AN ATTENTION ALLOCATION MODEL FOR THE EFFECTS OF ALCOHOL ON AGGRESSION

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(ABSTRACT)

The present study attempted to show that alcohol's effects on aggression are mediated by attentional processes. Sixty-four college men over the age of 21 were provoked by a confederate and then distracted or non-distracted in order to determine the effects of attention on aggression. It was hypothesized that alcohol-distract subjects would be least aggressive, while alcohol-no distract subjects would be least aggressive. Contrary to predictions, the pattern of results suggested that alcohol-distract subjects are most aggressive and that alcohol-no distract subjects are the least aggressive. Although the data failed to support an Attention-allocation model, future research should attempt to test such a link using other paradigms.
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One presumed effect of alcohol is its propensity to increase aggression. The importance of studying alcohol's effects on aggression is emphasized by crime statistics showing that alcohol is related to crime (Alcohol and Health, 1990). For example, alcohol is implicated in homicides (Voss & Hepburn, 1968), cuttings, assaults, and shootings (Shupe, 1954, in Taylor & Leonard, 1983), and family violence (Leonard, Bromet, Parkinson, Day, & Ryan 1985). Several models of alcohol's effects on aggression have been posited.

**Pharmacological Model**

The pharmacological disinhibition model asserts that alcohol has a direct influence on centers in the brain, such as the amygdala or hypothalamus, which are hypothesized to have some function in determining aggressive behavior (Berry & Brain, 1986; Groves & Rebec, 1988). Two types of findings in the alcohol/aggression literature suggest a pharmacological effect of alcohol on aggression. First, several studies demonstrate alcohol's effect of increasing aggression even when expectancies for receiving alcohol are held constant. When an alcoholic beverage and its placebo are administered to randomly created groups, the group receiving alcohol has been found to be more aggressive than the group which believes it is receiving alcohol. (Pihl & Zacchia, 1986; Zeichner & Pihl, 1979; Taylor, Gammon, &
Capasso, 1976; Leonard, 1984). Second, several studies demonstrating that aggression increases with dose of alcohol also support the pharmacological effects of alcohol on aggression by showing a dose-response curve (Cherek, Steinberg, & Manno, 1985; Kelly, Cherek, & Steinberg, 1989; Gustafson, 1985a).

Lang, Geockner, Adesso, & Marlatt (1975) and Leonard (1984), however, found no effects of alcohol on physical aggression. These equivocal results rule out a pure pharmacological model. Taylor and Leonard (1983) reviewed studies of alcohol and aggression and concluded that an interaction between alcohol, environmental, and cognitive factors caused aggression. Such factors include threat or frustration (Kelly, Cherek, & Steinberg, 1989; Gustafson, 1985c; Leonard, 1984; Taylor, et al., 1979; Taylor, Gammon, & Capasso, 1976), social pressure (Taylor & Sears, 1988), and self-awareness (Bailey, Leonard, Cranston, & Taylor, 1983).

**Learned Disinhibition Model**

In direct opposition to a pure pharmacological model, many researchers advance a learning and attributional model of alcohol's disinhibitory effects on aggression (Lang, et al., 1975; MacAndrews & Edgerton, 1969; Marlatt & Rohsenow, 1980). This model asserts that people learn that certain desirable but socially prohibited behaviors are tolerated
when alcohol is consumed. Alcohol then serves as a discriminative stimulus which allows an "excuse" for behavior which is normally inhibited by society. Thus, cues associated with the use of alcohol may become associated with certain typically inhibited emotional states, including aggression (Taylor & Leonard, 1983).

The learning or expectancy model is tested by administering both alcohol and placebo beverages. If beverage cues, rather than pharmacological effects, lead to aggression, then the placebo subjects should be as aggressive as the alcohol subjects. Expectancy effects have, in fact, been demonstrated in alcohol's effects on aggression. Rohsenow and Bachorowski (1984) found that for men at high and low doses and for women at a high dose, the expectancy of receiving alcohol actually decreased verbal aggression. On the other hand, Lang, et al. (1975) found that the expectancy of receiving alcohol increased verbal aggression and that there was no pharmacological effect of alcohol. However, several other studies have demonstrated no expectancy effects on verbal (George and Marlatt, 1986a; Murdoch & Pihl, 1985; Zeichner & Pihl, 1979) or physical (Pihl & Zacchia, 1986; Zeichner & Pihl, 1979) aggression.

Because of the varying effects of alcohol expectancies on aggression, expectancies cannot fully account for alcohol's effects on aggression. It is, then, useful to
turn to a model which emphasizes both the well-established pharmacological effects of alcohol on aggression and factors of the situation, which may explain the variable effects of alcohol on aggression.

Attention-Allocation Model

Steele and Josephs have advanced an attention-allocation model for the effects of alcohol on anxiety, which may also be applied to the effects of alcohol on aggression (Steele & Josephs 1985, 1988, 1990; Josephs & Steele, 1990). The model asserts that alcohol causes the reduction of information processing capabilities available to the drinker and the narrowing of attention to only the most salient environmental cues. They labeled this state alcohol myopia. Steele and Josephs (1988) tested their attention-allocation model for the effects of alcohol on anxiety by administering alcohol to some subjects and placebo to others, increasing anxiety by informing subjects they would perform a stressful speech, and distracting half of each group with an art-slide rating task. Those subjects receiving alcohol before being distracted were significantly less anxious than placebo subjects who were distracted. Further, subjects who consumed alcohol but did not participate in a distractor task showed the greatest amount of anxiety. The subjects who consumed alcohol presumably had narrowed attention processing capability which was
further narrowed by the distractor task. Thus, the subjects were less able to think about the anxiety-causing task ahead. On the other hand, those subjects who received alcohol and were not distracted had only enough cognitive processing ability to focus on the most immediate cue, the giving of the anxiety-provoking speech. Consequently, their anxiety significantly increased. The subjects in the placebo conditions were less anxious than the alcohol-no distraction subjects but more anxious than the alcohol-distract subjects and did not differ significantly from each other. These subjects were not affected by alcohol myopia and presumably had enough cognitive processing capacity to perform the distractor task and yet remain concerned about the speech.

Josephs and Steele (1990), replicating and expanding their previous studies, demonstrated that increasing levels of distraction correspondingly decreased anxiety, and that an extremely involving task could decrease anxiety even without alcohol. They also "further implicated the role of attention in anxiety reduction by demonstrating a relationship between changes in anxiety and response latency to a secondary monitoring task" (p. 115).

Steele and Josephs (1990) point out that alcohol's effects on attention may affect any behavior under high "inhibition conflict" — one which is "provoked by salient,
strong cues [but which] is also inhibited by other strong cues that require further processing to grasp" (p. 923). In a meta-analysis, Steele and Southwick (1985) had raters blind to their hypothesis classify the behaviors in a variety of studies involving alcohol and social behavior into high and low inhibition conflict. Effect sizes for alcohol's effects on high conflict behavior were significantly greater than effect sizes for low conflict behaviors. In fact, alcohol rarely had effects on low conflict behaviors. Thus, an act such as aggression which is elicited by threat or frustration but inhibited by societal standards against aggressive acts is likely to be affected by alcohol's effects on attention. More specifically, once attention is narrowed by alcohol myopia, behavior is likely to be determined by salient cues, either instigatory or inhibitory. Typically, salient cues are instigatory (threat or frustration), while inhibitory cues such as societal standards are more peripheral and require more processing. The attention-allocation model is supported indirectly, therefore, by a meta-analysis of research not designed to directly test it.

In addition, Steele and Josephs (1988) have provided some direct evidence for the model in their studies of alcohol's effects on anxiety. Given that the attention-allocation model purports to explain the effects of alcohol
on a variety of socially inhibited behaviors, it will be important to test the model directly with other behaviors. If the model receives equally strong support in predicting effects of alcohol on other relevant behaviors it will be an important contribution to our understanding of alcohol's effects. On the other hand, failure to replicate the findings with aggression will call for reevaluation or revision of the model.

Application of the Attention Allocation Model to Aggression

This attention-allocation model suggests hypotheses for the effects of alcohol, expectancy, and environmental cues in influencing aggression. If the salient cue in the environment is one which is aggression-provoking, such as frustration or provocation, and alcohol narrows attention to only the most salient cues by decreasing attention-processing abilities, alcohol should increase aggression. The consumption of alcohol in the absence of threat should not increase aggression because behavior is determined by the salient cues available to the subject. In fact, several studies show that frustration (Gustafson, 1985a, 1985c, 1985d) or threat (Taylor, et al., 1976) is necessary for alcohol to increase aggression.

While the pharmacological action of alcohol to facilitate aggression under conditions of threat and to reduce cognitive processing abilities has been established
independently, their interactive effects have rarely been examined. A study designed to show that alcohol increases aggression because a drinking person cannot attend to the consequences of his behavior supports the attention-allocation model indirectly (Zeichner, et al., 1982). This study used a modified version of the Buss paradigm. The subject is told he is being tested on reaction time while his partner is tested for pain perception. In reality, the subject does not interact with a partner but receives feedback from the purported partner via preprogrammed audio and visual signals. First, a noxious tone is presented to the subject for 5 seconds, at which time a light signals that the subject should press one of the five shock buttons (1 -- barely noticeable shock, to 5 -- painful shock) as fast as possible, terminating the tone and shocking his "partner." Subsequently, a light and a noxious contingency tone was presented to the subject by the "partner," indicating the level of pain experienced.

Drinking subjects were forced to attend to the contingencies of the shock level they chose for their partners. Subjects in the "focus on contingencies" condition recorded both an estimate of the degree of pain the partner felt and the level of contingency tone received from the partner. Two other conditions either provided no instructions regarding attention to contingencies or
distracted subjects from contingencies by forcing them to work math problems. The mandatory focus on the noxious contingency tone led to the highest level of aggression, the no-instruction condition showed the next highest, and the distracted subjects showed the lowest level of aggression. The pattern of aggression with placebo subjects was parallel to the alcohol condition, with the forced attention and no instruction placebo conditions slightly less aggressive than their parallel alcohol conditions. Distracted placebo subjects were also more aggressive than distracted alcohol subjects, suggesting that the aggression-reducing effects of distraction occurred primarily in intoxicated subjects (Zeichner et al., 1982).

Contrary to predictions, being forced to attend to consequences of one's aggressive behavior did not reduce aggression. An alternative interpretation of these results is consistent with the attention allocation model. Subjects in the focus on contingencies condition may actually have been more focused on the noxious contingency tone presumably delivered by the partner. Being forced to focus on the noxious contingency tone may have made it a salient provocation. If responding to the provocation required less sophisticated cognitive processing abilities than empathy for the partner, as Steele and Josephs (1990) assert, it may have directed the behavior of intoxicated subjects. On the
other hand, drinking subjects who were distracted were not focused on the messages conveyed by the tone and alcohol myopia may have left little control processing capacity to focus on the provocation.

Research on alcohol and aggression, including a meta-analysis (Steele & Southwick, 1985) and an influential review (Taylor & Leonard, 1983) has led the field toward an attentional model of alcohol's effects on aggression. The work of Zeichner and colleagues, presented above, is one of the few studies attempting to empirically validate a model which asserts that aggression is facilitated by an alcohol-induced lack of attention to contingencies. However, their contingency tone may have been contaminated by its provoking properties. The present study attempted to more directly test the attention-allocation model by extending the Steele and Josephs studies on anxiety to aggression. Male subjects were used in this study because men tend to exhibit aggressive behavior more frequently than do women in naturalistic settings (Johnson, 1972) and because men have been used in most previous studies of aggression.

It was hypothesized that provoked subjects who are drinking alcohol and then distracted will be the least aggressive, while subjects who are drinking alcohol and given time to think about the provocation in the absence of distraction will be the most aggressive. Subjects in the
placebo conditions were expected to fall between the two extremes, since alcohol is hypothesized to narrow attention and thus interact with distraction in reducing aggression.

Pilot Study

A preliminary study was conducted to show that the provocation manipulation was effective in eliciting aggression, thereby reducing the need for both provocation and no provocation conditions in the final study.

Method

Subjects. Subjects were 15 men recruited by a sign-up sheet from the introductory psychology pool and given two extra-credit points in introductory psychology as remuneration. Subjects were assigned randomly to experimental conditions. Alcohol was not administered in this study and no preliminary screening of subjects was conducted.

Design. A 2 (provocation) x 2 (distraction) design was used. Subjects were randomly assigned to one of the four conditions. One-half of the subjects were provoked by a confederate while the other one-half were not provoked. One half of the subjects in each provocation condition then completed a distractor task while the other one-half waited during a comparable period of time.

Procedures. The experimental sessions took place between 2:00 and 10:00 p.m. Monday through Saturday. The
cover story for this experiment was, "The Effects of Personality Judgement on Personnel Decisions." When they signed up, subjects were told that the experiment investigates the effects of personality on various types of tasks which are analogues to those employers may assign employees. The experiment took place in a lab of approximately 11' by 14' which contains a refrigerator, an Intoximeter 3000, two chairs sitting next to each other, and a table with an IBM PS-2 model 30 computer. The lab is decorated with beer posters.

A provocation manipulation combining the techniques of Rohsenow and Bachorowski (1984) and George and Marlatt (1986a) was used. When the subject arrived a male experimenter reminded the subject that the experiment would take approximately one and one-half hours and obtained informed consent (see Appendix 1). The experimenter provided a brief synopsis of the consent form and asked the subject if he had questions about it. The experimenter gave the subject his credits and told the subject that the experiment would begin when the other subject arrived. Approximately ten minutes later a male confederate portraying an undergraduate student arrived. The confederate stated that he realized he was late but that he was discussing America's aggression against Iraq with a group of people. The confederate referred to the group of
people as "idiots" and asked the subject his views on the sending of troops to Iraq. In the provocation condition, regardless of the subject's response, the confederate insulted him by saying, "Oh, you're just like those people." In the no provocation condition, the confederate just acknowledged the subject's response with a friendly, "Oh" and a nod. The experimenter, who was waiting out of sight and just outside the door to the lab, entered immediately following the confederate's remarks in order to prevent any escalation of an argument in the provocation condition. The experimenter ostensibly took the confederate to another lab to fill out the consent form and start the experiment.

The subject was seated at the table and instructed to write a short, disclosive description of his own personality. The experimenter left the room during this period and returned every few minutes to check on the subject. After 10 minutes, the experimenter collected the subject's self-description and gave the subject a personality sketch ostensibly written by the other subject (confederate; see Appendix 2). The subject was told that the "other subject" (confederate) would read his sketch while he read the confederate's self-descriptive personality sketch. The experimenter left the room, returning several minutes later with an adjective rating form with ratings that the "other subject" (confederate) purportedly completed
about the subject's personality based on the subject's autobiographical personality sketch. The adjective rating form consisted of ten 8-point Likert-type scales with such dimensions as intelligent, competent, conscientious, and friendly. In the provocation condition, the scales had been completed to indicate mildly negative ratings and written comments (see Appendix 3). In the no provocation condition, the rating form contained slightly positive personality ratings and written comments (see Appendix 4). After the subject had several minutes to review the personality rating form ostensibly completed by the "other subject," the experimenter took it away.

Next, for subjects assigned to the distraction condition, the experimenter turned on the projector and gave instructions for 7 minutes of art slide rating. The art slide rating task was adopted from Steele & Josephs (1988; Josephs & Steele, 1990). Slides were of abstract and impressionistic paintings of the 17th to 20th centuries. Subjects answered four moderately demanding questions about each slide, such as "What do you think of the colors used by the artist in this painting?" and "How would you describe the photographic quality of the slide?" Subjects assigned to the no distraction condition did not do the slide rating task and, instead, waited without distraction.
Immediately after the slide rating task or comparable waiting period, the subject was brought a blank rating form to rate the personality of the "other subject." Ratings of the other subject served as one dependent measure of aggression with more negative ratings interpreted as a display of verbal hostility.

Following the subject's rating of the confederate the subject was informed that his task (rating art slides or doing nothing) was assigned randomly. The subject was asked to assign the other subject to one of three tasks which were examples of types of tasks employers may ask employees to complete. The instructions informed the subject that the purpose of assigning the other subject to a task was to discover how personality relates to job ratings. The instructions also stated that the subject's judgement in assigning the other subject to the task was not being evaluated. The three tasks were described as rating the comprehension difficulty of a legal document, rating the enjoyability of novels based on the New York Times book review, and rating the performances of stand-up comedians. The task to which the subject assigned the "other subject" (confederate) was a second dependent measure of aggression. The task assignment questionnaire is contained in Appendix 5.
Next, experiment evaluation questionnaires were administered (Appendix 6). The experiment evaluation forms contained an open-ended question about the purpose of the experiment, a mood checklist used to assess anger, and questions assessing whether the subject believed deception was involved in the experiment.

**Measures.** The primary dependent measure was an adjective rating questionnaire adopted from Rohsenow & Bachorowski (1984). It consisted of 10 personality items that were rated on eight-point semantic differential scales. The 10 items assessed the subject's perception of the confederate on the dimensions of intelligence, maturity, competence, insightful, interestingness, stability, conscientiousness, sincerity, friendliness, and likability. In this study, the items were averaged to create a single index of hostility toward the confederate.

A second dependent measure of aggression was the subject's assignment of the confederate to one of three tasks of varying desirability. The instructions told the subject to assign the other subject to a task based on his personality and stated that the subject's judgement was not being evaluated, but that the other subject's performance on the task would be evaluated. These instructions were given in order to try to get subjects to assign the task based on anger rather than on some feature of the subject's
personality sketch. Two of the three task assignment options, including rating the difficulty of reading a 5-page legal document and judging the performances of three stand-up comedians, remained constant during the pilot study. The third task was changed several times during the pilot study in order to find a task that fell midway between the other two tasks in perceived enjoyability. Therefore, this measure was not analyzed in this study. The third task eventually chosen for the experimental study was rating the menus of New York restaurants.

A mood questionnaire was adopted from Rohsenow and Bachorowski (1984) and used as a manipulation check of the provocation manipulation by assessing the subject's self-reported anger and frustration. The questionnaire was administered after the subject assigned the confederate to a task. The instructions simply asked the subject to rate how he was feeling during the experiment. The mood questionnaire consisted of 6 adjectives (comfortable, happy, angry, good about self, anxious, and frustrated) rated on seven-point scales. The final question, attached to the mood questionnaire, was "Do you believe any deception was involved in the experiment?" The subject checked yes or no and was prompted to make comments.

**Manipulation Check and Debriefing.** Following the experiment, the female graduate experimenter asked a series
of questions to determine whether or not the subject believed deception was involved (e.g., Do you think there was anything we didn't tell you about from the beginning?) Debriefing procedures followed the suggestions of Aronson, Ellsworth, Carlsmith, & Gonzales (1990) for postexperimental interview and debriefing following deception. Subjects were approached with concern, honesty, and sincerity. Repeated prompts encouraged subjects to express their feelings regarding the deception and provocation. Subjects were given repeated opportunities to guess where deception took place so that they felt less embarrassed about being deceived and so that their deception was normalized (Aronsen et al., 1990). Subjects were told that the purpose of the experiment was to determine the effectiveness of the provocation which would be used in a later study of alcohol and aggression. The subject was told that the "other subject" was a confederate. If the subject was provoked, he was told that the insult and negative personality ratings were constant for all provoked subjects and had nothing to do with the particular subject. The necessity of deception regarding provocations was explained. Subjects were told that feelings about negative feedback may persist even when the feedback is known to be false. Finally, both the experimenter and confederate were brought in to apologize for the deception and provocation. The graduate
experimenter emphasized that the subject could contact her, the faculty advisor, or the chair of the Human Subjects Committee if he had any further questions or concerns. No subject expressed anger about the deception, and no subject contacted the experimenter or faculty advisor at a later time. The subject was asked to verbally commit to not discuss the experiment with others in order to avoid contamination of the subject pool.

Results

Manipulation Check and Debriefing. The six mood items were entered concurrently into a 2 (provoked) by 2 (distracted) multivariate analysis of variance (MANOVA) to determine whether the provocation and distraction affected mood. Wilks Lambda, converted to the appropriate F statistic, was used to test the significance of multivariate effects. There were significant multivariate main effects for distraction, $F(6,6) = 6.09, p < .022$ and provocation, $F(6,6) = 9.25, p < .008$. There was no significant interaction between provocation and distraction.

Univariate results indicated that the distraction manipulation affected only the scale assessing happiness. Distracted subjects reported feeling happier ($M = 5.24, SD = 1.00$) than those who were not distracted ($M = 4.05, SD = .80), $F(1,11) = 5.45, p < .04$. Univariate effects of provocation showed that provoked subjects were angrier ($M =
4.35, SD = 1.18) than were nonprovoked subjects (M = 6.90, SD = .45), F(1,11) = 19.17, p < .001. Several additional mood items showed trends for provocation in the predicted direction: happy, F(1,11) = 3.76, p < .078; good about self, F(1,11) = 4.67, p < .054; and frustrated, F(1,11) = 3.80, p < .077.

Of the 15 subjects, 7 reported on the post-experimental questionnaire that there was some deception involved in the experiment. However, all subjects were included due to the small number of subjects in this study.

Dependent measures. A 2 (provocation) by 2 (distraction) analysis of variance (ANOVA) was performed on the subject's average ratings of the confederate's personality across the 10 adjective descriptors. A composite variable was created by summing the 10 eight-point adjective rating scales so that a higher number was more positive. No main effect of distraction or interaction effect was expected because the distractor task in absence of alcohol was not shown in a previous study to occupy sufficient attention to significantly impair performance of a second task (Josephs & Steele, 1990). As predicted, provoked subjects gave significantly more negative personality ratings (M = 51.00, SD = 5.75) than non-provoked subjects (M = 62.29, SD = 7.34), F(1,10) = 9.42, p < .012. There was no main effect for distraction or interaction
between provocation and distraction on the personality ratings.

In this pilot study, seven subjects indicated some level of disbelief in the deception. In order to assess the impact of perceived deception on personality ratings, a 2 (deception) by 2 (provocation) ANOVA was performed on the total adjective score. The ANOVA showed no deception by provocation interaction but instead demonstrated a main effect of belief in deception. Subjects who did not believe the deception rated the confederate significantly more positively (M = 60.6, SD = 5.67) than subjects who did believe the deception (M = 52.4, SD = 8.18), F(1,10) = 5.96, p < .035.

Discussion

The pilot study determined the effectiveness of the provocation manipulation and the sensitivity of the measures to be used in the experimental study. Provoked subjects rated the confederate significantly more negatively on the adjective rating scale and reported feeling more angry on a measure self-reported mood. The results indicated that the provocation manipulation was effective despite a small sample and the inclusion of subjects who tended to show less aggression.
Experimental Study

The experimental study used the same provocations used in the pilot study but dropped the provocation condition. Two cells (Alcohol and Placebo) were added to the design in order to test the Attention Allocation Model. It was expected that subjects in the alcohol-distract condition would be least aggressive since the distractor task would leave little information processing capability to focus on the provocation, while those in the alcohol-no distract condition would be most aggressive because their attention would be narrowed by alcohol myopia and provocation would be the most salient feature of the environment.

Method

Subjects.

Male subjects were recruited through the Introductory Psychology subject pool by sign-up folders, advertisements in the campus paper, and through recruiting stations on campus. Subjects were 64 males aged 21 to 31 (M = 21.84, SD = 1.45) who reported consuming an average of 4.45 drinks per occasion in the past month (SD = 1.38).

Screening Procedures. Potential subjects were scheduled for a fifteen-minute screening session or, if recruited on campus, were offered the option of completing screening questionnaires on the spot. The screening packet included the Alcohol Dependence Scale (Skinner and Allen,
1982: Appendix 7) which measures four important aspects of dependence: Loss of behavioral control, psychoperceptual withdrawal symptoms, psychophysiological withdrawal symptoms, and obsessive-compulsive drinking style. Example items include the occurrence of blackouts, hangovers, increased tolerance, and obsession with drinking. The measure has good reliability, with an alpha of .92 (Skinner & Allen, 1982). It also demonstrates good validity: it is positively correlated with problems related to heavy drinking, with quantity of alcohol consumed, and with the number of symptoms reported on the Diagnostic Interview Schedule (Skinner & Allen, 1982; Ross, Gadding, & Skinner, 1990). The scale has a range of 0-47. A cutoff of 9 is proposed to be the optimal threshold for the detection of alcohol dependence in an adult clinical population of substance abusers (Ross et. al, 1990). However, the mean ADS score among college respondents in this sample was so high (M 8.29, SD = 4.84) that a cutoff of 14 was used. Questionnaires with scores between 9 and 13, inclusive, were reviewed by a clinical psychologist specializing in addiction assessment and treatment and those subjects without more severe symptoms were deemed eligible to participate. Subjects excluded because of possible dependence on alcohol were sent a letter inviting contact with the clinical psychologist mentioned above. In total,
61 of 198 subjects (31%) were screened out based on their ADS scores. The mean ADS score for subjects who participated in the experiment was 5.84 (SD = 2.87).

The screening packet also included a questionnaire containing items regarding chronic medical conditions, current medications, past medical conditions (e.g., heart trouble, high blood pressure, diabetes, and liver disease) and past adverse reactions to alcohol (e.g., fainting or seizure, flushing of the skin, liver problems, severe psychological reactions). This screening questionnaire is contained in Appendix 8. If the subject was eligible based on his drinking history and ADS scores and indicated a positive response on any medical item, the medical section was reviewed by a physician who determined subject eligibility. Nine packets were reviewed by the physician. Only 1 subject (.51%) was excluded for medical reasons.

Finally, the Drinking Habits Questionnaire (DHQ; Appendix 9) assessed drinking history (Cahalan, Cissin, & Crossley, 1969) in order to ensure subject safety and to obtain a descriptive measure of subjects' drinking practices. Only those scoring in the medium volume/high max or high volume/high max categories were included in order to assure that subjects had, on at least one occasion in the past month, consumed an amount of alcohol similar to the amount to be administered and that the subjects were
frequent drinkers. Subjects in those two Cahalan categories report drinking 5-6 drinks in one sitting "once in a while" or more frequently during the past month and consuming at least 17.6 drinks per month based on the Cahalan et al. (1969) formulas for the scoring of all four questions regarding quantity and frequency. Thirty-nine subjects (20%) were screened out because their DH scores indicated their typical consumption of alcohol was too low.

In summary, there were four reasons for the exclusion of subjects. The first was failure to score below medium volume or high max on a measure of recent alcohol consumption (drinking at least 17.6 drinks in the past month, including 5 drinks in one sitting at least once in the past month). Twenty percent ($N = 39$) of the 198 subjects screened were excluded for this reason. The second was evidence of drug or alcohol dependence or problems. Of the 198 subjects screened, 61 (31%) were excluded because of high scores on a measure of alcohol dependence. The third reason for exclusion was the presence of a medical condition which could be exacerbated by the consumption of alcohol. Only one subject (.5 %) was medically ineligible. The fourth reason for exclusion was severe psychiatric disorder which could be complicated by alcohol consumption. No subjects were excluded for this reason. Only one subject was not allowed to participate due to a positive BAC upon
arrival. Of the 198 subjects screened, 29 subjects were eligible for the study but were not used because they could not be scheduled.

**Design.** The design of this study was a 2 (Alcohol) x 2 (Distraction) factorial in which subjects were assigned randomly to alcohol or placebo conditions crossed with distract or no-distract conditions. One-half of the subjects received alcohol while the other one-half received a placebo beverage. The distraction manipulation was accomplished by having one-half of the subjects engaged in a slide-rating task while the other one-half waited during a comparable period of time. Thirteen subjects were run in the alcohol-distract condition, 16 were run in placebo-distract, 15 were run in alcohol-no distract, and 20 were run in placebo no-distract. Cell numbers were uneven because subjects were truly randomly assigned rather than being assigned based on manipulation check criteria.

**Procedures.** Procedures were similar to those outlined for the pilot study. The experimental sessions took place between 2:00 and 10:00 p.m. Monday through Saturday. The cover story for this experiment was, "The Effects of Alcohol on Judgement." Subjects were told that the experiment investigated the effects of alcohol and personality on various types of tasks which are analogues to those employers may assign employees.
When the subject arrived a male experimenter checked the subject's identification to confirm that he was at least 21 years of age, reminded the subject that the experiment would take up to three and one-half hours, confirmed that he had not eaten a large meal in the past four hours, obtained informed consent (Appendix 10), and took an initial BAC reading to confirm that the subject's BAC was 0.0 gm %. The experimenter provided a brief synopsis of the consent form and asked the subject if he had questions about it. Each subject agreed to remain in the lab under supervision until his blood alcohol concentration (BAC) fell below .03 mg % at which time he was debriefed and escorted home, to the bus stop, or to a personal ride. Blood alcohol concentration was measured with either an Intoximeter 3000 Revision B-2A which measures breath alcohol by infrared absorption or by an Alcosensor model III which contains a fuel cell sensor. Subjects were either paid $10 for participation or given three extra credit points toward introductory psychology, whichever they chose.

The confederate arrived, commented on the topic of aggression against Iraq, and verbally insulted the subject's opinion of the controversy as in the provocation condition of the pilot study. After escorting the confederate to a nearby office, the experimenter returned and introduced the bartender, a female graduate student. The subject was
allowed an opportunity to use the restroom and was told that he would need to stay seated for the duration of the experiment in order to keep conditions constant for all subjects. At this point, the experimenter left so that he would be blind to beverage condition.

Drink administration followed the procedures of Rohsenow and Marlatt (1981). In order to hold expectancy for alcohol constant, all subjects were told that they were to receive alcohol rather than a placebo of tonic water and that they would be drinking vodka mixed with tonic water. Actually, one-half of the subjects were randomly assigned by the assistant who scheduled the experiment to receive alcohol mixed with tonic while the other half received only tonic. A target BAC of .06 gm % was chosen for the alcohol condition because blood alcohol concentrations below this level have only "a modest effect on social behavior" (Steele and Southwick, 1985). For a 160 pound male, this would be equivalent to two and one-half standard drinks with one and one-half ounces of 80 proof alcohol each. Actual BAC's just after the dependent variables were taken reached only a mean of .052 mg % (SD = .009) and ranged from .037 to .069. The mean BAC at the end of the experiment, about ten minutes later, was .048 mg % (SD = .073, range = .037 to .066).

The bartender weighed the subject and consulted weight charts to determine the amount of alcohol required to raise
the subject's BAC to 0.06 gm%. The bartender poured that amount of liquid from the vodka bottle into a 100 ml graduated cylinder and then poured four times that amount from the tonic bottle into a 1000 ml graduated cylinder. Procedures for drink preparation were exactly the same in both the alcohol and placebo conditions. However, in the alcohol condition the bottles contained vodka and tonic as labeled. In the placebo condition, the vodka bottle contained decarbonated tonic water. Finally, the bartender mixed the contents of the two cylinders and poured the drink into three or four glasses, as needed. A squeeze of fresh lime juice was added to the drinks and the slice placed in the glasses. All glasses had alcohol smeared along the rim of the glass to provide olfactory cues that would make the placebo manipulation more credible. After drink administration the bartender left and the experimenter returned and waited with the subject, pacing the subject's drinking by notifying him of the elapsed time at five minute intervals of the 20 minutes.

The drinking period was followed by a 20-minute absorption period during which the subject was instructed to write a short, disclosive description of his own personality. At the end of the 20-minute absorption period, the experimenter collected the subject's self-description, gave him the "other subject's" personality sketch, and
provided personality ratings of the subject ostensibly completed by the "other subject" (Appendix 3). The seven-minute slide-rating or waiting period, with a concurrent reaction time task, began after the subject had a few minutes to review the personality ratings. Slide-rating procedures were identical to those used in the pilot study.

During the slide-rating task, reaction-time to a secondary monitoring task was recorded. An IBM PS-2 model 30 computer randomly generated a series of six beeps, to which the subject was to respond as quickly as possible by pressing a button on which his non-dominant hand remained. Reaction times were measured by the computer in milliseconds. The subjects were told that the slide rating task was the most important task and that they were expected to give their full attention to it. Reaction time to the computer generated beeps was then a measure of the amount of attention available for processing other information, with longer response latencies indicating less residual attentional capacity. Josephs and Steele (1990) used the same procedure to show that the slide rating task takes more attention than doing no task and that alcohol has a main effect in decreasing reaction times. Immediately after the slide-rating or comparable waiting period, the subject rated the "other subject's" personality and ostensibly assigned him to a future task.
Measures. Subjects' ratings of the confederate on the 10 adjective scales used in the pilot study were the primary dependent measures. A second dependent measure of aggression was the subject's assignment of the confederate to one of three tasks of varying desirability. The instructions stated that the purpose of the task assignment was to discover how perceptions of personality relate to job ratings and that the subject's judgement in assigning the other subject to a task was not being evaluated, but that the other subject's performance on the task would be evaluated. The task assignment options in this study included rating the difficulty of reading a 5-page legal document, rating the menus of ten proposed restaurants for variety and appeal, and judging the performances of three stand-up comedians. Appendix 11 contains the task assignment questionnaire. After assigning the confederate to a task, the subject rated the enjoyability of the three tasks to provide a check on the desirability of the each of the tasks. Mean task assignments are compared across conditions to determine if groups hypothesized to be more aggressive assign the confederate to more negative tasks. For purposes of scoring the task assignment, the legal document task was assigned a "1", the restaurant task was assigned a "2", and the comedian task was assigned a "3". Therefore, a higher score on the task assignment measure
indicated that the subject assigned the confederate a more positive task.

Paired t-tests performed on data from eight subjects in an independent pilot study indicated that all tasks differed significantly from each other in enjoyability and unpleasantness (all p's < .03). On a five-point scale, the comedian task was rated most enjoyable (M = 4.88, SD = .35), followed by the restaurant task (M = 3.25, SD = .71), and finally the legal document task (M = 1.88, SD = .99). The comedian task was rated least unpleasant (M = 1.00, SD = .00), followed by the restaurant task (M = 1.88, SD = .64), and finally the legal document task (M = 3.75, SD = .89). The tasks were also compared on tediousness. The comedian task was rated least tedious (M = 1.38, SD = .52), followed by the restaurant task (M = 3.00, SD = .93), and finally the legal document task (M = 4.13, SD = .83). The comparison between the legal document task and the restaurant task was only marginally significant (p < .08), but both of the other comparisons between tasks were significant (p's < .007).

Manipulation Check and Debriefing. The six mood questions asked in the pilot study were administered in the present study to determine the effects of beverage and distraction on mood (Appendix 12). The final questionnaire of the study was the experiment evaluation questionnaire (Appendix 13). It was modified to ask less directly about
perceived purpose of the experiment and deception because pilot subjects reported that the question sensitized them to deception and prompted them to guess about deception. Open-ended questions assessed subjects' belief about the purpose of the experiment ("Please tell us in your own words what you think the study was about.") and identified subjects who detected deception in the experiment ("Please explain to us if you think the study involved anything we didn't tell you about from the beginning"). Furthermore, questions regarding beverage consumption were added to verify that subjects in the placebo condition believed that they consumed alcohol and did not differ significantly from those who did consume alcohol. Questions assessing the subject's estimation of ounces of alcohol consumed ("Please estimate in ounces the amount of beverage you consumed during this experiment.") and subjective feelings of intoxication (i.e., "In subjective terms, how intoxicated did you feel at your peak of intoxication during the experiment?") were used. Subjective intoxication was rated on a seven-point scale, with 7 as "very intoxicated" and 1 as "very sober".

Debriefing procedures were similar to those used in the pilot study, but discussion and questions regarding beverage consumption were added. Subjects were told that the purpose of the experiment was to determine the degree to which
alcohol and attention interact to affect aggression. The necessity of deceiving one-half of the subjects regarding alcohol consumption was explained, and subjects were told whether or not they actually received alcohol.

The subject was asked to verbally commit to not discuss the experiment with others. Subjects in the placebo condition were released immediately. Subjects in the alcohol condition were released to a ride or to the bus stop or were driven home after their BAC fell below .03 mg %. All subjects who consumed alcohol were provided a BAC table to take home and were given written feedback on the length of time it would take for his BAC to reach 0.0 gm%.

Results

Deception. Five subjects (7.8%) did not believe the provocation deception, 3 (4.7%) did not believe the beverage deception, and 6 (9.4%) did not believe either deception. Of these 14 subjects, two were in each of the two alcohol cells and five were in each of the two placebo cells. These subjects were excluded from subsequent data analysis, leaving a final sample size of 50. More subjects were lost from the two placebo cells because of the additional beverage deception not present in the alcohol cells. The fifty subjects selected for analysis did not differ from the excluded 14 in age, drinking habits, symptoms of dependence, or total mood score.
Mood. Six mood items, each rated on a seven-point scale, were administered after the subject assigned the confederate to a task. The individual items were: comfortable, happy, angry, good about self, anxious, and frustrated. A 2 (beverage) by 2 (distraction) MANOVA tested the effects of those factors on mood. There were no significant multivariate or univariate effects of beverage or distraction on mood. The mean mood total for angry in the experimental study ($M = 5.75$, $SD = 1.39$) was similar to the mean across the provoked conditions in the pilot study ($M = 5.00$, $SD = 1.87$).

Slides rated. The number of slides rated was recorded as a measure of involvement in the distraction task to ensure that subjects in the respective conditions were comparably involved. No subject completed more than 9 slides of the 10, so in no instance was a subject not distracted for the entire seven-minute period. The average number of slides watched was 4.97 slides ($M = 1.82$), with a minimum of 2 and a maximum of 9. A t-test was performed on number of slides rated by beverage condition. There were no significant differences in the mean number of slides rated by alcohol subjects ($M = 4.92$, $SD = 1.935$) as opposed to placebo subjects ($M = 5.00$, $SD = 1.789$), $t(25) = .11$, $p > .90$. Another t-test determined that there were no significant differences between alcohol or placebo subjects
in the reported enjoyability of the slides. The number of slides rated did not correlate significantly with the average reaction time or with the dependent variables.

**Reaction time.** A mean reaction time measure was computed by averaging reaction times across the six measurements for each subject. A 2 (beverage) by 2 (distraction) ANOVA performed on reaction times to the secondary monitoring task during the slide-rating or waiting period revealed only a main effect for distraction, $F(1,45) = 27.82, p < .0001$. There was no main or interaction effect of beverage on reaction times. The slide-rating distractor task decreased reaction times ($M = 627.87, SD = 279.88$) over the no-distract condition ($M = 329.87, SD = 88.65$). Reaction times did not correlate significantly with the number of slides watched or with either dependent variable.

**Task enjoyability ratings.** In order to further validate the task assignment measure, subjects rated how much they would have liked to do of each of the three tasks on a 5-point scale, with a 5 representing "very much" and a 1 representing "not at all." The document task was rated as the least enjoyable ($M = 2.21, SD = 1.36$) followed by the restaurant task ($M = 3.33, SD = 1.38$). The comedian task was rated as the most enjoyable task ($M = 4.23, SD = 1.06$). Paired t-tests demonstrated that all means differed (all p's < .003).
Alcohol Consumption. The 2 (beverage) by 2 (distraction) ANOVA performed on the reported number of ounces of vodka consumed revealed that there were no significant main or interaction effects. Subjects did not differ, therefore, in their perception of the amount of alcohol consumed as a function of beverage or distraction conditions. A 2 (beverage) by 2 (distraction) ANOVA performed on peak subjective intoxication, rated on a seven-point scale, showed that alcohol subjects reported reaching a higher peak subjective intoxication than placebo subjects, \( F(1,48) = 19.42, \ p < .0001 \). The mean for alcohol subjects was 3.72 (SD = 1.10). For placebo subjects, the mean subjective intoxication rating was 2.28 (SD = 1.21). There were no main or interaction effects of distraction on intoxication ratings.

Dependent variables. A 2 (beverage) by 2 (distraction) MANOVA performed on the subjects' ratings of the confederate's personality and a similar ANOVA performed on the assignment of the confederate to a task tested the hypothesis that subjects in the alcohol/distraction condition would be least aggressive while subjects in the alcohol/no distraction condition would be most aggressive.

The MANOVA performed on the personality ratings did not show significant main effects. There was a significant multivariate interaction of beverage and distraction,
\(F(10,36) = 2.34, \ p < .03\). The means for each of the ten personality items are contained in Table 1. Univariate ANOVAs demonstrated a significant beverage by distraction interaction effect for the items labeled "interesting," \(F(1,45) = 7.36, \ p < .01\), and "likeable," \(F(1,45) = 4.22, \ p < .047\). The alcohol-distract group rated the confederate as least interesting while the alcohol-no distract subjects rated the confederate as most interesting. Table 1 shows these means. A student t-test on this item indicated that the alcohol-distract subjects were significantly more aggressive than both the alcohol-no distract and the placebo-distract subjects at the .05 level. The individual adjective item "likeable" showed the same pattern, but no two means differed significantly based on a student t-test. The interaction effect was contrary to predictions, as alcohol-distract subjects were among the most aggressive for most of the adjective items and alcohol no distract subjects were among the least aggressive.
Table 1

Mean Adjective Ratings by Condition

<table>
<thead>
<tr>
<th>Adjecitve</th>
<th>Alcohol</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distract</td>
<td>No Distract</td>
</tr>
<tr>
<td>Intelligence</td>
<td>4.64</td>
<td>4.94</td>
</tr>
<tr>
<td></td>
<td>(1.12)</td>
<td>(.74)</td>
</tr>
<tr>
<td>Maturity</td>
<td>3.73</td>
<td>4.31</td>
</tr>
<tr>
<td></td>
<td>(1.12)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>Competency</td>
<td>4.64</td>
<td>4.69</td>
</tr>
<tr>
<td></td>
<td>(.81)</td>
<td>(1.23)</td>
</tr>
<tr>
<td>Insightfulness</td>
<td>4.00</td>
<td>3.93</td>
</tr>
<tr>
<td></td>
<td>(1.84)</td>
<td>(1.95)</td>
</tr>
<tr>
<td>Interesting</td>
<td>3.18&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>4.77&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(1.08)</td>
<td>(1.75)</td>
</tr>
<tr>
<td>Stable</td>
<td>5.82</td>
<td>5.54</td>
</tr>
<tr>
<td></td>
<td>(1.17)</td>
<td>(1.23)</td>
</tr>
<tr>
<td>Conscientious</td>
<td>4.56</td>
<td>4.92</td>
</tr>
<tr>
<td></td>
<td>(1.75)</td>
<td>(1.12)</td>
</tr>
<tr>
<td>Sincere</td>
<td>6.27</td>
<td>5.34</td>
</tr>
<tr>
<td></td>
<td>(1.27)</td>
<td>(1.56)</td>
</tr>
<tr>
<td>Friendly</td>
<td>4.82</td>
<td>4.92</td>
</tr>
<tr>
<td></td>
<td>(2.04)</td>
<td>(2.05)</td>
</tr>
<tr>
<td>Likeable</td>
<td>3.64</td>
<td>4.69</td>
</tr>
<tr>
<td></td>
<td>(1.69)</td>
<td>(1.58)</td>
</tr>
</tbody>
</table>

**Note.** The higher the score, the more positive the rating. Means with the same letter differ significantly.
An ANOVA performed on the task assignment measure yielded no significant main effects of beverage or distraction or their interaction. Means and standard deviations for each of the four conditions are contained in Table 2.
Table 2

Mean Task Ratings by Condition

<table>
<thead>
<tr>
<th></th>
<th>Alcohol</th>
<th>Placebo</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distract</td>
<td>1.46</td>
<td>1.73</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>(.82)</td>
<td>(.79)</td>
<td>(.81)</td>
</tr>
<tr>
<td>n=11</td>
<td>n=11</td>
<td>n=22</td>
<td></td>
</tr>
<tr>
<td>No-Distract</td>
<td>1.77</td>
<td>2.07</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>(.83)</td>
<td>(.88)</td>
<td>(.86)</td>
</tr>
<tr>
<td>n=13</td>
<td>n=15</td>
<td>n=28</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.62</td>
<td>1.90</td>
<td>1.78</td>
</tr>
<tr>
<td></td>
<td>(.83)</td>
<td>(.84)</td>
<td>(.84)</td>
</tr>
<tr>
<td>n=24</td>
<td>n=26</td>
<td>n=50</td>
<td></td>
</tr>
</tbody>
</table>

Note. No means differ significantly.
Discussion

Analyses of personality ratings and task assignment measures failed to support the hypothesis that the alcohol-distract subjects would be least aggressive while the alcohol-no distract subjects would be most aggressive. A significant interaction of alcohol and distraction on adjective ratings did not show the predicted pattern. There were no significant interaction or main effects of beverage or distraction on the task assignment measure. These findings fail to support the attention allocation model which predicts that the alcohol-distract subjects should be least aggressive while the alcohol-no distract subjects should be most aggressive.

The attention-allocation model predicts that the alcohol-distract subjects have narrowed attention which is consumed by the distraction task, so that those subjects will be least affected by the salient cues (for anxiety in the Steele & Josephs (1988) and Josephs & Steele (1990) studies, and for aggression in the present study). The alcohol-no distract subjects should be most affected by the salient cues, as their focus is narrowed and no distractor is present. In the four anxiety studies performed by Josephs & Steele (Josephs & Steele, 1990; Steele & Josephs, 1988) the hypothesized pattern in the two alcohol cells was found. The pattern of results in this study is opposite the

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pattern predicted by the attention allocation model. The two personality items (interesting and likeable) for which there were significant univariate effects showed that the alcohol-distract subjects were the most aggressive, while the alcohol-no distract subjects were the least aggressive.

There are several possible reasons for the failure to support the hypotheses of this study. One reason may have been that the blood alcohol concentration in this study, .05 mg %, was not sufficient to facilitate alcohol myopia. The mean BAC among subjects in the Josephs & Steele study was .06 mg %, although they targeted .08 mg %. If alcohol sufficiently narrowed attention, a main effect of alcohol on reaction time in the secondary monitoring task would be expected. In fact, Josephs & Steele's main effect of alcohol on reaction time was not replicated in this study. Other literature suggests that a BAC of .05 mg % may only minimally affect aggression. Steele & Southwick (1985) report that alcohol has only small effects on social behaviors at BAC's below .06, with an average effect size of .14 between alcohol subjects versus no-alcohol controls for 47 studies. Although this effect size is not significant, several studies have found effects of alcohol on aggression at BAC's of .05 and below (Murdoch, et al., 1988; Cherek, et al., 1985; Cherek, et al., 1984; Murdoch & Pihl, 1988).
It is also possible that subjects were not sufficiently provoked or that demand characteristics inhibited the expression of aggression. However, the pilot study clearly demonstrated that provoked subjects assigned more negative personality ratings to the confederate than did the nonprovoked subjects, suggesting that the manipulation was effective in elicitsng aggression and that demand characteristics did not significantly inhibit the expression of aggression. Furthermore, the pilot and experimental studies differed only slightly in procedures, and mood ratings of anger in the final study were similar to those obtained in the pilot study.

A related reason that hypotheses were unsupported could have been that anxiety cues remained more salient in the anxiety studies than did aggressive cues in this study. In Josephs & Steele's studies (Josephs & Steele, 1990; Steele & Josephs, 1988) the threat was salient and continuous; when subjects rated their anxiety they still expected to give an anxiety-provoking speech. In this study, on the other hand, provocation may not have remained salient because subjects may not have been expecting future interaction with the "other subject." However, pilot data showing that provoked subjects were more aggressive demonstrated that the provocation was salient when the dependent measures were obtained.
It is possible that the hypotheses of this study were not supported because the dependent variables were insensitive. Only two of the personality rating scales (interesting and likeable) showed significant effects; some items were not sensitive to the effects of the provocation. However, the personality rating scale has been successfully used. In the pilot study four scales detected differences at .10 or below between provocation and no provocation conditions with only 15 subjects. In addition, Rohsenow & Bachorowski (1984) detected significant results using the personality questionnaire in their study. Furthermore, two items in this study did detect significant effects between conditions. Rohsenow & Bachorowski (1984) reported an alpha of .83, and the alpha in this study was .72.

Although the hypotheses of the attention-allocation model were not supported, a significant interaction of provocation and frustration was found. Subjects in the alcohol-distract condition were most aggressive while subjects in the alcohol-no distract condition were least aggressive. A tenable explanation for the increased aggression by alcohol-distract subjects in this study may be that they were frustrated. Perhaps the task of trying to rate art slides and perform a reaction time task at the same time was frustrating to intoxicated subjects. Frustration may increase arousal, which may, in turn, facilitate
aggression. Some subjects did, indeed, express during debriefing the difficulty of doing the reaction time task and the slide rating task simultaneously. However, the same slide task was used in conjunction with the same reaction time task for alcohol and placebo subjects in Josephs & Steele (1990). In their study, the simultaneous performance of the two tasks significantly decreased anxiety for the alcohol-distract subjects. It is, therefore, unlikely that subjects in this study were frustrated unless the task differed in some qualitative way, especially since BAC's in this study were about .01 mg % lower. The aggression literature clearly shows that interpersonal frustration can increase aggression (Pihl & Ross, 1987; Taylor & Leonard, 1983), but the effects of intrapersonal frustration on aggression have not been studied using alcohol.

The subjects' ratings of the enjoyability of the art slide task does not support the frustration hypothesis. If alcohol-distract subjects were frustrated, they would presumably rate the task as less enjoyable. However, alcohol subjects in this study did not report the slide-rating task as differentially enjoyable than did the placebo subjects.

The attention-allocation model predicts that the alcohol-no distract subjects should be most aggressive. This hypothesis was not supported in this study; the
alcohol-no distract subjects were less aggressive than the placebo-no distract subjects. Since the frustration hypothesis effects only the alcohol-distract cell, the model would not have been supported even if alcohol-distract subjects were not frustrated. Perhaps in the alcohol-no distract cell the effects of alcohol in the absence of distraction served to improve mood and negate the provocation manipulation. In fact, Hull and Bond's (1986) meta-analysis of 14 studies which assess alcohol's effects on mood shows a homogeneous effect of alcohol in improving mood. However, mood ratings in this study did not differ significantly in the four conditions. In the only other study of aggression that manipulated distraction, Zeichner and his colleagues (1982) obtained the results predicted by the attention allocation model for alcohol and placebo subjects. The researchers either focused the subjects on the provocation by their competitor in a modified Buss paradigm, distracted them from the provocation, or gave no instructions regarding the provocation. In their study, the alcohol-distract subjects were less aggressive than the alcohol-no distract subjects, not supporting either the frustration or enhanced mood explanations of the results found here. It does not appear, therefore, that improved mood can account for the failure to observe greater aggression in the alcohol-no distract condition.
Differences in procedures between this study and that of Josephs & Steele (1990) may account for the failure to support the hypotheses of this study. The only known differences in the slide/reaction time activity period, however, were that: the lights were off in the room in the Josephs & Steele (1990) study, the slides were similar but not identical in the two studies, and the computer equipment used to collect reaction time data was slightly different (Josephs, 1992, personal communication). These discrepancies are minor and are unlikely to so dramatically change the results.

The finding that the alcohol-distract subjects were actually the most aggressive and the alcohol-no distract subjects were the least aggressive is puzzling. The combination of a frustration hypothesis to explain the results of the alcohol-distract cell and a simple mood effect to explain the results of the alcohol-no distract cell lacks parsimony and is not supported by ratings of slide enjoyability and mood. Further studies of alcohol and aggression using attentional tasks will be needed in order to reach conclusions about the role of attention in the alcohol-aggression relationship.

The data in this study failed to support the attention-allocation model. The pattern of results suggests that alcohol-distract subjects are the most aggressive and that
alcohol-no distract subjects are the least aggressive. These results are not easily understood and, therefore, require replication.

Future research should focus on validating that attention underlies the relationship between alcohol and aggression. In particular, the attention-allocation model should be tested with higher blood alcohol concentrations and a modified Buss paradigm in order to keep the effects of the provocation salient while the dependent measures are collected. Furthermore, measures of attention which do not confound distraction with frustration are needed. In addition, more research should attempt to extend the attention-allocation model to other behaviors (e.g., sexual arousal) before the model is accepted as a mediator of alcohol effects.
References


Appendix 1

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Virginia Tech
(703) 231-7631

Faculty Sponsor:
Robert S. Stephens, Ph.D.
Department of Psychology
Virginia Tech (703) 231-6304

Personality and Judgement

CONSENT FORM

We are interested in perceptions of personality as they relate to judgement tasks. The information gained will be important in increasing our understanding of judgements relevant to personnel decisions. Participating in the study will take approximately one hour. Two subjects will complete the study at once performing slightly different tasks.

You may be asked to complete any of the following procedures:

a. Writing a short autobiographical personality sketch.
b. Reading a short autobiographical personality sketch completed by the other subject.
c. Receiving a rating of one's own personality completed by the other subject.
d. Rating the other subject's personality.
e. Rating art slides.
f. Participating in a reaction time task in which you respond as quickly as possible to a beep, by pressing a button.
g. Assigning the other subject to one of three short rating tasks.
h. Completing one of three short rating tasks.
i. Completing experiment evaluation forms and discussing the experiment with the experimenter to help improve the study.

You will receive one extra credit point for introductory psychology. Your name will not be stored with any of the data from the experiment, and this signed consent form will be kept separately. Personal data collected will remain confidential. It may be uncomfortable for some subjects to write a personality sketch and have it rated by a peer.
You will benefit from participation in this study by learning how research is conducted and by learning the questions of the study and how they are answered by the design and procedures.

Your rights are as follows: a) You may refrain from answering any question during the study. b) You are free to withdraw from the study, after a short debriefing, at any time without penalty. If you decide not to participate, let the experimenter know immediately. The experimenter will explain the experiment in full and discuss it with you. c) If you feel any discomfort as a result of your participation, appropriate referral for assistance will be made. d) Your responses will be confidential and will be linked to your name only by a number on this consent form, which will be stored separate from your questionnaires. e) The full rationale of the study will be explained to you in a debriefing session following the experiment.

This project has been approved by the Human Subjects Research Committee and the Institutional Review Board. Any questions may be addressed to the investigator, Bonnie Cleaveland, at 231-7631 or 552-9652, the faculty sponsor, Dr. Stephens, at 231-6304, or Helen Crawford, chair of the Human Subjects Committee, at 231-6581. You may also contact Ernest Stout, chair of Virginia Tech's Institutional Review Board, at 231-9359.

I hereby agree to voluntarily participate in the research project described above and under the conditions described above.

_________________________________  Date

_________________________________

Student ID Number
Appendix 2

PERSONALITY SKETCH

Please write a brief description of your own personality. Describe the most important features of your personality, including what you feel are some of the strengths and weaknesses of your personality. Please be honest and sincere in writing this. You will have 10 minutes.

I'm pretty much confident and friendly, I guess. My family is kind of typical so there's nothing special about my background.

I like sports, going out, music & stuff like that. I also like parties. I don't do as well in school as I could but I just think other things are more important.

I'm sometimes lazy about work, and I think that's my main weakness. I guess I think my main strength is being outgoing and a leader.
Appendix 3

Number________

ADJECTIVE RATING FORM

For each of the quality dimensions described below, please mark the point on the scale that best shows your own opinion of what the other person is like. For example, if you thought the other person was very intelligent, you would mark the first space while if you thought he/she was only slightly better than average, you would mark the fourth space out of the eight spaces on the scale. Please try to be as careful and accurate as you can about your evaluations of this person.

1. Very intelligent _ _ _ _ _ _ _ _ _ Not at all intelligent

2. Very mature _ _ _ _ _ _ _ _ Very immature

3. Very competent _ _ _ _ _ _ _ _ Very incompetent

4. Very insightful _ _ _ _ _ _ _ _ Very insensitive

5. Very interesting _ _ _ _ _ _ _ _ Very dull

6. Emotionally stable _ _ _ _ _ _ Emotionally unstable

7. Very conscientious _ _ _ _ _ _ _ Very irresponsible

8. Very sincere _ _ _ _ _ _ _ _ Very insincere

9. Very friendly _ _ _ _ _ _ _ _ Very hostile

10. Very likeable _ _ _ _ _ _ _ _ Very unappealing
Comments:

He seems like he's a bit insecure but is trying to cover it up. His sense of self worth seems shaky to me. His writing style is at a high school level, not what I would expect for this university, and he doesn't seem to know himself as well as he could. I suppose some people would like him but he just doesn't appeal to me personally.
Appendix 4

ADJECTIVE RATING FORM

For each of the quality dimensions described below, please mark the point on the scale that best shows your own opinion of what the other person is like. For example, if you thought the other person was very intelligent, you would mark the first space while if you thought he/she was only slightly better than average, you would mark the fourth space out of the eight spaces on the scale. Please try to be as careful and accurate as you can about your evaluations of this person.

1. Very intelligent _ _ _ _ _ _ _ _ Not at all intelligent

2. Very mature _ _ _ _ _ _ _ Very immature

3. Very competent _ _ _ _ _ _ _ Very incompetent

4. Very insightful _ _ _ _ _ _ _ Very insensitive

5. Very interesting _ _ _ _ _ _ Very dull

6. Emotionally stable _ _ _ _ _ _ _ Emotionally unstable

7. Very conscientious _ _ _ _ _ Very irresponsible

8. Very sincere _ _ _ _ _ _ Very insincere

9. Very friendly _ _ _ _ _ Very hostile

10. Very likeable _ _ _ _ _ _ Very unappealing

Comments: He seems to be secure and has good self-esteem. He writes pretty well, and he seems to know himself. I would probably like this person.
Appendix 5

Number

TASK ASSIGNMENT

We are interested in how perceptions of personality relate to job ratings. You are to assign the other subject to a task based on what you know about his personality. Your judgement in this matter is not being evaluated. Instead, the subject's performance on the task will be evaluated. There is no right or wrong answer. The tasks include:

1. Rating the difficulty of reading a 5-page legal document. The document is a very technical one which explains a New York City building code and ways in which a particular corporation has violated it.


3. Judging the performances of three of the top stand-up comedians in the business presenting their favorite routines.

All tasks take the same amount of time. Please choose for the other subject task number 1, 2, or 3.
Appendix 6

**QUESTIONNAIRE M--P**

*How were you feeling during the experiment? (Circle one number for each question)*

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<td></td>
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<td>Not at all Angry</td>
</tr>
<tr>
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<tr>
<td>5</td>
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<td></td>
<td></td>
<td>Very Anxious</td>
<td>Not at all Anxious</td>
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<td>6</td>
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<td></td>
<td></td>
<td></td>
<td>Very Frustrated</td>
<td>Not at all Frustrated</td>
</tr>
</tbody>
</table>

Comments:
8. Please tell us in your own words what you think the study was about:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

9. Please use the back to explain to us if you think the study involved anything we didn't tell you about from the beginning.
Appendix 7

Questionnaire ADS

1. How much did you drink the last time you drank?
   a. Enough to get high or less
   b. Enough to get drunk
   c. Enough to pass out

2. Do you often have hangovers on Sunday or Monday mornings?
   a. No
   b. Yes

3. Have you had "shakes" when sobering up (hands tremble, shake inside) as a result of drinking?
   a. No
   b. Sometimes
   c. Almost every time I drink

4. Do you get physically sick (e.g., vomit, stomach cramps) as a result of drinking?
   a. No
   b. Sometimes
   c. Almost every time I drink

5. Have you had the "DTs" (delirium tremens) -- that is, seen, felt or heard things not really there; felt very anxious, restless, and overexcited?
   a. No
   b. Once
   c. Several times

6. When you drink, do you stumble about, stagger, and weave?
   a. No
   b. Sometimes
   c. Often

7. As a result of drinking have you felt overly hot and sweaty (feverish)?
   a. No
   b. Once
   c. Several times
8. As a result of drinking, have you seen things that were not there?
   a. No
   b. Once
   c. Several times

9. Do you panic because you fear you may not have a drink when you need it?
   a. No
   b. Yes

10. Have you had blackouts ("loss of memory" without passing out) as a result of drinking?
    a. No, never
    b. Sometimes
    c. Often
    d. Almost every time I drink

11. Do you carry a bottle with you or keep one close at hand?
    a. No
    b. Some of the time
    c. Most of the time

12. After a period of abstinence (not drinking), do you end up drinking heavily again?
    a. No
    b. Sometimes
    c. Almost every time

13. In the past 12 months, have you passed out as a result of drinking?
    a. No
    b. Once
    c. More than once

14. Have you had a convulsion (fit) following a period of drinking?
    a. No
    b. Once
    c. Several times
15. Do you drink throughout the day?
   a. No
   b. Yes

16. After drinking heavily, has your thinking been fuzzy or unclear?
   a. No
   b. Yes, but only for a few hours
   c. Yes, for one or two days
   d. Yes, for many days

17. As a result of drinking have you felt your heart beating rapidly?
   a. No
   b. Once
   c. Several times

18. Do you almost constantly think about drinking and alcohol?
   a. No
   b. Yes

19. As a result of drinking have you heard "things" that were not there?
   a. No
   b. Once
   c. Several times

20. Have you had weird and frightening sensations when drinking?
   a. No
   b. Once or twice
   c. Often

21. As a result of drinking have you "felt things" crawling on you that were not there (e.g., bugs, spiders)?
   a. No
   b. Once
   c. Several times
22. With respect to blackouts (loss of memory):
   a. Have never had a blackout
   b. Have had blackouts that last less than an hour
   c. Have had blackouts that last for several hours
   d. Have had blackouts that last a day or more

23. Have you tried to cut down on your drinking and failed?
   a. No
   b. Once
   c. Several times

24. Do you gulp drinks (drink quickly?)
   a. No
   b. Yes

25. After taking one or two drinks, can you usually stop?
   a. Yes
   b. No
Appendix 8

Number _____

Screening Questionnaire

1. Do you have any religious or other reasons for not drinking alcohol?
   _____ Yes  _____ No  If yes, please explain:

2. Are you currently under the regular care of a physician?
   _____ Yes  _____ No  If yes, for what condition?:

3. Describe all medications that you currently use:
   Medication  Dosage  Frequency  Purpose

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

4. Have you ever had:
   a) A heart attack or stroke?...........
      _____ Yes  _____ No
   b) Any indication of heart trouble?..
      _____ Yes  _____ No
   c) High blood pressure?............... 
      _____ Yes  _____ No
   d) Diabetes?...........................
      _____ Yes  _____ No
   e) Hypoglycemia?......................
      _____ Yes  _____ No
   f) Liver disease?......................
      _____ Yes  _____ No
   g) Hepatitis or jaundice?............
      _____ Yes  _____ No
   h) Cirrhosis?..........................
      _____ Yes  _____ No
i) Stomach or intestinal ulcer?......
   ____ Yes  _____ No
j) Gastritis?.........................
   ____ Yes  ____ No
k) Bloody vomiting?...............  
   ____ Yes  ____ No
l) Nervous disorder?..............
   ____ Yes  ____ No
m) Seizures or convulsions?.......  
   ____ Yes  ____ No
n) Other neurological disorder....
   ____ Yes  ____ No
o) Memory loss?....................
   ____ Yes  ____ No
p) Loss of consciousness?........
   ____ Yes  ____ No
q) Depression?.....................
   ____ Yes  ____ No
r) Psychotic disorders?..........  
   ____ Yes  ____ No
s) Manic episodes?..............
   Yes  No
t) Panic attacks or anxiety disorder?
   ____ Yes  ____ No

For any of the items on the previous page answered"Yes," please give a brief description of the disorder and the dates:

5. Have you ever been under the care of a professional for a psychological or mental disorder?
   ____ Yes  ____ No

6. Have you ever been hospitalized for an emotional problem or psychiatric disorder?............
   
68
____ Yes  ______ No

Please give a brief description and the approximate dates of hospitalization:

7. In terms of your use and reactions to alcoholic beverages, have you ever had:

   a) An experience of fainting or a seizure after drinking alcohol?....

       ____ Yes  ____ No

   b) Unusual flushing of the skin?......

       ____ Yes  ____ No

   c) Problems with your liver?...........

       ____ Yes  ____ No

   d) Severe or unusual psychological reactions?....................

       ____ Yes  ____ No

   For any items answered "Yes," please give a brief description of the disorder and the approximate dates:

8. In terms of your history of alcohol use, have you ever:

   a) Been seriously concerned about the extent or amount of your drinking?.....................

       ____ Yes  ____ No

   b) Been treated or been advised to seek treatment for a drinking problem?...................

       ____ Yes  ____ No

   c) Been told by a professional person that you are, or might be, an alcoholic?................
____ Yes  ____ No

d) Been arrested for driving while intoxicated?......................
____ Yes  ____ No

If you answered yes to any of the above items, please give
a brief description of the circumstances:

9. Have you ever had a drug abuse problem?
____ Yes  ____ No

If yes, please give a brief description of the type of
drug (e.g., marijuana, heroin, sedatives, etc.) and the
extent of the problem.

10. Are you presently abstaining from the use of
psychoactive drugs (e.g., marijuana, opiates)?
____ Yes  ____ No

If yes, give your reasons for choosing to abstain
(e.g., have never used drugs, religion, etc.)

11. Are you currently trying to quit or cut down your
drinking?
____ Yes  ____ No  If yes, please explain:
Appendix 9

Questionnaire DH

1. We are interested in how frequently you drink alcoholic beverages. In general, over the past month, how often did you have any drink containing alcohol, whether it was wine, beer hard liquor, or any other alcoholic beverage? Please check the item that best describes your usual drinking frequency:

___ (0) three or more times a day
___ (1) two times a day
___ (2) once a day
___ (3) nearly every day
___ (4) three or four times a week
___ (5) once or twice a week
___ (6) two or three times a month
___ (7) about once a month
___ (8) less than once a month but at least once a year
___ (9) less than once a year--or--I have not had any alcoholic beverages during the past one month

We are also interested in how much alcohol you consume during each drinking occasion. By one drink we mean one 12 ounce bottle of beer, one standard cocktail, or one 4 ounce glass of wine. Think of all the times you have been drinking in the past month:

2. When you drank, how often did you have as many as 5 or 6 drinks?

___ (0) nearly every time
___ (1) more than half the time
___ (2) less than half the time
___ (3) once in a while
___ (4) never

3. When you drank, how often did you have 3 or 4 drinks?

___ (0) nearly every time
___ (1) more than half the time
___ (2) less than half the time
___ (3) once in a while
___ (4) never
4. When you drank, how often did you have 1 or 2 drinks?

___ (0) nearly every time
___ (1) more than half the time
___ (2) less than half the time
___ (3) once in a while
___ (4) never
Appendix 10

Investigator: Bonnie L. Cleaveland
Department of Psychology
Virginia Tech
(703) 231-7631

Faculty Sponsor: Robert S. Stephens, Ph.D.
Department of Psychology
Virginia Tech (703) 231-6304

The Effects of Alcohol on Judgement
CONSENT FORM

We are interested in the way alcohol affects judgements of art, personality, and performance on various tasks. The information gained will be important in increasing our understanding of the effects of alcohol on judgements relevant to personnel decisions.

Two subjects will complete the study at once in two separate labs performing slightly different tasks and exchanging written communications. Participation in the study will involve one and one-half to three hours of your time and will involve the following procedures:

a. All subjects' identification will be checked to verify age of 21 years or older.

b. All subjects' initial blood alcohol concentrations will be measured to check that they have not consumed alcohol prior to the study. Subjects who have consumed alcohol before the study will be dismissed and rescheduled.

c. All subjects will be randomly assigned to receive either tonic water or 80 proof vodka mixed with tonic water. Subjects randomly assigned to receive alcohol will be weighed to determine the amount of alcohol to be administered. If you receive alcohol, you will receive enough to raise your blood alcohol concentration (BAC) to .06, or about 4.6 ounces of 80 proof vodka for a 160 pound male (about three drinks). For your information, a BAC of .10 is considered legally drunk in Virginia. Drinks are to be consumed in 20 minutes.

Following the drinking period and during a 20 minute absorption period, you may be asked to complete any or all of the following procedures:

d. Writing a short autobiographical personality sketch.
f. Reading a short autobiographical personality sketch completed by the other subject.
g. Receiving a rating of one's own personality completed by the other subject.

h. Rating the other subject's personality.

i. Rating art slides.

j. Participating in a reaction time task in which you respond as quickly as possible to a beep, by pressing a button.

k. Assigning the other subject to one of three short rating tasks.

l. Completing one of three short rating tasks.

m. Completing experiment evaluation forms and discussing the experiment with the experimenter to help improve the study.

By signing this consent form, I affirm that I am at least 21 years of age. I agree that to the best of my knowledge I do not presently have and have not had in the past any medical or mental condition which could place me at risk when consuming alcohol. I have answered all screening questionnaires honestly and have not withheld any information about myself which might jeopardize my participation in this study.

I realize for my participation in the experiment I will receive $10 or three extra credit points toward introductory psychology, whichever I prefer.

I understand that I will be assigned a subject identification number and that my name will not be stored with any of the data from the experiment, and this signed consent form will be kept separately. Personal data collected will remain confidential.

It is unlikely that you will experience negative effects from your participation in this experiment. However, alcohol is a toxin and a reinforcing agent which may cause changes in behavior, including repetitive or excessive consumption. Some of the potential risks of consuming alcohol include headache, nausea, palpitations, mood alteration, and skin flushing. Alcohol impairs cognitive and motor functioning, including reaction time, so the risk of accidents is heightened under the influence of alcohol. Furthermore, it may be uncomfortable for some subjects to write a personality sketch and have it rated by a peer.

The conditions under which I will be released from the experiment are as follows:

1. If I have not consumed alcohol, I will be provided a ride home after the experimenter explains the experiment in full and discusses it with me.
because subjects do not know before the study whether or not they are drinking and should not drive to the study.

2. If I have consumed alcohol I agree to remain in the lab until my BAC is .03 or below (as determined by breath analysis) at which time I will discuss the experiment in full with the experimenter and be escorted home or to the bus stop. By signing this consent form I agree not to drive or to operate any machinery for a period of at least two hours following the completion of the experiment if I have received alcohol.

3. By signing this consent form, I agree to these same conditions (numbers 1 & 2) regarding release even if I choose to terminate my participation in the experiment early.

I realize that it will take approximately two hours from the time I am released for all alcohol to be eliminated from my body.
The experimenter will contact me by phone the day after the experiment for further debriefing and so that any remaining questions I have can be answered.

My rights are as follows: a) I may refrain from answering any questionnaire item during the study. b) I am free to withdraw from the study after a short debriefing at any time without penalty. If I decide not to participate, I only need to let the experimenter know immediately. c) If I feel any discomfort as a result of my participation, appropriate referral for assistance will be made. d) My responses will be confidential and will be linked to my name only by a number on this consent form, which will be stored separate from my questionnaires. e) The full rationale of the study will be explained to me in a debriefing session following the experiment.

It is my understanding that should I show any adverse physical or psychological effects from participation in this experiment, the University Health Center, the Virginia Tech Rescue Team, and/or Dr. Stephens will be immediately contacted by the experimenter and appropriate referrals will be made. This project has been approved by the Human Subjects Research Committee and the Institutional Review Board. Any questions may be addressed to the investigator, Bonnie Cleaveland, at 231-7631 or 552-0652, the faculty advisor, Dr. Robert Stephens, at 231-6304, Dr. Helen Crawford, chair of the Human Subjects Committee, at 231-
6581, or Dr. Ernest Stout, chair of Virginia Tech's Institutional Review Board, at 231-9359.

I understand the experiment as described and have had all questions answered fully. I hereby agree to voluntarily participate in the research project described above and under the conditions described above.

________________________________________
Signature

___________________________    ______
Printed Name                Date

___________________________
Student ID Number

Permanent Address (for receiving study results):

________________________________________
Street

________________________________________
City, State, Zip
Appendix 11

Number________

TASK ASSIGNMENT

We are interested in how perceptions of personality relate to job ratings. You are to assign the other subject to a task. Your judgement in this matter is not being evaluated. Instead, the subject's performance on the task will be evaluated. There is no right or wrong answer. The tasks include:

1. Rating the difficulty of reading a 5-page legal document. The document is a very technical one which explains a New York City building code and ways in which a particular corporation has violated it.

2. Rating the menus of ten proposed restaurants for variety and appeal.

3. Judging the performances of three of the top stand-up comedians in the business presenting their favorite routines.

All tasks take the same amount of time. Please choose for the other subject task number 1, 2, or 3.
Appendix 12

**QUESTIONNAIRE M**

How were you feeling during the experiment? (Circle one number for each question)

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</tbody>
</table>

Comments:
Appendix 13

Post Experimental Questionnaire

Please complete the following items in order to give us a description of your experience in this study and to help us evaluate the experimenters. (Circle the appropriate number for each item.)

1. Please estimate in ounces the amount of beverage you consumed during this experiment. Write a whole number in each of the blanks below. Use zero if it applies.

   ______ ounces of total beverage (including both vodka and tonic)

   ______ ounces of vodka

   ______ ounces of tonic

2. In subjective terms, how intoxicated did you feel at your peak of intoxication during the experiment?

   very sober  1  2  3  4  5  6  7 very intoxicated

3. In subjective terms, how intoxicated do you feel right now?

   very sober  1  2  3  4  5  6  7 very intoxicated

4. Do you feel that the beverage you consumed affected your mood?

   affected my mood 1  2  3  4  5  6  7 did not affect my mood

5. Please evaluate the experimenter on the following scale:

   incompetent 1  2  3  4  5  6  7 competent

6. Please evaluate the assistant who mixed your drinks

   incompetent 1  2  3  4  5  6  7 competent
7. How much did you enjoy the slide rating task?
   ____ Not applicable—I didn't do it.
   not at all 1 2 3 4 5 6 7 very much

8. Even if you did not do the following task, please tell us how much you would have liked to have done the legal document task, comedian task, and restaurant menu task:
   
   **Legal document task:**
   not at all 1 2 3 4 5 very much

   **Comedian task:**
   not at all 1 2 3 4 5 very much

   **Restaurant menu task**
   not at all 1 2 3 4 5 very much

9. Please tell us in your own words what you think the study was about:

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

10. Please explain to us if you think the study involved anything we didn't tell you about from the beginning.
VITA
Bonnie L. Cleaveland
D.O.B.: 12/05/68
750 Tall Oaks Drive # 11900 K
Blacksburg, VA 24060
(703) 552-0652

EDUCATION
1. Stetson University, DeLand, Florida 1986-1989
   Major Area: Psychology
   Minor Area: Business
   Degree: Bachelor of Science in Honors May 1989
   Honors:
   Graduated Magna Cum Laude, Honors Program 1986-1989
   Outstanding Senior Psychology Major 1989
   Outstanding Research in Psychology 1989
   Mortar Board Senior Honorary 1989
   Who's Who Among American College Students 1989
   Selected as Stetson's candidate for Summer Research Program at Florida State University (program subsequently unfunded). 1989
   Rho Lambda Greek Women's Honorary 1989
   Outstanding Junior Psychology Major 1988
   Psi Chi Psychology Honorary 1988
   Phi Eta Sigma Freshman Honorary 1987

2. Virginia Polytechnic Institute and State University 1989-present
   Major Area: Clinical Psychology
   Minor Area: Community/Health Psychology (Addictions)

RESEARCH POSITIONS
1. Co-Principal Investigator, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 1990-1992
   "Drug and Alcohol Assessment Study."
   (Co-PI - Jennifer Wertz).
   Responsibilities include interviewer training, conducting follow-up interviews, program administration, data analysis, manuscript and report preparation.
2. Research Assistant, Department of Psychology  
   Virginia Polytechnic Institute and State University, Blacksburg, Virginia 1989-present  
   "Relapse Prevention in Treating Marijuana Dependence." (PI - R.A. Roffman; Co-PI - R.S. Stephens). Responsibilities include questionnaire creation and administration, data analysis, background research.
3. Research Assistant, Volunteer  
   Virginia Polytechnic Institute and State University 1989-1990  

TEACHING POSITIONS
1. Department of Psychology, Stetson University  
   DeLand, Florida (Teaching Assistant for Summer Opportunity  
   Program, Gifted 9th graders, 1 month) 1989

CLINICAL POSITIONS
   (Practicum), nine months (16 hours/week). 1991-1992
2. Psychological Services Center, Virginia Tech, Blacksburg, Virginia.  
   (Practicum), nine months per academic year 1989-1991  
   Outpatient assessment and treatment of adults and children.  
   Supervisors: R.M. Eisler, Ph.D.; C. Boyd, M.A., G.A. Clum, Ph.D., L. Clark, Ph.D., T.H. Ollendick, Ph.D.
   Resident Advisor

UNIVERSITY SERVICE
1. Ethics Course Creation Committee Member, Virginia Tech 1991-1992
2. Representative to Clinical Faculty Committee, Virginia Tech 1989-1990
3. Stetson University Honors Council Representative 1986-1987
VOLUNTEER WORK
1. Project FAR (Families at Risk). Educational activities with children at risk for delinquency 1991-pres

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS
1. American Psychological Association (Student Affiliate)
2. Association for the Advancement of Behavior Therapy (Student Affiliate)
3. International Council of Psychologists (Student Affiliate)

PAPERS PRESENTED

REFERENCES
1. Robert S. Stephens, Ph.D. (Major Professor). Department of Psychology, Derring Hall, VPI, Blacksburg, VA 24061. (703) 231-6304.
2. Richard Winett, Ph.D. Department of Psychology, Derring Hall, VPI, Blacksburg, VA 24061. (703) 231-8148.