Predicting drinking and driving

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PREDICTING DRINKING AND DRIVING

By
Peter John Arsenault

A Thesis
Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
Of
The Graduate School
At
Rowan University
2001

Approved by

Professor

Date Approved
5/1/01
The purpose of the present study was to discover the relationship between personality traits and how they can be used to predict an individual's tendency to drink and drive. Specifically, does an individual's locus of control and self-esteem influence their tendency to drink and drive. Past research has suggested that an individual with low self-esteem and an external locus of control has a greater tendency to drink and drive. 125 participants completed a questionnaire, which measured their self-esteem, locus of control and drinking and driving behavior. A crosstabulation correlation was used to find evidence of a relationship between the variables. The alternate hypothesis was rejected due to the lack of significant results. The use of an unreliable and invalidated measure of an individual's drinking and driving behavior was suspected to induce the insignificant results. A further analysis of data as well as future implications is discussed.
MINI-ABSTRACT

Peter John Arsenault
Predicting Drinking and Driving
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The purpose of the present study was to discover the relationship between personality traits and how they can be used to predict an individual’s tendency to drink and drive. Results did not support previous research. A significant correlation between self-esteem, locus of control and drinking and driving was not found.
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CHAPTER I
THE PROBLEM

NEED

The use of alcohol has become an established aspect of the college experience. Popular culture's view of the college student is not of books, term papers and all "nighters". Rather it is of a party scene in which textbooks and notebooks are replaced with six packs and togas. The percentage of college students who drink is staggering. A recent study found 82.8% of college students reported using alcohol at least once within the past year and 69.7% of students reported using alcohol at least once within the past 30 days (Core Survey, 1996). Due to the overwhelming amount of college students who drink, there has also been an increase in the detrimental effects of drinking. A recent study suggested that alcohol consumption was the best predictor of college student risk taking behaviors such as drug abuse and unprotected sexual activity (Schneider & Morris, 1991).

Arguably the most dangerous risk-taking behavior associated with drinking and is the tendency for an individual to drive while under the influence. Studies have shown that the college student population, which is mostly comprised of individuals aged 16-24, are especially susceptible to the threat of driving under the influence. College students are over-represented in driving accidents involving alcohol (Campbell et al., 1996). Drinking and driving has become the number one killer of 16-24 year olds in this nation (National Highway Traffic Safety Administration, 1998). Recently, people aged 16 to 24 were involved in 28 percent of all alcohol-related driving accidents, although they make up only 14% of the U.S. population.
(Campbell et al., 1996). The U.S. Surgeon General also reports that the life expectancy of the entire nation has risen over the past 75 years for every age group except one: 16-24 year olds. Drinking and driving is the single leading cause of this downward cycle (Escobedo et al, 1995).

There is a need for a drinking and driving intervention program specifically designed for the college student population. Yet, before implementing any type of intervention program to deter drunk driving, an institution must first determine those individuals who are most at risk (Geller, 1989). The 16-24 age group, which is predominantly comprised of the college student population, are the individuals who are most at risk. There is a pressing need for more study and research to be performed on the college student population to discover what characteristics directly lead to their drinking and driving tendency. Then, specific programs can be designed or amended to meet the college student’s individual needs.

PURPOSE

The purpose of this study is to discover evidence of common personality traits shared by individuals who drink and drive. As Geller stated, in order to create an intervention program you must first discover what type of person is the most at risk. Past and present drinking and driving intervention programs are not working. Something must be done in order to prevent more deaths. By discovering common personality traits in drunk drivers it will be possible to amend and create new interventions for the college student population.
HYPOTHESIS

A positive relationship will exist between an individual’s low self-esteem, external locus of control and tendency to drive a vehicle while under the influence.

BACKGROUND

Drinking driving is not a new problem. There have been many individual state and national laws banning drunk driving for several decades. Prevention measures that have been used in the past are license suspension, impounding or confiscating vehicles, enforcing open container laws, and lowering legal Blood Alcohol Content (BAC) levels. Lowering the legal limit of a driver’s BAC has been a very popular intervention within the past 10 years. In the past, Congress allowed each individual state to designate an acceptable BAC level. That was soon changed to a national BAC limit of .10. Now, several groups such as Mothers Against Drunk Drivers (MADD) and the National Commission Against Drunken Driving (NCADD) have been pressing to lower the legal BAC level to .08. Several states have already adopted this new bill including New Jersey and Delaware.

Most college students not only have limited experience with alcohol; they also have limited experience behind the wheel. Thus many legislators are considering an even tougher proposal for young DUI offenders. States such as New York, Kentucky and California have begun to enforce an even stricter zero tolerance with underage drivers. Thus, an underage individual that registers a BAC level of .01% could be convicted of a driving while under the influence (DUI). The theory behind this
practice is to stop young drivers before they develop a chronic drinking and driving pattern of behavior.

Another tactic that has been used in the past to deter drinking and driving are sobriety checkpoints. A checkpoint is simply a roadblock, set up by police and state officials, in which an officer inspects the driver using three options. The first option is to ask the individual to make some type of verbal statement, usually to recite the ABC’s. The officer will listen for any slurring or stuttering. If any does occur the officer begins to question the driver’s sobriety. Another option is to check the driver’s vision. An officer will have the driver of the vehicle follow a small light with their eyes. If straying occurs it could also warrant an officer to question sobriety. The third possibility is to inspect the individual’s motor ability. To do so an officer could ask the driver to walk heel to toe in a straight line. Any inability to perform any of these tasks allows the officer to charge the driver with suspicion of driving while under the influence.

Lowering the national legal BAC, enforcing open container laws and creating sobriety check points are options available to help stop a drinking and driving individual once he or she is already behind the wheel. Yet, this program does nothing to actually stop the individual from drinking and driving. The college student population is in desperate need of an intervention that pinpoints exactly why they drink and drive. Why does an individual drive under the influence rather than walk home or call a cab? Why would an individual allow himself to be driven by a friend he knows is intoxicated? Why would an individual not seek out alternative methods of getting home other than drinking and driving? Today’s college students have
limited experience behind the wheel as well as limited experience with the effects of alcohol. The ability to discover the relationship of personality traits such as self esteem and locus of control in drinking and driving can act as an intricate aspect of a drinking and driving intervention program. One of which could screen drivers as a precautionary measure for potential drinking and driving tendencies based on specific personality traits.

DEFINITIONS

There are several words and concepts that will be used throughout this study. In order to gain a complete grasp of the material the understanding of these notions is crucial. For instance, Locus of Control (LOC) will be used throughout the study. Locus of control is a personality construct referring to an individual's perception of the locus of events as determined internally by his/her own behavior vs: fate, luck, or other external circumstances. For example, a person with external locus of control who fails a test will blame the teacher or the exam and not take responsibility for their actions. In contrast, an individual with internal locus of control who fails a test would state that they were not prepared enough and accept responsibility for their actions.

Another concept that will be used is a correlation. Correlation means that two phenomena tend to occur together in a way not expected to be by chance alone. For example, there is a strong correlation between grade point average and graduation. Correlations can be either positive or negative. There is a positive correlation between class attendance and grade point average. As your level of class attendance increases/decreases your grade point average increases/decreases accordingly. In
contrast, grade point average is negatively correlated with drug use (Gavin, J.F., 1973).

Another concept that will be used in this study is self-esteem. Self-esteem is best characterized as how individuals feel about themselves as well as how they believe others perceive them. An individual can either have high or low self-esteem. An individual with high self-esteem thinks very positively about themselves. In contrast, an individual with low self-esteem thinks very negatively about themselves.

ASSUMPTIONS/LIMITATIONS

Before beginning this study there are several assumptions that must be made. For instance, there may be several uncontrollable confounding variables effecting the results of the study. For example, there is nothing to stop a participant from lying on his or her questionnaire. A participant may not want to answer truthfully to some of the items because of fear of getting into trouble or “loosing face”. Another example of a confounding variable that may effect the outcome of the study is each participant’s willingness to complete the questionnaire properly. For example, someone may not even look at the items of the questionnaire and still continue to answer the questions and likert scale. Even though these types of variables are uncontrollable, it is important to understand their existence in order to minimize their effect on the outcome of the study.

Another assumption that this study will be making is the validity and reliability of the drunk driving scale. During the literature search a measure of an individuals drinking and driving behavior was not discovered. Several scales measuring a
person’s risk-taking behavior were discovered, yet none of these scales were focused enough to incorporate into a predicting drinking and driving study. The author decided to construct his own unpublished and untested scale.

Although this study is a step in the right direction there are other problems and limitations. For example, the study will only be performed on Rowan University students who have received their driver’s license. Therefore the sample of the study will be very small and will lack a great deal of generalizability. Another limitation to the study is the lack of data from individuals who are younger than 18. Even though the author will be generalizing that the data collected from the study will reflect the 16-24 year old population, data from minors will not be collected.

OVERVIEW

There are several more aspects of the paper that will be revealed in the future including a review of literature, design of the study and analysis of results. The literature review will first focus on the past research of self-esteem’s role in drinking and driving. Then, the review will focus on the past research of locus of control’s role in drinking and driving. Finally, the literature review will center its attention on how self-esteem and locus of control have been used in the past to predict drinking and driving. The design of the study will also be discussed. The design section will display the process of how the study will be conducted including types of measures, sample size and testable hypothesis. Finally, the results of the study will be analyzed and described. It will be within the results section that the hypothesis will be supported or rejected.
CHAPTER II
LITERATURE REVIEW

LOCUS OF CONTROL

Originally developed within the framework of Rotter's (1954) social learning theory, the locus of control construct refers to the degree to which an individual believes the occurrence of reinforcements is contingent on his or her own behavior. The factors involved with reinforcement expectancy are labeled "external" and "internal" control. In short, internal locus of control refers to the perception of positive or negative events as being a consequence of one's own actions and thereby under one's own personal control. In contrast, external locus of control refers to the perception of positive or negative events as being unrelated to one's own behavior in certain situations and thereby beyond personal control. For example, if you failed a test in class, an individual with external locus of control would blame the failure on the teacher or possibly on the difficulty of the exam. An individual with internal locus of control would state that they failed the test because they were not prepared and did not study enough. As a general principle, the locus of control variable may be thought of as affecting behavior as a function of expectancy and reinforcement within a specific situation (Carlise-Frank, 1991).

The construct of locus of control has been used extensively in several fields of research. For example, Paddock, Terranova, Kwok & Halpern (2000) have recently studied factors that can lead an individual to become more open to suggestion.
Paddock et al performed a study in which participants were told a memory from childhood that a) they truly experienced or b) was completely fictional. The authors found evidence that suggested internal locus of control individuals were less susceptible to believing a fictional memory than their external counterparts. Therefore, Paddock et al. concluded that individuals with an external locus of control are more susceptible to suggestions when compared to internal locus of control individuals. Thus, it would be easier to win a debate or argument against an opponent who exhibits an external locus of control.

A second example of a study in which locus of control was used was designed by Kelly and Stack (2000). The research was conducted to discover the role of locus of control and adolescent self reported well being. Participants completed a questionnaire designed to investigate locus of control. After completing the questionnaire each participant was individually interviewed to investigate his or her perceptions of well being. Kelly and Stack discovered evidence to the effect that locus of control would account for a portion of the variance in adolescent happiness and satisfaction. They also found that individuals who were external in nature reported more positive feelings of happiness and satisfaction.

The two studies described above are simply two examples of the volumes and volumes of research that has included the construct of locus of control. The present study will focus on locus of control as a predictive variable. There is extensive research that has used locus of control as a predictive variable. A study conducted by Wang & Newlin (2000) investigated the predictive characteristics of locus of control and academic success. The authors investigated the effect this trait would have on the
success of college students enrolled in a web-based class in comparison to the conventional face-to-face classroom environment. Wang & Newlin hypothesized that the cyberstudents would be more externally controlled than the more internally controlled conventional student would. They found evidence that supported their hypothesis. A cyberstudent based their academic success on reported external forces such as a well-designed web site while the conventional student reported internal options such as hard work.

The predictive value of locus of control is also used in several studies of compliance of cognitive-behavioral therapy programs (Steel, Jones, Adcock, Clancy, Bridgeford-West & Austin (2000). Steel et al. specifically researched the reason why there is an extensive amount of individuals who do not complete cognitive-behavioral programs directed at eating disorder sufferers. They hypothesized several theories of which locus of control was used as a predictive variable. The results of the study suggested that family support, financial stability and locus of control were among the strongest predictive variables.

Another example of using locus of control as a predictive variable was used in Schat and Kelloway’s (2000) study of workplace violence and aggression. The authors noticed an increasing trend in the amount of aggression and violence that was happening in the occupational environment. The authors studied known offenders of workplace violence as well as individuals who were not offenders and therefore served as a control group. Schat and Kelloway discovered several personality traits that were common in the experimental group including emotional well being, health and anxiety. A significant amount of these individuals were also externally localized.
The authors then concluded that locus of control would be used as a predictive variable along with several other personality traits.

These studies are an excellent example of how to construct the current study. First, each respective author noticed a problem. They then found evidence for similar traits of why individuals behave in particular ways. Thus, each study discovered evidence that the personality trait locus of control can be used as part of a predictive questionnaire used to screen individuals who may be viewed as a threat of either violence in the workplace or patient non compliance.

Research has shown that locus of control can be used as a predictive variable. The present study focused on the predictive validity of an individual’s locus of control and their risk taking behaviors. Kohler (1996) conducted a study that directly looked at the relationship between a participant’s risk taking and locus of control. Specifically, the author created different scenarios ranging from low risk taking to high risk taking. Each participant of the study read the scenarios and using a likert scale reported their tendency to comply with each scenario. Kohler then gave each participant a locus of control scale, sensation seeking scale and a scale of critical thinking. The results of the study suggested evidence that external locus of control is positively correlated with risk taking. For example, an externally localized participant would comply with the scenario to seek out pleasure regardless of consequences more often than an internally localized individual would.

Arutto, Gottlieb, Webb & Neville (1994) conducted a second example of a study that incorporates locus of control and risk taking. Arutto et al. conducted a study investigating adolescent alcohol use and HIV risk-taking behavior. The sample
in this study was given a questionnaire and asked to report about several personal aspects of their lives including sexual activity past and present as well as past and present alcohol consumption. Arutto et al. found evidence which suggested that external locus of control participants were more likely to experiment with alcohol at a sooner age and in larger quantities as well as unsafe sexual practices such as unprotected casual sex. Therefore, the locus of control of an individual can be a helpful predictor of an individual's risk taking behavior.

The present study focused on using locus of control as a predictive variable of drink driving tendencies of participants. A study conducted by Boyd and Huffman (1984) investigated the relationship between emotional maturity and drinking and driving among young adults. Three hundred and twenty six students, divided into two age groups completed the Huffman Inventory of Emotional Immaturity and provided self-descriptive data concerning their alcohol use and drinking and driving involvement. Drunk driving behavior was found to be negatively correlated with emotional maturity, internal locus of control and risk consciousness. In other words, the study found evidence to support the theory that individuals who have an external locus of control are more likely to have the tendency to drink and drive. Boyd and Huffman concluded that schools need to include exercises in value clarification and decision making skills to help students develop responsible attitudes toward alcohol and drinking and driving.

Boyd and Huffman's study of emotional maturity and drinking and driving is very similar to the design of the present study. For example, first Boyd and Huffman investigated the relationship between personality traits and driving under the
influence. Second, the authors created a questionnaire that derived a locus of control score as well as information about personal aspects of their participant’s lives.

SELF-ESTEEM

Self-esteem is considered the evaluative component of self-concept. How you feel about yourself and how you feel others see you are aspects of an individual's self-esteem. An individual's self-esteem affects every aspect of a person's life. Because self-esteem is a very powerful personal trait, it has been used in several different types of studies. For example, Rosenthal, & Smith (1996) performed a study on adolescent's perceptions of health. The authors studied self-reports of high school students' perceptions of health and self-esteem while concentrating on factors such as peer relations, family environment, grades, and extracurricular activities. Rosenthal and Smith found that a participant's self-reported measurement of health and self-esteem were positively correlated with a stable family environment, success in school, and fulfilling peer relationships.

The previous study is an example of how the construct of self-esteem has been used in the past. The present study focuses on the predictive validity of self-esteem. There are several studies that have used self-esteem as a predictive variable. For example, Hoza, Owens, Pelham, Swanson, Conners, Hinshaw, Arnold, & Kraemer (2000) studied the relationship between the treatment outcome of a child diagnosed with attention deficit hyperactivity disorder along with their parent's cognitions and self-esteem. Hoza et al. discovered several interesting ideas including evidence that suggested a child diagnosed with ADHD would have a worse treatment outcome if
their parents suffer from low self-esteem. Thus, Hoza et al. concluded that parental self-esteem could be used in the prediction of the treatment outcomes of their children.

Bayne and Howe (2000) conducted a study that also investigated self-esteem’s predictive properties. Bayne and Howe specifically looked at factors that could influence a female college student to develop an eating disorder. Forty-six female athletes ranging from age seventeen to twenty four participated in the study. Participants were asked to complete a questionnaire describing what types of behaviors they were willing to put themselves through to become a better athlete. Results of the study found that self-esteem, body image and social pressure were significant predictors of an individual developing an eating disorder. Thus, an individual with lower self-esteem, poor body image and high social pressure would be more likely to develop anorexia or binge eating.

The previous two studies were a sample of a collection of work that has used self-esteem as a variable that could help predict an outcome. The present study focuses on the self-esteem as a predictive variable of a high risk-taking behavior. An example of a study, which examines the relationship between self-esteem and risk taking behaviors, was conducted by Mcgee and Williams (2000). Mcgee and Williams researched low self-esteem and predicting health-compromising behaviors among adolescents. This longitudinal study examined the predictive association between both global and academic self-esteem and a variety of health compromising behaviors. Participants were asked to complete the Self-Perception of Abilities Scale and measures of health compromising behaviors and background information. Mcgee and Williams found evidence that indicated levels of global self-esteem significantly
predicted adolescent report of problem eating, suicidal ideation, and several other multiple health compromising behaviors.

Another study that uses self-esteem in the prediction of a risk-taking behavior was conducted by Metha, Chen, Mulvenon & Dode (1998). Metha et al. studied a theoretical model of adolescent suicidal behavior for male and female high school students. The model consisted of five predictor variables which included depression, hopelessness, self-esteem and substance use. Data was collected via participants completing a questionnaire as well as an interview. Results revealed that all relationships were in the predicted direction. Thus, Metha et al. concluded that low self-esteem could be used to help predict an individual who is at suicide risk.

Past research has suggested a relationship between low self-esteem and a participant’s tendency to be involved in risk compromising behaviors. The current study focuses on the relationship between self-esteem and drinking and driving. Corbin, McNair and Carter (1996) conducted a study that looked at the direct relationship between problem drinking among male and female college students. Participants were classified into one of six categories ranging from abstinent to very heavy drinker. Corbin et al. then introduced a self-esteem scale to each participant. Significant differences in total alcohol consumption were found. The relationship between alcohol consumption and self-esteem was negatively correlated. Thus, the authors concluded that an individual with low self-esteem would have the tendency to become a problem drinker. Low self-esteem participants also reported they would be more likely to perform dangerous activities while consuming alcohol such as fighting, experimenting with drugs and driving a vehicle under the influence.
It was the current study's goal to replicate the findings of Corbin et al.'s research. This study will act as a template from which to design the present study. Therefore, a questionnaire which derives self-esteem data from participants will be used. The purpose of the study will be to discover evidence which suggests a relationship between self-esteem and an individual's tendency to drink and drive. Although the two studies are very similar, the present study will not require any participant to report how much alcohol they consume during a given period. The current study will focus its research on each participant's drunk driving tendencies as opposed to an individual's level of drinking. However, the present study will use self-esteem as a predictor variable of an individual's alcohol-related behaviors in comparison to that of Corbin et al.'s study.

**PREDICTING DRINKING AND DRIVING**

Drinking and driving is not a new problem. Accidents involving alcohol have been a reality for several decades. The long history of drinking and driving in this country has forced a great amount of study to be conducted. Research of the past has focused on specific factors which may lead an individual to drive a vehicle while under the influence. Unfortunately, a great deal of this past research has only focused on one variable: gender (Klaus, Hel; 1995, Nelson, Isaac, Kennedy, Graham, 1999, Marelich, Berger, McKenna, 2000). Today more than ever a new approach to investigate drinking and driving is needed due to recent research's suggestion that young adults are increasing in their tendency to drink and drive (Escobedo, L., Chorba, T., Waxweiler R., 1995, and Williams R.J., Ricciardelli L. A., 1999). In
order to eliminate the widespread problem of drinking and driving it is essential to investigate other factors that contribute to an individual's likelihood of driving under the influence.

In 1996, Grube and Voas conducted a study that specifically focused on predicting underage drinking and driving. The authors of this study collected data using a random telephone survey of 706 participants who ranged from 16-20 years old. Grube and Voas were specifically investigating reasons why underage individuals are more likely to drink and drive. Several interesting results were found. For example, Grube and Voas discovered evidence to suggest drivers did not regard driving after drinking a risk because their peers approved of their actions. A second influence of an adolescent's drinking and driving tendency was their perceptions of risk. Grube and Voas suggested that individuals who participate in risk-taking activities are also more likely to drive a vehicle while under the influence. The survey also suggested that the ease or difficulty of avoiding a DUI was the best predictor of an adolescent's tendency to drink and drive. Thus, an adolescent would be more likely to drink and drive if he/she believed it was possible to avoid interference from the authorities.

Feldman, Harvey, Holowaty and Short (1999) investigated drinking and driving by examining the alcohol use, beliefs and behaviors among college students. Feldman et al. identified specific alcohol use beliefs and behaviors among college students and determined whether relationships exist between alcohol use and various lifestyle behaviors. One of the specific lifestyle behaviors Feldman et al. were interested in was the tendency to drive a car while under the influence. They created a
questionnaire and randomly selected 62 classrooms in three universities. Feldman et al. found evidence to suggest that individuals who drink the most also participated in lifestyle behaviors which reflect their level of alcohol consumption. Students who drank heavily were more likely to drink and drive, to smoke daily and to have parents and friends who drink. Feldman et al. concluded that the level of an individual's drinking can be used as a predictor of lifestyle behaviors such as drinking and driving.

Trying to predict an individual who has a greater tendency to drink and drive is a very difficult task. The research described above is examples of studies which have struggled with the predictability of an individual's drinking and driving tendencies. Mookherjee (1984) has suggested the best way to predict if an individual will drink and drive is to study their personality traits. A study conducted by Donnovan D., Marlatt, A., and Satzberg, P. in 1983 was one of the first studies that specifically looked at the personality traits of a drinking driver. Donnovan et al. also investigated self-esteem, locus of control, demographic information and specific alcohol use. The results of the studies suggested men and women drink and drive relatively the same amount. They also suggested that age and marital status affects drinking and driving behavior. Thus, a single, younger adult is more likely to drink and drive when compared to an older married adult. When looking at the prevalence of alcohol use, Donnovan et al. suggested that those who drink alcohol routinely and those who have limited experience with alcohol are likely to drink and drive. The personality traits that were suggested to influence the tendency to drink and drive were aggressive individuals who had low self-esteem with an external locus of control. The results of the study suggest that the individual who is most likely to drink and drive is a single,
young individual who drinks alcohol on a regular basis with little experience as well as an external locus of control and low self-esteem. These characteristics are an identical match with those of a college student.

Another study which focused on personality traits and drinking and driving was conducted by Chwan-Shyang, Sirgo, and Thomure (1995). Chwan-Shyang et al. also looked at the effect of locus of control along with self-esteem on alcohol related activities. Chwan et al. investigated the drinking patterns in actual and hypothetical pleasant, unpleasant and neutral situations in 104 high school and college students. The authors created a questionnaire which included hypothetical and actual situations as well as a scale of self-esteem and locus of control. Chwan et al. found that the participants exhibiting an internal locus of control and high self-esteem were less likely to say they would drive or let themselves be driven after any of the actual or hypothetical situations. External locus of control individuals with low self esteem reported driving or allowing themselves to be driven by drinking drivers after neutral and/or pleasant situations.

Canger J., Gaskill H., Glad D., Hassel L., Rainey R. and Sawyer W. (1989) suggested that personality traits are the best way to predict a person who has limited experience with alcohol of the tendency to drink and drive. Canger et al. conducted interviews of 10 men who were responsible for two drinking and driving accidents during the past 4.5 year period. The age range of the men interviewed was 16-24 years. During the interview process each participant was given a measure of self-esteem and a measure of their internal/external locus of control. Canger et al. began to list all of the personality characteristics these 10 men had in common. The results of
this study showed 13 common personality characteristics. Canger et al. hypothesized that each of these common personality traits could act as a predictor of an individual’s tendency to drink and drive. The study found that two of the strongest predictors of an individual’s tendency to drink and drive were self-esteem and locus of control. Every participant in the study reported low self-esteem and an external locus of control. The results of this study provide evidence suggesting that a young adult who has low self esteem as well as an external locus of control will have a higher tendency to drink and drive.

SUMMARY OF LITERATURE REVIEW

Two specific personality traits have been extensively researched: Locus of Control and Self-esteem. Locus of control refers to the degree to which an individual believes the occurrence of reinforcements is contingent of his or her own behavior. Self-esteem refers to how an individual feels about themselves as well as how they think others perceive them. Locus of control and self-esteem have been significantly correlated in predicting drinking and driving (Donnovan D., Marlatt, A., and Satzberg, P, 1983, Chwan-Shyang, Sirgo, and Thomure, 1995, Canger J., Gaskill H., Glad D., Hassel L., Rainey R. and Sawyer W., 1989). The literature review first explored how each construct was used in the past. Second, how both locus of control and self esteem were used to predict outcomes was explored. Third, each construct’s prediction of high-risk activity was explored. Fourth, the relationship between each respective construct and predicting drinking was investigated. Finally, the relationship
between locus of control, self esteem and predicting drinking and driving was analyzed.

The previous research has focused on the ability to predict if a person has the tendency to drink and drive. Historically, gender was the factor which received the most attention in previous studies of drinking and driving (Klaus, Heli 1995, Nelson, Isaac, Kennedy, Graham, 1999, Marelich, Berger, McKenna, 2000). As the study of drinking and driving expanded, factors such as personality traits became more and more extensive. Research has recognized the importance of personality traits in drinking and driving and has suggested that personality traits may serve as the best predictor of an individual's drinking and driving behaviors (Mookherjee, 1984).

The previous studies are excellent examples of how to conduct the present study of predicting drinking and driving. Most of the previous research gathered data through the use of an interview and/or a questionnaire. This type of tool will also be incorporated within the present study. Past research has also demonstrated the importance of locus of control and self-esteem in a thorough investigation of predicting drinking and driving. These also will be incorporated within the present study.
CHAPTER III
DESIGN OF THE STUDY

SAMPLE
The participants of the study were 125 Rowan University registered students living on campus. All participants were between the ages of 18-24. Sex and geographical location were not examined. Participants were required to be at least 18 years old. Participants were obtained through the Office of Residential and Campus Life. The lead investigator was given permission to randomly ask people living in on campus housing to complete the questionnaire.

MEASURES
A 75-item questionnaire was created using three types of measures. The first is the Internal Control Index Scale (ICI) (Duttweiler, 1984) with an alpha level of .84. The ICI was developed and tested with several samples of junior college, university undergraduate, and continuing education students. The total subject pool was 1365 respondents of both sexes. The scale was used to measure the participant’s locus of control tendencies through 28 items. Lower scores revealed an external locus of control and higher scores revealed an internal locus of control. The participants filled in the blanks of the items by choosing the one of five options of a likert scale that best described them. The likert scale ranged from, Rarely (less than 10% of the time) to Usually (more than 90% of the time). Examples of questions were: “I ___ change
my opinion when someone disagrees with me” and “If I want something I _____ work hard to get it” (See Appendix A).

The second scale incorporated into the questionnaire was the Index of Self-Esteem (ISE) (Hudson, 1982). This scale was derived from tests of 1745 respondents which representative of the population. The ISE has a mean alpha level of .93 which indicates excellent internal consistency as well as a low standard error of measurement (SEM) of 3.70. The ISE has excellent validity in which clinicians have judged it to be superior to distinguish individuals who have problems in self-esteem from those who do not. The cutting score of 30 (+/- 5), with scores above 30 indicating the individual has a clinically significant problem and scores below 30 indicate the individual has no problem. The ISE is constructed using a likert scale in which participants filled in the blank with the corresponding option that best described them. The likert scale ranges from 1 = Rarely or none of the time to 5 = Most or all of the time. An example of a question is “I feel that I am a beautiful person” (See Appendix B).

The author of the paper also constructed a scale to measure the drinking and driving tendencies of each participant. The 10-item scale has never been published nor has it ever been used. Reliability or validity have not been investigated. The drinking and driving measure also uses a likert scale in which participants fill in the blank with the option that best describes them. The likert scale ranges from 0 = Never to 6 = Always. An example of an item within the scale is “I _____ allow myself to be driven by an intoxicated driver” (See Appendix C).
DESIGN

A 75-item take home questionnaire was constructed using the three measures described above. All questionnaires were placed within a 10 X 13-sealed brown envelope. A counterbalancing technique was used in which two forms of the questionnaire were created. Participants were asked to first read the informed consent form placed within the envelope (See Appendix D). The informed consent form explicitly detailed the rights of each respective participant and advised that the results of the questionnaire were to be kept completely confidential and anonymous. The participant then followed the directions for each section of the questionnaire by answering each question with the choice that best reflected their behavior. The participant then placed the informed consent form as well as the questionnaire back into the envelope and returned it to the lead investigator. The participant was then given the debriefing form to read (See Appendix E). The debriefing form explained to each participant what the purpose of the study as well as how each questionnaire was to be scored. All questionnaire data was placed within a statistical package for the social sciences (SPSS) format. Correlation results using a crosstabulation test were used. Analyses were conducted and the results are discussed.

TESTABLE HYPOTHESIS

Null Hypothesis – No correlation will be found between self-esteem, locus of control and drinking and driving.

Alternate Hypothesis - A positive correlation will be found between self-esteem, locus of control and drinking and driving.
ANALYSIS

The present study is a correlational study. Causation will not be investigated in this type of research. A correlation is used when comparing two or more variables usually termed X and Y. The correlation coefficient may take on any value between ± 1.00. The sign of the correlation coefficient (±) defines the direction of the relationship, either positive or negative. A positive correlation coefficient means that as the value of one variable increases, the value of the other variable increases or as one decreases the other also decreases. A negative correlation coefficient indicates that as one variable increases the other variable decreases, and vice-versa. Taking the absolute value of the correlation coefficient measures the strength of the relationship. A correlation coefficient of r = .50 indicates a stronger degree of linear relationship than one of r = .40. Likewise a correlation coefficient of r = -.50 shows a greater degree of relationship than one of r = .40. Thus a correlation coefficient of zero (r = 0.0) indicates the absence of a linear relationship and correlation coefficients of r = +1.0 and r = -1.0 indicate a perfect linear relationship.

SUMMARY

Past research has suggested a strong correlation between an individual’s self-esteem and locus of control in relation to the individuals drunk driving tendencies. Data has been gathered using a questionnaire created by the lead investigator from several Rowan University students. Each participant completed a measure of self-esteem, locus of control and drunk driving behavior. Each respective score was then
placed within an SPSS format in which a correlation was used to discover the
directionality, if any, of the correlation.
CHAPTER IV

ANALYSIS OF RESULTS

The purpose of this study was to discover evidence for a positive correlation between locus of control, self-esteem and drinking and driving. The drunk driving scale created by the author could not be used because reliability and validity were never tested. One question (I have a tendency to drive a car while under the influence) was chosen as the best representative to serve the purpose of the study. One hundred and twenty-five participants completed the questionnaire. A crosstabulation between locus of control, self-esteem and participant’s self-reported drunk driving behavior was analyzed (See Table 4.1 and 4.2).

External locus of control was hypothesized to be significantly and positively correlated with an individual’s tendency to drink and drive. Kendall’s tau-b resulted in a .360 approximate significance between Locus of Control and drunk driving behavior. The Spearman correlation resulted in a .311 approximate significance between Locus of Control and drunk driving behavior. The approximate significance of each analysis was not significant at the .05 level, which rejected the alternative hypothesis (See Figure 4.3). Thus, the results failed to reject the null hypothesis.
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### Figure 4.2

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<td>1</td>
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<tr>
<td>Total</td>
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<td>46</td>
<td>33</td>
<td>15</td>
<td>22</td>
<td>7</td>
<td>2</td>
<td>125</td>
</tr>
</tbody>
</table>
Self-esteem was hypothesized to be significantly and positively correlated with an individual’s tendency to drink and drive. Kendall’s tau-b resulted in a .773 approximate significance between Self-esteem and drunk driving behavior. The Spearman correlation between Self-esteem and drunk driving behavior resulted in a .789 approximate significance. The alternative hypothesis was rejected because the correlation was not significant at the .05 level (See Figure 4.4). The null hypothesis was also rejected.

Figure 4.4

<table>
<thead>
<tr>
<th>Symmetric Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Ordinal by</td>
</tr>
<tr>
<td>Ordinal</td>
</tr>
<tr>
<td>Interval by Interval</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
</tbody>
</table>

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.
Analysis of data also revealed that 63.2\% of the participants of this study "Very Rarely" or "Never" drink and drive. However, analysis of self-reported data found evidence that 36.8\% of the participants in this study drink and drive "Some of the time" or more (See Figure 4.5). The data of this analysis suggests that even though the conclusions in this study were not significant, there is a pressing need for a specific drunk driving intervention program designed for this population.

**Figure 4.5**

<table>
<thead>
<tr>
<th>Participant's Self-reported Drunk Driving Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Never</strong></td>
</tr>
<tr>
<td>36.8%</td>
</tr>
<tr>
<td><strong>Very Rarely</strong></td>
</tr>
<tr>
<td>26.4%</td>
</tr>
<tr>
<td><strong>A Little of the Time</strong></td>
</tr>
<tr>
<td>12.0%</td>
</tr>
<tr>
<td><strong>Some of the Time</strong></td>
</tr>
<tr>
<td>17.6%</td>
</tr>
<tr>
<td><strong>Most of the Time</strong></td>
</tr>
<tr>
<td>5.6%</td>
</tr>
<tr>
<td><strong>All of the Time</strong></td>
</tr>
<tr>
<td>1.6%</td>
</tr>
</tbody>
</table>

N = 125
CHAPTER V

SUMMARY AND CONCLUSIONS

SUMMARY

The use of alcohol has become an established aspect of the college experience. The amount of college students who drink on a regular basis is staggering. Due to the overwhelming amount of college students who drink, there has a recent increase in the detrimental effects of alcohol. Arguably the most dangerous risk-taking behavior caused by drinking alcohol is the tendency for an individual to drive while under the influence. Drinking and driving is the number one killer of the 16-24 age group. Every one of the deaths suffered caused by drinking and driving could be saved if an appropriate drinking and driving intervention program was implemented on this age group. Individuals who enter college are generally between these ages; thus the college student population serves as an excellent population to study a new drunk driving intervention program.

Drunk driving is not a new problem in this nation. For several decades there have been individual state and national laws banning drunk driving. There have also been intervention measures such as license suspension, sobriety checkpoints and lowering legal BAC to stop individuals from drinking and driving. However, these types of programs are only implemented after the crime of driving while under the influence has already been committed. Thus, these programs only stop individuals who get caught. They do not actually prevent individuals from drinking and driving.
What if it was possible to predict what types of individuals were more likely to drink and drive before they actually commit the crime? In order to implement this you must first discover what types of individuals are more likely to drink and drive. Research has already stated that individuals between the ages of 16-24 have a greater tendency to drink and drive when compared to other age groups. Past research has also suggested that certain personality traits lead an individual to have a greater tendency to drink and drive. Two of the most significant personality traits that predict an individual’s drinking and driving tendency are locus of control and self-esteem. These specific personality traits must then be incorporated in some way into an intervention program of the 16-24 age group.

The personality constructs of locus of control and self-esteem have been used extensively in the past in several past research studies. Locus of control refers to the degree to which an individual believes the occurrence of reinforcements is contingent on his or her own behavior. An individual can either be internally or externally localized. In short, internal locus of control refers to the perception of positive or negative events as being a consequence of one's own actions and thereby under one's own personal control. In contrast, external locus of control refers to the perception of positive or negative events as being unrelated to one's own behavior in certain situations and thereby beyond personal control. Self-esteem refers to how individuals personally feels about themselves and how the believe others perceive them. The best way to describe self-esteem is the degree to which you like yourself. Individuals who have high self-esteem like themselves more than individuals who suffer from low self-esteem.
Each of these personality constructs have been incorporated in research which suggests a relationship with an individual's risk-taking behaviors including drinking and driving. Specifically, research has suggested individuals who have an external locus of control and low self-esteem have a greater tendency to drink and drive compared to individuals who have an internal locus of control and high self-esteem. These conclusions were made by first measuring the locus of control and self-esteem of individuals who do drink and drive. Past research has suggested that these two personality constructs have been found in a significant amount of drunk driving offenders.

Most past research has focused on the relationship between external locus of control and risk-taking behavior. There is evidence that there is a positive correlation between risk-taking behavior and external locus of control. The specific risk-taking behaviors that the past research has suggested are linked to locus of control are drug use, promiscuous sex and excessive drinking. Research has also suggested that individuals who have an external locus of control are also more likely to drink and drive. Several past studies have measured the locus of control of drunk-driving offenders and found that a significant amount of them due in fact have external locus of control.

CONCLUSIONS

A significant correlation was not found between the variables of locus of control, self-esteem and drinking and driving. Even though a large percentage of individuals who completed the questionnaire reported that they have driven while
under the influence, it did not correlate well with the personality traits. The present study was not able to support the previous research.

DISCUSSION

The present study attempted to find evidence of a significant correlation between external locus of control, low self-esteem and drinking and driving. A questionnaire was created with a measure of locus of control and a measure of self-esteem and a measure of drunk driving behavior created by the author. 125 Rowan University students completed the questionnaire and the data was entered into an SPSS program. Analysis of the data did not suggest a significant correlation between the variables.

There are several reasons why the present study did not duplicate the findings of the past research. The first possible reason was the use of a measure of drunk driving behavior that was created by the author. During the literature review for this study, the author was not able to find a reliable and valid drunk driving scale that could be incorporated into the present study. The author decided to create his own measure in an attempt to continue the research. Ten questions were created by the author and were believed to reflect and measure what an individual would do when confronted with the task of driving while under the influence. Because this scale was never tested for reliability and validity it did not correlate well with the well-documented scales of self-esteem and locus of control.

A second possible explanation why the study did not support past research is the reluctance of participants to tell the truth on questionnaire, which queried about
private matters such as drinking and driving. It is very possible that of the 125 participants there were individuals who reported that they never drink and drive when in fact they do. Even though participants were kept completely anonymous they may have lied about their drinking and driving tendencies in an attempt to protect themselves. It is very difficult to ask people to be completely honest about activities that are deemed morally and socially wrong in our society. No one wants to make themselves look bad, especially when they are being scrutinized and studied.

A final explanation of the present study not supporting past research is the population that was used. The present study was only performed on Rowan University students who live on campus. It is quite possible that a Rowan University student who lives on campus is inherently different from their 16-24 year old peers that were used for the previous research studies. For example, Rowan University is generally considered to have a small campus. Therefore, the apartments and resident housing options, which are available to on campus students, are extremely close to areas where most students consume alcohol. The fact may be that the participants who were involved in the study simply do not drink and drive because they live within a comfortable walking distance to bars and fraternity and sorority houses.

**IMPLICATIONS FOR FUTURE RESEARCH**

The present study was a step in the right direction. However, there are several aspects that future research in the field of predicting drinking and driving must focus on. A scale that reliably measures an individual’s drinking and driving behavior is needed. Several scales are available which measure an individual’s risk-taking
behavior, yet there are no scales of drunk driving behavior. If there are scales available, they are not readily accessible enough for future research to implement.

Another implication for future research should focus on the need for a larger and more representative sample of participants. A true study of the drunk driving tendencies of the 16-24 age group should be done at a national level using several thousand participants from high schools and universities located throughout the country. Even though this is an extremely difficult process the results from this type of designed study will be more reliable and therefore conclusive.

A final implication for future research must focus on the specific use of personality traits into designed drinking and driving intervention programs. It may be possible to give each licensed driver a self-esteem and locus of control scale of measurement. Individuals who score low in self-esteem and high in external locus of control can be given special attention in intervention programs. For example, an intervention program that is designed for low self-esteem, externally localized individuals can be created. Since these individuals are those who are most likely to drink and drive, specific programs can be given to them. By telling someone that they are more likely to drink and drive because of their personality traits even before they are given a license, it may be possible to stop that person from ever putting themselves in a situation where they would be forced to drink and drive. For example, individuals who were found to be more likely to drink and drive could be given counseling which introduces alternative options to drinking and driving to the newly licensed driver. By the time this individual entered college, where they may experience increased
exposure to alcohol and independence, they will have a working knowledge of alternatives to drinking and driving that are specifically designed to meet their needs.
REFERENCES


APPENDIX A

LOCUS OF CONTROL SCALE
Please complete the following questionnaire and return within 48 hours. There are three sections of the questionnaire, each including a set of instructions. Of course, there are always situations in which you may act differently, but think of what you would do or feel in most normal situations. Write the number that describes your usual attitude or behavior in the space provided.

Please read each statement. Where there is a blank, decide what your normal or usual attitude, feeling, or behavior would be:

1 = Rarely (less than 10% of the time)
2 = Occasionally (about 30% of the time)
3 = Sometimes (about half of the time)
4 = Frequently (about 70% of the time)
5 = Usually (more than 90% of the time)

1. When I am faced with a problem I _____ try to forget it.
2. I _____ need frequent encouragement from others for me to keep working at a difficult task.
3. I _____ like jobs where I can make decisions and be responsible for my own work.
4. I _____ change my opinion when someone I admire disagrees with me.
5. If I want something I _____ work hard to get it.
6. I _____ prefer to learn the facts about something from someone else rather than dig them out myself.
7. I will _____ accept jobs that require me to supervise others.
8. I _____ have a hard time saying "no" when someone tries to sell me something I don't want.
9. I _____ consider the different sides of an issue before making any decisions.
10. What other people think _____ has a great influence on my behavior.
11. Whenever something good happens to me I _____ feel it is because I've earned it.
12. I _____ enjoy being in a position of leadership.
13. I _____ need someone else to praise my work before I am satisfied with what I have done.
14. I am _____ sure enough of my opinions to try and influence others.
15. When something is going to affect me I _____ learn as much about it as I can.
16. I _____ decide to do things on the spur of the moment.
17. For me, knowing I've done something well is _____ more important than being praised by someone else.
18. I _____ let other people's demands keep me from doing things I want to do.
1 = Rarely (less than 10% of the time)
2 = Occasionally (about 30% of the time)
3 = Sometimes (about half of the time)
4 = Frequently (about 70% of the time)
5 = Usually (more than 90% of the time)

19. I _____ get discouraged when doing something that takes a long time to achieve results.
20. When part of a group I _____ prefer to let other people make all the decisions.
21. When I have a problem I _____ follow the advice of friends and relatives.
22. I _____ stick to my opinions when someone disagrees with me.
23. I _____ enjoy trying to do difficult tasks more than I enjoy trying to do easy tasks.
24. I _____ prefer situations where I can depend on someone else’s ability rather than just my own.
25. Having someone important tell me I did a good job is _____ more important to me than feeling I’ve done a good job.
26. When I’m involved in something I _____ try to find out all I can about what is going on even when someone else is in charge.
27. I _____ like to have a say in any decisions made by any group I’m in.
28. I _____ do what I feel like doing not what other people think I ought to do.
APPENDIX B
SELF ESTEEM SCALE
These questions are designed to measure how you see yourself. It is not a test, so there are no right or wrong answers. Please answer each item as carefully and accurately as you can by placing a number by each item as follows:

1 = Rarely or none of the time
2 = A little of the time
3 = Some of the time
4 = A good part of the time
5 = Most or all of the time

29. ___ I feel that people would not like me if they really knew me well.
30. ___ I feel that others get along much better than I do.
31. ___ I feel that I am a beautiful person.
32. ___ When I am with other people I feel that they are glad I am with them.
33. ___ I feel that people really like to talk to me.
34. ___ I feel that I am a very competent person.
35. ___ I think I make a good impression on others.
36. ___ I feel that I need more self-confidence.
37. ___ When I am with strangers I am very nervous.
38. ___ I think that I am a dull person.
39. ___ I feel ugly.
40. ___ I feel that others have more fun than I do.
41. ___ I feel that I bore people.
42. ___ I think my friends find me interesting.
43. ___ I think that I have a good sense of humor.
44. ___ I feel very self-conscious when I am with strangers.
45. ___ I feel that if I could be more like other people I would have it made.
46. ___ I feel that people have a good time when they are with me.
47. ___ I feel like a wallflower when I go out.
48. ___ I feel I get pushed around more than others.
49. ___ I think I am a rather nice person.
50. ___ I feel that people really like me very much.
51. ___ I feel that I am a likable person.
52. ___ I am afraid I will appear foolish to others.
53. ___ My friends think very highly of me.
APPENDIX C

DRINKING AND DRIVING BEHAVIOR SCALE
Please answer the following questions truthfully and honestly. All answers will be kept completely confidential. Place the number in the space provided which best describes your experience.

1 = Never
2 = Very rarely
3 = A little of the time
4 = Some of the time
5 = Most of the time
6 = All of the time

54. _____ I have a tendency to drive a car while under the influence.
55. _____ I plan ahead and seek out alternative methods of getting home other than drinking and driving.
56. _____ I use a designated driver to avoid drinking and driving.
57. _____ I prefer to walk home after drinking.
58. _____ I have stopped my friends from drinking and driving.
59. _____ I drink and drive because it is the only way I can get home.
60. _____ I consider myself a more cautious driver when driving my car under the influence of alcohol.
61. _____ I allow my friends whom have been drinking to drive me home.
62. _____ I allow friends whom have been drinking to drive themselves home.
63. _____ I believe I can drive an automobile well enough to get home after drinking.
Informed Consent Form

I agree to participate in a study entitled “Predicting College Student Drinking and Driving”, which is being conducted by Pete Arsenault of the School Psychology Department, Rowan University. The purpose of this study is to discover if there is a correlation between locus of control, self-esteem and drunk driving. The data collected in this study will be used in a Masters Degree thesis.

I understand that I will be required to complete a questionnaire. My participation in the study should not exceed half an hour.

I understand that my responses will be anonymous and that all the data gathered will be confidential. I agree that any information obtained from this study may be used in any way thought best for publication or education provided that I am in no way identified and my name is not used.

I understand that there are no physical or psychological risks involved in this study, and that I am free to withdraw my participation at any time without penalty.

I understand that my participation does not imply employment with the state of New Jersey, Rowan University, the principal investigator, or any other project facilitator.

If I have any questions or problems concerning my participation in this study I may contact Pete Arsenault at (856)-256-7181.

(Signature of Participant) ___________________ (Date) __________

(Signature of Investigator) ___________________ (Date) __________
APPENDIX E

DEBRIEFING FORM
The purpose of the study you have just completed is how personality traits can predict drinking and driving behavior. Specifically, whether an individual's locus of control and self-esteem are predictors of an individual's tendencies to drive while under the influence. The questionnaire you have just completed is one of the evaluation components that will allow assessments of students' attitudes and behaviors concerning drinking and driving. Such information will be important for understanding Rowan University's needs for intervention efforts as well as for developing future drinking and driving awareness programs.

There have been several previous studies that have suggested a link between an individual's personality type and drunk driving tendencies. Donnovan D. et al (1983) suggested that personality traits are the best way to predict an individual's tendency to drink and drive. Literature has also found evidence that an individual's locus of control and self-esteem can also effect an individual's drunk driving tendencies (Canger J. et al, 1989). Thus, discovering an individual's locus of control and self-esteem can act as a determinant of an individual's drunk driving behavior.
