].

### **Discussion**

Prior research has highlighted the effect of society on learning and learning on behaviors. Bandura (1963) demonstrated that children could learn concepts, behaviors, and even states of emotion by simply watching a model preform a behavior. Bandura (1969) continued his research, proposing that children watch the behaviors of their family, as well as society at large. He reported that this watching and learning from others leads to acquisition of new or novel behaviors (Bandura, 1969).

Social learning theory operates from four pillars: differential reinforcement, vicarious learning/modeling, cognitive processing, and reciprocal determinism (Bandura 1969, as cited in Leonard & Blane, 1999). Social learning theory and its components explain how novel behaviors are learned. The learning which comes via the observation of models provides the individual with the information necessary to create their unique behavioral repertoire. Research has demonstrated that the observation of others contributes more significantly to learning than does verbal or other instruction (Dickey, 1991). However, other research reports that modeling combined with expert instruction is a more effective way of learning (Fienup, 2016; Hersen et al., 1973). Through observational learning, expectations are developed for specific outcomes to follow specific behaviors. Regarding alcohol consumption, the name for the anticipated consequences is AOE's.

AOEs are defined as the effects, or consequences, a person believes will result from the consumption of alcohol (Goldman et al., 1999). Prior research shows that children as young as

eight and nine years old hold expectancies for alcohol (Casswell et al., 1988). However, empirical evidence for exactly how they develop is limited. It is assumed that these expectancies arise from observational learning of parents, and family members, and society at large via popular media (Brown, 1993; Casswell et al., 1988; Kraus et al., 1993).

The purpose of the present study was to examine the impact of individual difference variables on social learning regarding a novel substance as evidenced by belief in effect of a novel beverage and change in mood state. Hypothesis 1b measured belief in beverage effect by group. Expert instruction combined with peer modeling was expected to contribute to participants adopting a higher belief in beverage effect versus expert instruction. The experimental group, which had expert instruction with peer modeling, demonstrated a greater belief in the beverage's effect than the control group. These results are consistent with literature showing the peer modeling in combination with expert instruction is more effective in teaching behaviors (Tyner & Fienup, 2016).

The results for Hypothesis 1a, effect of beverage on mood by group, indicated no significant change on mood as measured by the positive and negative subscales of the PANAS-X, contrary to predictions. Hypothesis 1c measured belief in the beverage's mood effect by group. Expert instruction combined with peer modeling was expected to contribute to participants learning more positive beliefs in the beverage's effect on mood versus expert instruction alone. The experimental group, which had expert instruction with peer modeling, demonstrated higher beliefs that the beverage would make them calmer, more content, and more relaxed compared to the control group. The control group reported expecting the beverage to make them more irritable compared to the experimental group. These findings can be attributed

to the effectiveness of the manipulation as the experimental group reported greater positive beliefs than the control group.

Hypothesis 1d investigated group differences in likelihood to drink the beverage. Expert instruction combined with peer modeling was expected to contribute to participants being more likely to consume the beverage again versus expert instruction alone. The groups did not differ regarding scores on likelihood to drink again,  $M = 1.9$  for control and 2.1 experimental. This may be due in part to the novel beverage's (tonic water) taste. Participants described the beverage using positive words such as fruity, bubbly, and in comparison, to soft drinks in addition to negative words such as thick, bitter, and nasty. It was expected that the strong taste of the quinine would lend to the medicinal facade of the study. It was hypothesized that a strong, not necessarily pleasant, taste would add to the belief in the beverage containing an active compound. Additionally, people do not often enjoy the taste of alcohol, yet they still consume it for the expected effect(s).

Hypothesis 1 results were mixed in terms of consistency with previous literature. It has been reported in previous studies that expectations for substances can arise from watching and observing society and popular media, even before personal exposure or experience with a stimulus (Bandura, 1969; Casswell et al., 1988; Kraus et al., 1993). These results are partially consistent with previous literature that reported stronger learning occurs when modeling is paired with expert instruction (Hersen et al., 1973; Tyner & Fienup, 2016). Research has also reported that the subjective labeling of 'good' or 'bad' of an outcome influences individuals' expectations of alcohol and motivation of drinking behaviors. These perceptions will then moderate chosen behaviors based on the ultimate result they anticipate their choices will yield (Fromme, 1993; Zamboanga, 2006; Zamboanga et al., 2009).

Overall, these results indicate that the manipulation utilized in this experiment, expert instruction combined with peer modeling, was more likely to convey positive beliefs for a novel and neutral beverage compared to expert instruction alone, but did not lead to an actual mood change effect. Positive beliefs of beverage effect were higher in the experimental group as reflected by higher scores related to the beliefs that the beverage would make them calmer, content, and relaxed. However, no actual positive increase in mood was reported via score change on the PANAS. This is not consistent with previous literature as placebos have been shown in previous studies to contribute to positive mood change, beliefs, and outcomes in participants (Crow et al., 1999). Perhaps the failure of the present study to find significant differences in mood state may be at least in part attributable to use of the PANAS, as the positive and negative subscales are computed by adding responses to numerous adjectives that describe mood states, many of which were not relevant to the beverage manipulation.

An additional goal of this study was to examine a variety of individual difference variables (i.e., suggestibility, prior held alcohol expectancies, neuroticism, openness to experience, and sensation seeking) to see which, if any, would impact the strength of social learning. Societal influences have been shown in prior research to shape children's and adolescent's expectancies of alcohol by manipulating their opinions about it. Exposure to models has been shown to be predictive of increased positive expectancies in children and has led to lower estimates of alcohol potency in those who consumed alcohol (Grube & Wallack, 1994).

Research has shown that beliefs and behaviors can be learned via social learning (Bandura, 1963). The question is raised if learning can be differentially affected by individual traits, which have been shown to influence expectancies and the behaviors people engage in, such as drinking (Ham et al., 2005; Zvolensky et al., 2006). It was hypothesized that individual

difference variables, such as suggestibility, openness to experience, neuroticism, etc., can make one more or less susceptible to social learning concepts. This impact of social learning was measured in two ways: changes in mood and belief in beverage effect and likelihood to drink the beverage again.

Hypothesis 2a investigated individual difference factors to see which would contribute more significantly to individuals experiencing a greater belief in beverage effect. This hypothesis investigated high levels of suggestibility, neuroticism, sensation seeking, and openness to experience to find which was predictive of participants reporting greater belief in beverage effect. The results indicated that higher levels of physiological suggestibility contributed to a greater belief in effect of the beverage.

Hypothesis 2b examined individual difference variables and their relation to positive and negative affect change. It was shown that individuals with high levels of consumer suggestibility were more likely to experience an increase in positive mood compared to those lower in consumer suggestibility. No variables were found to be predictive of change in negative mood state (as measured by the PANAS).

Hypothesis 2c focused on individual difference factors that would contribute more significantly to participants experiencing a greater likelihood to drink the beverage again. This hypothesis investigated high levels of suggestibility, neuroticism, sensation seeking, and openness to experience to find which was predictive of participants reporting being more likely to drink the beverage again. Results suggested that none of these variables were significant predictors of likelihood to drink again.

Overall, it was seen that individuals who had higher levels of physiological suggestibility and consumer suggestibility were more likely to accept the belief that the beverage would

influence their mood. This finding is congruent with research as Kotov et al. (2004) defined suggestibility as “a personality trait that reflects a general tendency to accept messages” (p. 2). It is understandable that individuals who are more open to physiological suggestion would be likely to accept the beliefs that a substance will alter their mood state and to drink to again.

Individuals who experienced an increase in positive mood reported being more likely to consume the beverage again. This makes sense as individuals are more likely to engage in rewarding behaviors. Rotter (1954; 1982) reported that individuals will strive to alleviate a state of affective distress by use of some action, be it a behavior they engage in or cognitions. Rotter further reported that an individual high in negative mood regulation ability would be likely to employ more adaptive coping strategies, while those low in negative mood regulation tended to have less confidence in their ability to manage their negative or unpleasant moods. These individuals, with low negative mood regulation, were more likely to engage in avoidant or less effective coping mechanisms such as drinking excessively (Kassel et al., 1999).

No significant relationships were reported between individual variables and significant change in negative affect. This is congruent with the research design of this study, as it was constructed to elicit positive expectations. A future research project could modify the current study and attempt to elicit negative belief in beverage effect and measure change in that aspect.

In summary, this research examined the social learning effect of expert instruction and peer modeling. Adoption of beliefs regarding the novel and neutral beverage were found to be greater in general when peer modeling and expert instruction were combined. In addition to this, individual difference variables (i.e., suggestibility, prior held alcohol expectancies, neuroticism, openness to experience, and sensation seeking) were assessed to find which, if any, would impact the strength and likelihood of social learning. These beliefs were mostly positive in

nature as participants reported positive expectations, with high levels of physiological and consumer suggestibility contributing to participants being more likely to accept the belief that the beverage would have an effect.

The current study had several limitations that should be addressed in future research. Firstly, several participants' data had to be removed to control for error. This contributed to a reduction in numbers and consequently a loss of power. Future studies investigations should seek to utilize larger sample sizes to allow for data loss. Another limitation was participant recognition of the models utilized. An unforeseen consequence arose from using community members as models for both the expert and peer roles in the video recorded materials. This caused several participants to recognize the models, and their data had to be eliminated. Future studies could strive to use actors/actresses with lower chances being recognized. To control more thoroughly for confederate recognition, future researchers could contact individuals well outside the community (i.e., other towns, states, universities) to portray the confederate parts. A final limitation was the self-report nature of the assessments. Future research could utilize physiological indicators of relaxation, as well as behavioral tests of actual consumption (instead of likelihood to drink again).

In a clinical setting these results may be helpful for prevention efforts. Individuals high in consumer suggestibility or physiological suggestibility may be particularly vulnerable to purported positive effects of substances. Once identified, protective factors could be put in place to control for self-medication or falling prey to too-good-too-be-true sales pitches for cure-alls and other homeopathic or other medicines. The understanding that one is susceptible to believing positive claims of substances may help protect individuals from making potentially unhealthy decisions. Additionally, the knowledge that peer modeling is sufficient to convey positive ideas

for a substance could potentially be utilized to convey negative expectations for a substance.

Anti-drug and drinking campaigns could utilize these findings to develop modeling demonstrations that would highlight negative consequences of substance use.

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Table 1

*Participant Demographics*

<b>Variable</b>	<i>n</i>	Percent of Sample
<b>Ethnicity</b>		
African American	25	31.6%
American Indian	1	1.3%
Asian	3	3.8%
Caucasian	47	59.5%
Hispanic	2	2.5%
Other	1	1.3%
<b>Gender</b>		
Men	22	27.8%
Women	57	72.2%
<b>Year in School</b>		
Freshman	59	74.7%
Sophomore	14	17.7%
Junior	4	5.1%
Senior	1	1.3%
Other	1	1.3%
<b>Age</b>		
18	46	58.2%
19	23	29.1%
20	6	7.6%
21	1	1.3%
22	2	2.5%
23	1	1.3%

*Note.* Total sample size N = 79.

Table 2

*Descriptive of Study Measures*

<b>Measure</b>	<b>N</b>	<b>Range</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>SD</b>
<b>AEQ</b>						
Global Positive Change	79	74.0	23.0	97.0	66.6	13.6
Enhanced Sexual	79	28.0	7.0	35.0	20.5	5.5
Physical and social	79	42.0	3.0	45.0	31.6	7.1
Increased Social	79	28.0	11.0	39.0	28.0	6.2
Relaxation and Tension	79	34.0	9.0	43.0	31.5	6.2
Arousal and Power	79	26.0	4.0	30.0	19.8	4.3
<b>BFI</b>						
Extraversion	79	3.6	1.3	4.9	3.1	.88
Agreeableness	79	2.8	2.2	5.0	4.0	.54
Conscientiousness	79	2.7	2.3	5.0	3.7	.52
Neuroticism	79	3.6	1.3	4.9	3.0	.73
Openness	79	2.4	2.0	4.4	3.3	.50
<b>BBQ</b>						
Tense	79	4.0	1.0	5.0	1.7	1.0
Relaxed	79	9.0	1.0	10.0	5.2	2.8
Irritable	79	4.0	1.0	5.0	1.6	1.0
Sad	79	3.0	1.0	4.0	1.3	0.6
Worried	79	3.0	1.0	4.0	1.3	0.7
Content	79	9.0	1.0	10.0	4.9	2.7
Calm	79	9.0	1.0	10.0	5.7	2.7
Happy	79	9.0	1.0	10.0	5.1	3.1
<b>MISS</b>						
Consumer Suggestibility	79	29.0	12.0	41.0	24.0	6.2
Persuadability	79	24.0	24.0	48.0	36.4	5.3
Physiological Suggestibility	79	36.0	12.0	48.0	23.1	6.8
Physiological Reactivity	79	39.0	26.0	65.0	47.4	7.6
Peer Conformity	79	36.0	37.0	73.0	51.2	6.2
Mental Control	79	34.0	9.0	53.0	4.1	7.1
Unpersuadability	79	32.0	32.0	64.0	49.4	6.8
<b>PANAS-X Time One</b>						
General Negative Affect	79	16.0	10.0	26.0	15.1	4.9
General Positive Affect	79	38.0	11.0	49.0	29.6	7.6
<b>PANAS-X Time Two</b>						
General Negative Affect	79	19.0	10.0	29.0	13.5	4.0
General Positive Affect	79	40.0	10.0	50.0	27.5	8.3
<b>TPT</b>						
Enjoy	79	4.0	1.0	5.0	2.7	1.2
Effect	79	4.0	1.0	5.0	2.5	1.1
Likelihood of Drinking Again	79	5.0	0.0	5.0	2.0	1.4

*Note.* *N* = number of participants, *SD* = Standard Deviation.

Table 3

*Descriptives of Study Means by Group*

<b>Measure</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Range</b>
<b>Demographic</b>				
Gender	46, 33	1.71, 1.72	.45, .45	1-2, 1-2
Years of Age	46, 33	18.7, 18.5	1.0, 1.03	18-22, 18-23
<b>AEQ</b>				
Global Positive Change	46, 33	66.8, 66.2	15.0, 11.5	23-97, 34-95
Enhanced Sexual	46, 33	20.9, 19.9	4.8, 6.2	9-34, 7-35
Physical and Social Pleasure	46, 33	31.5, 31.6	8.2, 5.3	3-43, 19-45
Increased Social	46, 33	28.1, 27.8	7.0, 5.0	11-39, 19-38
Relaxation and Tension	46, 33	31.1, 31.9	6.8, 5.2	9-43, 17-41
Arousal and Power	46, 33	20.0, 19.4	4.8, 3.4	4-30, 11-28
<b>BFI</b>				
Extraversion	46, 33	3.0, 3.3	0.8, 0.9	1.3-4.8, 1.5-4.9
Agreeableness	46, 33	3.9, 4.2	0.6, 0.4	2.2-5.0, 3.4-4.9
Conscientiousness	46, 33	3.6, 3.8	0.5, 0.5	2.3-4.9, 2.9-5.0
Neuroticism	46, 33	2.9, 3.0	0.7, 0.7	1.3-4.4, 1.9-4.9
Openness	46, 33	3.2, 3.4	0.5, 0.4	2.0-4.4, 2.3-4.3
<b>MISS</b>				
Consumer Suggestibility	46, 33	24.1, 23.8	6.1, 6.5	12-38, 13-41
Persuadability	46, 33	36.5, 36.3	5.3, 5.4	27-58, 24-45
Physiological Suggestibility	46, 33	22.9, 23.3	5.8, 8.1	12-38, 14-48
Physiological Reactivity	46, 33	46.5, 48.7	7.1, 8.2	26-61, 36-65
Peer Conformity	46, 33	51.1, 51.4	5.5, 7.1	40-62, 37-73
Mental Control	46, 33	33.7, 34.6	7.8, 6.2	19-53, 24-46
Unpersuadability	46, 33	48.4, 50.8	7.0, 6.3	32-64, 37-63
<b>PANAS-X Time One</b>				
General Negative Affect	46, 33	15.4, 14.6	5.3, 4.3	10-26, 10-25
General Positive Affect	46, 33	29.5, 29.9	6.7, 8.7	17-44, 11-49

*Note.* *N* = number of participants, *SD* = Standard Deviation. Data is given respective to group, with control being listed first followed by experimental

Table 4

*Means Beliefs in Beverage Effect, Mood Effect, and Likelihood of Drinking Again by Social Learning Manipulation*

<b>Subscale</b>	<b>Group</b>	<b><i>n</i></b>	<b><i>M</i></b>	<b><i>SD</i></b>
<i>Effect</i>	Control	46	2.3	1.09
	Experimental	33	2.9	1.22
	Total	79	2.5	1.18
Enjoy	Control	46	2.6	1.11
	Experimental	33	2.7	1.37
	Total	79	2.7	1.22
Tense	Control	46	1.8	1.12
	Experimental	33	1.5	.83
	Total	79	1.7	1.02
Relaxed	Control	46	4.8	2.57
	Experimental	33	5.7	3.01
	Total	79	5.2	2.78
<i>Irritable</i>	Control	46	1.8	1.51
	Experimental	33	1.3	1.07
	Total	79	1.6	1.43
Sad	Control	46	1.2	.54
	Experimental	33	1.2	.76
	Total	79	1.2	.63
Worried	Control	46	1.3	.64
	Experimental	33	1.3	.80
	Total	79	1.3	.711
<i>Content</i>	Control	46	4.3	2.40
	<i>Experimental</i>	33	5.6	2.90
	Total	79	4.8	2.68
Calm	Control	46	5.3	2.64
	Experimental	33	6.1	2.85
	Total	79	5.6	2.74
Happy	Control	46	5.0	3.08
	Experimental	33	5.2	3.10
	Total	79	5.1	3.07
Likely Again	Control	46	1.9	1.38
	Experimental	33	2.1	1.50
	Total	79	2.0	1.42

*Note.* *N* = number of participants, *M* = Mean, *SD* = Standard Deviation.

Table 5

*Correlation for Significant Individual Difference Variables Predictive of Beverage Effect*

	<b>Effect</b>	<b>PS</b>	<b>PHR</b>	<b>PC</b>
Effect	--			
Physiological Suggestibility	.387**	--		
Physiological Reactivity	.224*	.569**	--	
Peer Conformity	.268*	.424**	.312**	--

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

Table 6

*Hierarchical Multiple Regression Analyses Predicting Belief in Beverage Effect*

Variable	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
Group	.635	.262	.266			
Group				.622	.246	.261*
PS				.062	.023	.358**
PHR				-.009	.019	-.056
PC				.024	.021	.127
$R^2$		.071			.230	
<i>F</i> -value		5.872			5.514	

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

Table 7

*Hierarchical Multiple Regression Analyses Predicting Total Positive Affect Change*

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Group	1.04	1.22	.097			
Group				.986	1.19	.092
CS				-.209	.094	-.245*
R <sup>2</sup>		.009			.070	
<i>F</i> -value		.734			2.84	

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

Table 8

*Correlation for Significant Individual Difference Variables Predictive of Negative Affect Change*

	<b>TND</b>	<b>GPC</b>	<b>SE</b>	<b>PSP</b>	<b>AP</b>
Total Negative Difference	--				
Global Positive Change	.281	--			
Sexual Enhancement	.313**	.726**	--		
Physical and Social Pleasure	.232*	.635**	.499**	--	
Arousal and Power	.278*	.700**	.622**	.750**	--

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

Table 9

*Hierarchical Multiple Regression Analyses Predicting Total Negative Affect Change*

Variable	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
Group	.575	1.09	.060			
Group				.013	1.06	.090
Global Positive				.013	.065	.037
Sexual Enhancement				.189	.144	.216
Physical and Social				.010	.115	.015
Arousal and Power				.125	.211	.113
R <sup>2</sup>		.060			.344	
<i>F</i> -value		.277			1.95	

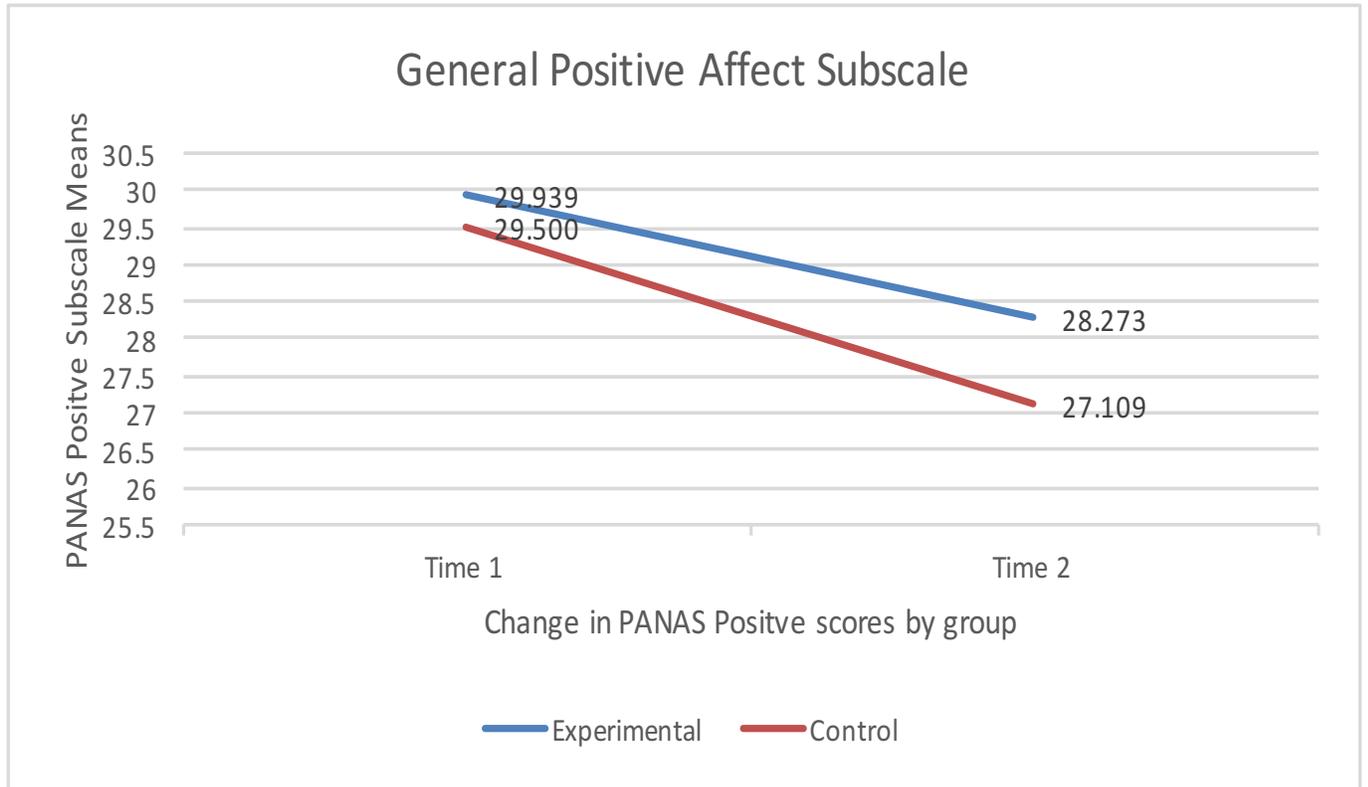
Note. \* $p < .05$ , \*\* $p < .01$

Table 10

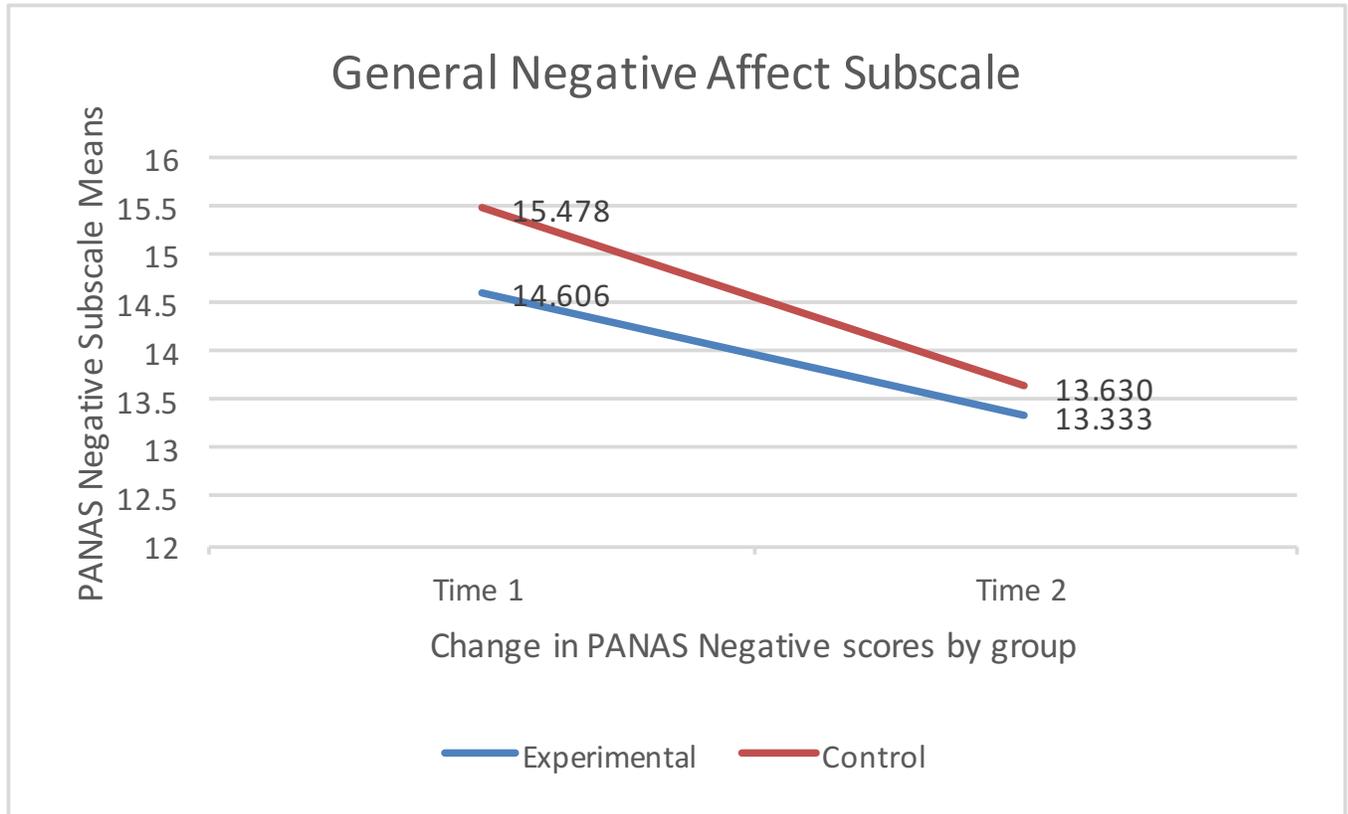
*Hierarchical Multiple Regression Analyses Predicting Likelihood of Drinking Again*

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Group	.195	.327	.068			
Group				.128	.311	.045
GPA2				.057	.018	.335**
$R^2$		.005			.116	
<i>F</i> -value		.356			5.00	

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



*Note.* Figure 1 shows repeated Measures ANCOVA results for Positive Affect change Time One to Time Two. PANAS is the Positive and Negative Affect Scale.



*Note.* Figure 2 shows repeated Measures ANCOVA results for Negative Affect change Time One to Time Two. PANAS is the Positive and Negative Affect Scale.

Appendix A



ALCOHOL EXPECTANCY QUESTIONNAIRE, REVISED  
 [120-item rev.9/94) Page 1  
 30 YR  
 (iaq.sav)

Date:  /  /

The following pages contain statements about the effects of alcohol. Read each statement carefully and respond according to your own personal thoughts, feelings and beliefs about alcohol now. We are interested in what you think about alcohol, regardless of what other people might think.

When the statements refer to drinking alcohol, you may think in terms of drinking any alcoholic beverage, such as beer, wine, whiskey, liquor, rum, scotch, vodka, gin, or various alcoholic mixed drinks. Whether or not you have had actual drinking experiences yourself, you are to answer in terms of your beliefs about alcohol. It is important that you respond to every question.

PLEASE BE HONEST. REMEMBER, YOUR ANSWERS ARE CONFIDENTIAL. Please answer every item. RESPOND TO THESE ITEMS ACCORDING TO WHAT YOU PERSONALLY BELIEVE TO BE TRUE ABOUT ALCOHOL. Fill in the circle which shows how much you agree or disagree with each item:

PLEASE USE A BLACK PEN  
 Shade circles like this: ●  
 Not like this: ⊗ ⊙

1 DISAGREE STRONGLY	2 DISAGREE SOMEWHAT	3 UNCERTAIN	4 AGREE SOMEWHAT	5 AGREE STRONGLY
---------------------------	---------------------------	----------------	------------------------	------------------------

	1	2	3	4	5	
iaq1	<input type="radio"/>	1. Alcohol can transform my personality.				
	<input type="radio"/>	2. Drinking helps me feel whatever way I want to feel.				
	<input type="radio"/>	3. Some alcohol has a pleasant, cleansing, tingly taste.				
	<input type="radio"/>	4. Alcohol makes me feel happy.				
	<input type="radio"/>	5. Drinking adds a certain warmth to social occasions.				
	<input type="radio"/>	6. Sweet, mixed drinks taste good.				
	<input type="radio"/>	7. When I am drinking, it is easier to open up and express my feelings.				
	<input type="radio"/>	8. Time passes quickly when I am drinking.				
	<input type="radio"/>	9. When they drink, women become more sexually relaxed.				
	<input type="radio"/>	10. Drinking makes me feel flushed.				
	<input type="radio"/>	11. I feel powerful when I drink, as if I can really influence others to do as I want.				
	<input type="radio"/>	12. Drinking increases male aggressiveness.				
	<input type="radio"/>	13. Alcohol lets my fantasies flow more easily.				
	<input type="radio"/>	14. Drinking gives me more confidence in myself.				
	<input type="radio"/>	15. Drinking makes me feel good.				
	<input type="radio"/>	16. I feel more creative after I have been drinking.				
	<input type="radio"/>	17. Having a few drinks is a nice way to celebrate special occasions.				
	<input type="radio"/>	18. After a few drinks, it is easier to pick a fight.				
	<input type="radio"/>	19. When I am drinking I feel free to be myself and to do whatever I want.				
	<input type="radio"/>	20. Drinking makes it easier to concentrate on the good feelings I have at the time.				
	<input type="radio"/>	21. Alcohol allows me to be more assertive.				
	<input type="radio"/>	22. When I feel "high" from drinking, everything seems to feel better.				
	<input type="radio"/>	23. At times, drinking is like permission to forget problems.				
	<input type="radio"/>	24. If I am nervous about having sex, alcohol makes me feel better.				
iaq25	<input type="radio"/>	25. Drinking relieves boredom.				

CONTINUE ON BACK OF PAGE →

0	1	2	3	4	5	6	7	8	9
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									





ALCOHOL EXPECTANCY QUESTIONNAIRE, REVISED  
[120-item; ADULT; rev.9/94] Page 2

PLEASE USE A BLACK PEN  
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Not like this: ○

1 DISAGREE STRONGLY	2 DISAGREE SOMEWHAT	3 UNCERTAIN	4 AGREE SOMEWHAT	5 AGREE STRONGLY
---------------------------	---------------------------	----------------	------------------------	------------------------

	1	2	3	4	5	
iaq26	<input type="radio"/>	26. I find that conversing with members of the opposite sex is easier for me after I have had a few drinks.				
	<input type="radio"/>	27. After a few drinks, I feel less sexually inhibited.				
	<input type="radio"/>	28. Drinking is pleasurable because it is enjoyable to join in with people who are enjoying themselves.				
	<input type="radio"/>	29. I like the taste of some alcoholic beverages.				
	<input type="radio"/>	30. If I am feeling restricted in any way, a few drinks make me feel better.				
	<input type="radio"/>	31. Men are friendlier when they drink.				
	<input type="radio"/>	32. It is easier for me to meet new people if I've been drinking.				
	<input type="radio"/>	33. I can discuss or argue a point more forcefully after I have had a drink or two.				
	<input type="radio"/>	34. Alcohol can eliminate feelings of inferiority.				
	<input type="radio"/>	35. Alcohol makes women more sensuous.				
	<input type="radio"/>	36. If I have a couple of drinks, it is easier to express my feelings.				
	<input type="radio"/>	37. I feel less bothered by physical ills after a few drinks.				
	<input type="radio"/>	38. Alcohol makes me need less attention from others than I usually do.				
	<input type="radio"/>	39. A drink or two makes the humorous side of me come out.				
	<input type="radio"/>	40. After a few drinks, I feel more self-reliant than usual.				
	<input type="radio"/>	41. After a few drinks, I don't worry as much about what other people think of me.				
	<input type="radio"/>	42. When drinking, I do not consider myself totally accountable or responsible for my behavior.				
	<input type="radio"/>	43. Alcohol enables me to have a better time at parties.				
	<input type="radio"/>	44. Anything which requires a relaxed style can be facilitated by alcohol.				
	<input type="radio"/>	45. Drinking makes the future seem brighter.				
	<input type="radio"/>	46. I am not as tense if I am drinking.				
	<input type="radio"/>	47. I often feel sexier after I have had a couple of drinks.				
	<input type="radio"/>	48. Having a few drinks helps me relax in a social situation.				
	<input type="radio"/>	49. I drink when I am feeling mad.				
	<input type="radio"/>	50. Drinking alone or with one other person makes me feel calm and serene.				
	<input type="radio"/>	51. After a few drinks, I feel brave and more capable of fighting.				
	<input type="radio"/>	52. Drinking can make me more satisfied with myself.				
	<input type="radio"/>	53. There is more camaraderie in a group of people who have been drinking.				
	<input type="radio"/>	54. My feelings of isolation and alienation decrease when I drink.				
	<input type="radio"/>	55. A few drinks make me feel less in touch with what is going on around me.				
	<input type="radio"/>	56. Alcohol makes me more tolerant of people I do not enjoy.				
	<input type="radio"/>	57. Alcohol helps me sleep better.				
	<input type="radio"/>	58. Alcohol makes me more outspoken or opinionated.				
	<input type="radio"/>	59. I am a better lover after a few drinks.				
iaq60	<input type="radio"/>	60. Women talk more after they have had a few drinks.				

NEXT PAGE ———>

0	1	2	3	4	5	6	7	8	9
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									





ALCOHOL EXPECTANCY QUESTIONNAIRE, REVISED  
[120-item; ADULT; rev.9/94) Page 3

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1	2	3	4	5
DISAGREE STRONGLY	DISAGREE SOMEWHAT	UNCERTAIN	AGREE SOMEWHAT	AGREE STRONGLY

	1	2	3	4	5	
iaq6	<input type="radio"/>	61. Alcohol decreases muscular tension.				
	<input type="radio"/>	62. Alcohol makes me worry less.				
	<input type="radio"/>	63. A few drinks make it easier to talk to people.				
	<input type="radio"/>	64. After a few drinks I am usually in a better mood.				
	<input type="radio"/>	65. Alcohol seems like magic.				
	<input type="radio"/>	66. Women can have orgasms more easily if they have been drinking.				
	<input type="radio"/>	67. Drinking increases female aggressiveness.				
	<input type="radio"/>	68. Drinking helps me get out of a depressed mood.				
	<input type="radio"/>	69. After I have had a couple of drinks, I feel I am more of a caring, sharing person.				
	<input type="radio"/>	70. Alcohol decreases my feeling of guilt about not working.				
	<input type="radio"/>	71. I feel more coordinated after I drink.				
	<input type="radio"/>	72. Alcohol makes me more interesting.				
	<input type="radio"/>	73. A few drinks make me feel less shy.				
	<input type="radio"/>	74. If I am tense or anxious, having a few drinks makes me feel better.				
	<input type="radio"/>	75. Alcohol enables me to fall asleep more easily.				
	<input type="radio"/>	76. If I am feeling afraid, alcohol decreases my fears.				
	<input type="radio"/>	77. A couple of drinks makes me more aroused or physiologically excited.				
	<input type="radio"/>	78. Alcohol can act as an anesthetic; that is, it can deaden pain.				
	<input type="radio"/>	79. I enjoy having sex more if I have had some alcohol.				
	<input type="radio"/>	80. I am more romantic when I drink.				
	<input type="radio"/>	81. I feel more masculine/feminine after a few drinks.				
	<input type="radio"/>	82. When I am feeling antisocial, drinking makes me more gregarious.				
	<input type="radio"/>	83. Alcohol makes me feel better physically.				
	<input type="radio"/>	84. Sometimes when I drink alone or with one other person it is easy to feel cozy and romantic.				
	<input type="radio"/>	85. I feel like more of a happy-go-lucky person when I drink.				
	<input type="radio"/>	86. Drinking makes get-togethers more fun.				
	<input type="radio"/>	87. Alcohol makes it easier to forget bad feelings.				
	<input type="radio"/>	88. After a few drinks, I am more sexually responsive.				
	<input type="radio"/>	89. If I am cold, having a few drinks will give me a sense of warmth.				
	<input type="radio"/>	90. It is easier to act on my feelings after I have had a few drinks.				
	<input type="radio"/>	91. I become lustful when I drink.				
	<input type="radio"/>	92. A couple of drinks makes me more outgoing.				
	<input type="radio"/>	93. A drink or two can make me feel more wide awake.				
	<input type="radio"/>	94. Alcohol makes me feel closer to people.				
iaq95	<input type="radio"/>	95. Women are friendlier after they have had a few drinks.				

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0	1	2	3	4	5	6	7	8	9
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									





ALCOHOL EXPECTANCY QUESTIONNAIRE, REVISED  
[120-item; ADULT; rev.9/94) Page 4

PLEASE USE A BLACK PEN  
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1	2	3	4	5
DISAGREE STRONGLY	DISAGREE SOMEWHAT	UNCERTAIN	AGREE SOMEWHAT	AGREE STRONGLY

	1	2	3	4	5	
iaq96	<input type="radio"/>	96. I tend to be less self-critical when I have something alcoholic to drink.				
	<input type="radio"/>	97. I find that conversing with members of the opposite sex is easier for me after I have had a few drinks.				
	<input type="radio"/>	98. Drinking makes me feel flushed.				
	<input type="radio"/>	99. It is easier to remember funny stories or jokes if I have been drinking.				
	<input type="radio"/>	100. After a few drinks I am less submissive to those in positions of authority.				
	<input type="radio"/>	101. Alcohol makes me more talkative.				
	<input type="radio"/>	102. I am more romantic when I drink.				
	<input type="radio"/>	103. Men can have orgasms more easily if they have had a drink.				
	<input type="radio"/>	104. A drink or two is really refreshing after strenuous physical activity.				
	<input type="radio"/>	105. Alcohol enables me to have a better time at parties.				
	<input type="radio"/>	106. I can be more persuasive if I have had a few drinks.				
	<input type="radio"/>	107. Drinking makes people feel more at ease in social situations.				
	<input type="radio"/>	108. Alcohol helps me sleep better.				
	<input type="radio"/>	109. After a drink or two, things like muscle aches and pains do not hurt as much.				
	<input type="radio"/>	110. Alcohol decreases my hostilities.				
	<input type="radio"/>	111. Alcohol makes me worry less.				
	<input type="radio"/>	112. Alcohol makes it easier to act impulsively or make decisions quickly.				
	<input type="radio"/>	113. Alcohol makes me feel less shy.				
	<input type="radio"/>	114. Alcohol makes me more tolerant of people I do not enjoy.				
	<input type="radio"/>	115. Alcohol makes me need less attention from others than I usually do.				
	<input type="radio"/>	116. A drink or two can slow me down, so I do not feel so rushed or pressured for time.				
	<input type="radio"/>	117. I feel more sexual after a few drinks.				
	<input type="radio"/>	118. Alcohol makes me feel better physically.				
	<input type="radio"/>	119. Having a drink in my hand can make me feel secure in a difficult social situation.				
iaq120	<input type="radio"/>	120. Things seem funnier when I have been drinking or at least I laugh more.				

0	1	2	3	4	5	6	7	8	9
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									
<input type="radio"/>									





## Appendix C

## The Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree
1	2	3	4	5

I see Myself as Someone Who...

- |  |  |
|--|--|
| ___ 1. Is talkative                            | ___ 22. Is generally trusting                      |
| ___ 2. Tends to find fault with others         | ___ 23. Tends to be lazy                           |
| ___ 3. Does a thorough job                     | ___ 24. Is emotionally stable, not easily upset    |
| ___ 4. Is depressed, blue                      | ___ 25. Is inventive                               |
| ___ 5. Is original, comes up with new ideas    | ___ 26. Has an assertive personality               |
| ___ 6. Is reserved                             | ___ 27. Can be cold and aloof                      |
| ___ 7. Is helpful and unselfish with others    | ___ 28. Perseveres until the task is finished      |
| ___ 8. Can be somewhat careless                | ___ 29. Can be moody                               |
| ___ 9. Is relaxed, handles stress well         | ___ 30. Values artistic, aesthetic experiences     |
| ___ 10. Is curious about many different things | ___ 31. Is sometimes shy, inhibited                |
| ___ 11. Is full of energy                      | ___ 32. Is considerate and kind to almost everyone |
| ___ 12. Starts quarrels with others            | ___ 33. Does things efficiently                    |
| ___ 13. Is a reliable worker                   | ___ 34. Remains calm in tense situations           |
| ___ 14. Can be tense                           | ___ 35. Prefers work that is routine               |
| ___ 15. Is ingenious, a deep thinker           | ___ 36. Is outgoing, sociable                      |
| ___ 16. Generates a lot of enthusiasm          | ___ 37. Is sometimes rude to others                |
| ___ 17. Has a forgiving nature                 | ___ 38. Makes plans and follows through with them  |
| ___ 18. Tends to be disorganized               | ___ 39. Gets nervous easily                        |
| ___ 19. Worries a lot                          | ___ 40. Likes to reflect, play with ideas          |
| ___ 20. Has an active imagination              | ___ 41. Has few artistic interests                 |
| ___ 21. Tends to be quiet                      | ___ 42. Likes to cooperate with others             |

## Appendix D

## Demographic Questionnaire

Please answer these questions by marking the letter, circling yes or no, or filling in the blank.

1. Gender: Male \_\_\_\_\_ Female \_\_\_\_\_ Prefer not to answer \_\_\_\_\_
2. Years of age: \_\_\_\_\_ Prefer not to answer \_\_\_\_\_
3. In which group do you mostly place yourself?  
\_\_\_\_\_ 1) African-American/Black \_\_\_\_\_ 4) Caucasian  
\_\_\_\_\_ 2) American Indian/Alaskan Native \_\_\_\_\_ 5) Hispanic/Latino  
\_\_\_\_\_ 3) Asian/Pacific Islander \_\_\_\_\_ 6) Other \_\_\_\_\_
4. Year in college: \_\_\_\_\_
5. When did you last smoke/consume a cigarette/cigar/tobacco product? \_\_\_\_\_
6. Do you smoke regularly? Yes No
7. If yes to above, how often do you consume/use a substance that contains tobacco?
  - a. Never (Skip to Next Question)
  - b. Monthly or less
  - c. 2 to 4 times a month
  - d. 2 to 3 times a week
  - e. 4 or more times a week
8. Do you regularly consume caffeine? Yes No
9. If yes to above, how often do you have a drink that contains caffeine?
  - a. Never (Skip to Next Question)
  - b. Monthly or less
  - c. 2 to 4 times a month
  - d. 2 to 3 times a week
  - e. 4 or more times a week
10. Do you regularly consume alcohol? Yes No
11. If yes to above, how often do you have a drink that contains alcohol?
  - a. Never (Skip to Next Question)
  - b. Monthly or less
  - c. 2 to 4 times a month
  - d. 2 to 3 times a week
  - e. 4 or more times a week

12. Do you take a multivitamin or other vitamin supplement?    Yes                      No

13. If yes to above, how often do you take multivitamins and or other vitamin supplements?

- a. Never (Skip to Next Question)
- b. Monthly or less
- c. 2 to 4 times a month
- d. 2 to 3 times a week
- e. 4 or more times a week

14. Do you regularly consume energy drinks?                                      Yes                      No

15. If yes to above, how often do you have energy drinks?

- a. Never (Skip to Next Question)
- b. Monthly or less
- c. 2 to 4 times a month
- d. 2 to 3 times a week
- e. 4 or more times a week

## Appendix E

## MISS

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MISS Please indicate to what extent the following statements apply to you.

Use the following scale to record your answers:

1                    2                    3                    4                    5  
 not at all    a little   somewhat   quite a bit    a lot  
 or very slightly

- \_\_\_\_\_ 1. I am easily influenced by other people's opinions  
 \_\_\_\_\_ 2. Commercials sometimes make me want products that I did not know I needed  
 \_\_\_\_\_ 3. When I read a story I sometimes feel what the character goes through  
 \_\_\_\_\_ 4. My friends and I like all the same things  
 \_\_\_\_\_ 5. I can be convinced by a good argument  
 \_\_\_\_\_ 6. In a scary situation I can make feelings of fear go away  
 \_\_\_\_\_ 7. People think that I am opinionated  
 \_\_\_\_\_ 8. If I convince myself something is not going to hurt, I will not really feel it  
 \_\_\_\_\_ 9. I question what I see on the news  
 \_\_\_\_\_ 10. I often get information about products from commercials  
 \_\_\_\_\_ 11. Being in a room where someone is sleeping makes me sleepy  
 \_\_\_\_\_ 12. After seeing a scary movie I feel jumpy for a while  
 \_\_\_\_\_ 13. I usually can be persuaded by a well-written editorial  
 \_\_\_\_\_ 14. I can be influenced by a good commercial  
 \_\_\_\_\_ 15. When someone coughs or sneezes, I usually feel the urge to do the same  
 \_\_\_\_\_ 16. My friends and I like the same stores  
 \_\_\_\_\_ 17. When I listen to music my mood usually changes accordingly  
 \_\_\_\_\_ 18. If I had a sharp pain, I could make it better by imagining something pleasant  
 \_\_\_\_\_ 19. It takes a lot to persuade me  
 \_\_\_\_\_ 20. After someone I know tries a new product, I will usually try it too  
 \_\_\_\_\_ 21. When I think about something pleasant I sometimes notice that I am smiling  
 \_\_\_\_\_ 22. In a discussion I often use arguments that I've heard other people make  
 \_\_\_\_\_ 23. If my heart is racing, I can slow it down just by thinking about it  
 \_\_\_\_\_ 24. Sometimes I want a product because I like the person endorsing it  
 \_\_\_\_\_ 25. When someone clears their throat, I often notice that my throat feels scratchy  
 \_\_\_\_\_ 26. It is no use trying to argue with me  
 \_\_\_\_\_ 27. Imagining a refreshing drink can make me thirsty  
 \_\_\_\_\_ 28. If I tell myself to lighten up, my mood usually improves  
 \_\_\_\_\_ 29. I like the style of clothes that my friends wear  
 \_\_\_\_\_ 30. I am not easily influenced  
 \_\_\_\_\_ 31. When someone yawns, I usually yawn myself

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1                    2                    3                    4                    5  
 not at all    a little   somewhat   quite a bit    a lot

or very slightly

- \_\_\_\_\_ 32. When a salesperson explains advantages of their service, I am usually pretty convinced
- \_\_\_\_\_ 33. When someone describes an experience, I sometimes feel as if I am having it
- \_\_\_\_\_ 34. I dress very differently from my friends
- \_\_\_\_\_ 35. A logical argument can make me change my mind
- \_\_\_\_\_ 36. Even when I am worked up, I can calm myself down pretty quickly
- \_\_\_\_\_ 37. I am very certain about my likes and dislikes
- \_\_\_\_\_ 38. I am strong-willed
- \_\_\_\_\_ 39. I don't like most of the movies my friends like
- \_\_\_\_\_ 40. A touching scene can make my eyes water
- \_\_\_\_\_ 41. When I feel that I am getting sick, I sometimes can stop the illness with my willpower
- \_\_\_\_\_ 42. My opinions are very slow to change
- \_\_\_\_\_ 43. I feel more attractive if someone compliments me on my appearance
- \_\_\_\_\_ 44. I trust the advice of experts
- \_\_\_\_\_ 45. A good salesperson can really make me want their product
- \_\_\_\_\_ 46. I seem to have a perspective on life that is quite similar to the people around me
- \_\_\_\_\_ 47. I don't mind changing my opinion after hearing a different point of view
- \_\_\_\_\_ 48. If I had to walk on a narrow ledge high above the ground, I could convince myself not to think about the height
- \_\_\_\_\_ 49. I do things my own way
- \_\_\_\_\_ 50. The smell of food usually makes me hungry
- \_\_\_\_\_ 51. I get a lot of good practical advice from magazines or TV
- \_\_\_\_\_ 52. After hearing about an illness, I sometimes start feeling symptoms of that illness
- \_\_\_\_\_ 53. I often buy things that my friends have
- \_\_\_\_\_ 54. I am comfortable holding unpopular opinions
- \_\_\_\_\_ 55. Even when I am really worried, I can put concerns out of my mind
- \_\_\_\_\_ 56. I have strong opinions on most issues
- \_\_\_\_\_ 57. If a product is nicely displayed, I usually want to buy it
- \_\_\_\_\_ 58. When I see someone shiver, I often feel a chill myself
- \_\_\_\_\_ 59. I share many of my friends' opinions
- \_\_\_\_\_ 60. I often get emotionally involved in a good movie
- \_\_\_\_\_ 61. People may disagree with me, but it usually turns out that I was right
- \_\_\_\_\_ 62. The more I am exposed to other people's views, the more my own view of the world changes
- \_\_\_\_\_ 63. I get my style from certain celebrities
- \_\_\_\_\_ 64. After watching deodorant commercials, I sometimes notice that I smell
- \_\_\_\_\_ 65. My friends and I have similar music tastes
- \_\_\_\_\_ 66. When people tell me how they feel, I often notice that I feel the same way

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1            2            3            4            5  
 not at all    a little    somewhat    quite a bit    a lot  
 or very slightly

- \_\_\_\_\_ 67. If I decide not to think about something, I can easily put it out of my mind
- \_\_\_\_\_ 68. I sometimes don't realize that a room is too hot until someone else mentions it
- \_\_\_\_\_ 69. When making a decision, I often follow other people's advice
- \_\_\_\_\_ 70. I use advertisements as a guide for shopping
- \_\_\_\_\_ 71. I sometimes don't realize that I am tired until someone tells me I look tired
- \_\_\_\_\_ 72. I like the same celebrities as my friends
- \_\_\_\_\_ 73. Reading descriptions of tasty dishes can make my mouth water
- \_\_\_\_\_ 74. I agree with the idea of "mind over matter"
- \_\_\_\_\_ 75. I get many good ideas from others
- \_\_\_\_\_ 76. I frequently change my opinion after talking with others
- \_\_\_\_\_ 77. After I see a commercial for lotion, sometimes my skin feels dry
- \_\_\_\_\_ 78. I discovered many of my favorite things through my friends
- \_\_\_\_\_ 79. I think I could learn to hypnotize myself
- \_\_\_\_\_ 80. I am good at controlling my thoughts
- \_\_\_\_\_ 81. I am seldom persuaded by other people's arguments
- \_\_\_\_\_ 82. When discussing politics I often find myself using arguments that I recently read or heard on TV
- \_\_\_\_\_ 83. When my clothes are not warm enough, I can make myself not feel the cold
- \_\_\_\_\_ 84. I follow current fashion trends
- \_\_\_\_\_ 85. Thinking about something scary can make my heart pound
- \_\_\_\_\_ 86. I have a unique style
- \_\_\_\_\_ 87. People would say that I am stubborn
- \_\_\_\_\_ 88. If I had an opinion that no one else shared, I would seriously question it
- \_\_\_\_\_ 89. I find other people's advice helpful in making decisions
- \_\_\_\_\_ 90. I have picked-up many habits from my friends
- \_\_\_\_\_ 91. After seeing something striking, the image often comes back to me
- \_\_\_\_\_ 92. If I wanted to I could become very good at meditation
- \_\_\_\_\_ 93. I would describe myself as an "independent thinker"
- \_\_\_\_\_ 94. If I am told I don't look well, I start feeling ill
- \_\_\_\_\_ 95. It is important for me to fit in

## Appendix F

## PANAS-X

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel each way right now, in the moment. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely
_____ cheerful	_____ sad	_____ active	_____ angry at self	
_____ disgusted	_____ calm	_____ guilty	_____ enthusiastic	
_____ attentive	_____ afraid	_____ joyful	_____ downhearted	
_____ bashful	_____ tired	_____ nervous	_____ sheepish	
_____ sluggish	_____ amazed	_____ lonely	_____ distressed	
_____ daring	_____ shaky	_____ sleepy	_____ blameworthy	
_____ surprised	_____ happy	_____ excited	_____ determined	
_____ strong	_____ timid	_____ hostile	_____ frightened	
_____ scornful	_____ alone	_____ proud	_____ astonished	
_____ relaxed	_____ alert	_____ jittery	_____ interested	
_____ irritable	_____ upset	_____ lively	_____ loathing	
_____ delighted	_____ angry	_____ ashamed	_____ confident	
_____ inspired	_____ bold	_____ at ease	_____ energetic	
_____ fearless	_____ blue	_____ scared	_____ concentrating	
_____ disgusted with self	_____ shy	_____ drowsy	_____ dissatisfied with self	

## Appendix G

## Taste Perception Test

Please use 1-5 scale to indicate your response to the following questions.

- 1 = "Not at all"
- 2 = "Slightly"
- 3 = "Average"
- 4 = "Mostly"
- 5 = "Extremely"

How much did you like/enjoy the experience of: \_\_\_\_\_

How much affect did this beverage have on your mood or energy level: \_\_\_\_\_

Describe the taste/flavor in a few words: \_\_\_\_\_

How likely are you to drink this beverage again: \_\_\_\_\_

Please describe in a few words what affects (if any) the beverage had on your mood/energy level:

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Please Rate the Sweetness: \_\_\_\_\_

Please Rate the Saltiness: \_\_\_\_\_



Consent to Participate in Research  
Vitamin Water Study  
Philip A. Williamson, B.A.

### Introduction

You are invited to participate in a research study conducted by Philip A. Williamson. I am a graduate student in the Psychology Department of University of South Carolina Aiken. I am conducting a research study as part of the requirements for my Master of Science degree in Applied Clinical Psychology, and I would like to invite you to participate.

The purpose of the study is to explore the different taste preferences and expectations a person may hold for a new vitamin water that is in development. This form explains what you was asked to do if you decide to participate in this study. Please read it carefully and feel free to ask any questions you like before you make a decision about participating.

### Eligibility to Participate

Approximately 90 young adults will participate in the current study. You must meet the following criteria: 1) fluent in English; 2) be able to provide informed written or verbal consent; and 3) be an undergraduate student at the University of South Carolina Aiken at least 18 years of age.

### Description of Study Procedures

If you qualify and agree to participate, you will take part in one (1) session with a time length of approximately 1.5 hours. At the beginning of the session you was asked to review the informed consent and sign your name indicating understanding and consent to participate. After giving consent you was asked to complete several written assessments before presentation of the beverage. The beverage was available for consumption after completion of preliminary assessments. After consumption you was allowed 15 minutes for absorption after which you was asked questions about your taste experiences, expectations, and mood.

During the study you was provided a sample of a beverage in development and be assigned written activities to complete. These short questionnaires was related to your individual characteristics and behaviors in addition to your experience, preference, and expectations of the beverage.

### Risks and Discomforts

Although all assessments and information was kept confidential, there is a risk of loss of confidentiality. This risk was minimized by using password protected electronic devices, secure cabinets, secure offices, and anonymity of the data.

### Benefits of Participation

Taking part in this study is not likely to benefit you personally. However, this research may help us further understand the association between psychological characteristics and taste perception, along with how beliefs are developed and how are personal characteristics influence our learning.

### Participant Compensation

For every hour of voluntary research participation, students will receive one (1) research credit as a part of their class participation grade of their Psychology 101: Introduction to Psychology class.

### Data Confidentiality and Participant Identification

Your name will not be used in any publication that may result from this study. The USC Office of Research Compliance may request access to this form to ensure procedures designed to protect research participants are being properly followed

Your name will not be recorded or connected with any of the study materials. Instead, a randomly assigned participant number was used. Any information that is obtained in connection with this study and that could identify you will remain confidential and will not be released or disclosed without your further consent, except as specifically required by law.

### Voluntary Withdrawal

Participation in this study is voluntary. You are free to withdraw your consent and discontinue participation in the study at any time throughout the study without negative consequences to your relationship with the University of South Carolina. In the event that you do withdraw from this study, the information you have already provided was kept in a confidential manner.

### Contact Persons

Faculty and researchers of the University of South Carolina Aiken are conducting this research. For more information concerning this research, you may contact:

Dr. Maureen Carrigan  
Department of Psychology  
Phone Number (Office): 803-641-3545  
257-6400  
Email Address: MaureeC@usca.edu

Philip A. Williamson  
Department of Psychology  
Phone Number (Cell): 803-  
Email Address: Willi742@ usca.edu

If you have any questions about your rights as a research subject contact, Lisa Marie Johnson, IRB Manager, Office of Research Compliance, 1600 Hampton Street, Suite 414 Columbia, SC 29208, Phone: (803) 777-7095 or LisaJ@mailbox.sc.edu. The Office of Research Compliance is an administrative office that supports the USC Institutional Review Board. The Institutional Review Board (IRB) consists of representatives from a variety of scientific disciplines, non-scientists, and community members for the primary purpose of protecting the rights and welfare of human subjects enrolled in research studies.

### Participant Signatures

I have read this informed consent form and have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. I agree to participate in this study. I have received (or will receive) a copy of this form for my own records.

Participant \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Investigator \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_



#### Debriefing Statement

Thank you so much for participating in this research study. Your participation was very valuable to the study. My researcher staff and I know you are very busy and we very much appreciate the time you devoted to participating in this study.

There was some information about the study that we were not able to discuss with you prior to the study due to its predicted influence on your actions and beliefs. I would like to explain these things to you now.

In this study, we were interested in understanding how social learning variables (such as modeling and expert instruction) in conjunction with individual difference characteristics (such as personality characteristics and alcohol outcome expectancies) would influence your expectancies for a novel and neutral beverage. Based on prior research, we expect to find that certain individual characteristics would lead to some individuals being more open to adopting expectancies for this neutral beverage. You were told that you were testing a new vitamin water; however, in reality, it was tonic water which you consumed, not an actual vitamin water in development. This deception was necessary in order that participants would believe they were consuming a substance with an actual active ingredient. The belief in an active ingredient was crucial for the study for presentation of a placebo like reaction which would allow for measurement of learning and beliefs.

If you have any questions or concerns about the research study contact me (Philip) at (803) 257-6400 or email me at [willi742@usca.edu](mailto:willi742@usca.edu)

Questions about your rights as a research subject are to be directed to, Lisa Marie Johnson, IRB Manager, Office of Research Compliance, University of South Carolina, 1600 Hampton Street, Suite 414D, Columbia, SC 29208, phone: (803) 777-7095 or email: [LisaJ@mailbox.sc.edu](mailto:LisaJ@mailbox.sc.edu). The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Institutional Review Board consists of representatives from a variety of scientific disciplines, non-scientists, and community members for the primary purpose of protecting the rights and welfare of human subjects enrolled in research studies.

Thank you again for your participation.

## Appendix H

### Video description and transcript

Live (in person) researcher leads participant from waiting area into laboratory room.

Once in lab room live (in person) researcher reviews informed consent process. After participant signed their agreement to participate the live researcher will have participants complete preliminary paper work (Demographic, PANAS-X, MISS, and BFI) following these measures the live (in person) researcher directed the participant's attention to the computer on the desk in front of them and played part A of the video, the introduction portion.

#### Video Part A

“Hello and thank you for your willingness to participate in this research project. I know your time is valuable and we respect and value your decision to spend some of your time with us. You are taking part in a taste test for the Health and Wellness Department where you will be testing a new vitamin water that is still in development. The focus of this research project is to investigate the flavor and taste profile of the beverage as well as any possible positive mood effects it may have. This beverage contains a derivative of B vitamins called “Cyanocobalamin”, this compound is thought to have positive effects on mood, specifically elevation of mood by increasing levels of hormones associated with positive feelings and positive moods. This beverage is also predicted to lowering stress related hormones and brain chemicals. These combined effects contribute to individuals feeling less stressed, more relaxed, and overall happier. It is important to note that this is a trial beverage and as such no additional flavorings or coloring has been not added.”

After the video introduction ends participants in the control group are presented with the tonic water, measured to 2.5 ounces, in small clear cup. After presentation of the beverage participants in the control group were allowed to consume the beverage.

After the video introduction participants in the experimental group were directed to watch part B of the video, the peer modeling portion.

#### Part B

“Here we have our in-development vitamin water. If you would please take the beverage and taste, you will be allowed 15 minutes for absorption.”

Participants in the video drink the tonic water.

After the illusion of time passes in the video (i.e., fade to black then back to the participants) the videoed researcher asked them to discuss their experience of the beverage. The participants modeled a relaxing ‘de-compressing’ effect or tension reduction effect of the beverage. Participants let out a sigh or ‘cleansing breath’, they began to sit slightly lower and farther back in the chair (i.e., slouched), they relaxed their shoulders and smiled.

The videoed researcher prompted them to verbally describe their experience by asking them to “explain a little of what you are experiencing”.

Participants explained how they felt “lighter”, “good”, like they could “breathe again”, like a “weight had been lifted off”. The videoed researcher then thanked them for their participation and the video ended.

After the modeling manipulation participants in the experimental group will be presented with and allowed to consume the beverage.

After consumption both groups will be allowed up to 15 minutes of “absorption” where they will complete secondary measures (PANAS-X, AEQ, BE, TPT). After completion of the measure participants will be escorted out of the research office by the researcher.

