THE RELATIONSHIP BETWEEN SELF-REPORTED DRIVING ANGER AND LOCUS OF CONTROL BY GENDER

DAVID ALAN YINGLING

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ABSTRACT

Research has suggested that anger experienced while driving may influence driving behaviors and accident risk. An instrument, the Driving Anger Scale (Deffenbacher, Oetting, & Lynch, 1994), has been developed to assess the amount of anger people experience while driving. In a previous study, the Driving Anger Scale appeared to be a valid predictor of anger frequency, anger intensity, and the number of aggressive and risky behaviors engaged in while driving for females, but not for males (Yingling, 1994). An examination of the Driving Anger Scale's content reveals that the questions comprising it may be interpreted as external events happening to the person where there is no personal control over the situation. Previous research has shown that females exhibit higher levels of external locus of control than males (McGinnies, Nordholm, Ward, & Bhanthumnavin, 1974; Parsons & Schneider, 1974).

The present study examined the relationship between the Driving Anger Scale and a measure of locus of control by gender. Driving Anger Scale scores were correlated with scores on measures of internality and externality. The strength of correlations between the Driving Anger Scale and measures of externality were expected to be stronger for females than for males. The strength of these correlations were expected to be greater than the correlations between the Driving Anger Scale and measures of internality for both males and females. Had the hypotheses been supported, it may have been inferred that

the Driving Anger Scale is biased in content towards external situations, thereby explaining potential gender differences.

Correlational analysis between the Driving Anger Scale scores and measures of locus of control revealed no statistically significant relationships between the two measures for females or males. Due to the nonexistence of statistically significant relationships between the two measures, the hypotheses were not confirmed and it cannot be inferred that the Driving Anger Scale is biased in content towards externally based situations. Subsequently, apparent gender differences can not be explained. Suggestions for future research with the Driving Anger Scale are discussed.

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CHAPTER I

INTRODUCTION

Automobile driving is an essential and integral part of Western society. Auto accidents are virtually inevitable, and the cost of these motor vehicle accidents to society is profound. According to the National Safety Council (1992a), vehicular accidents are the leading cause of death for people under the age of 25, and there are a total of 43,500 deaths and 1,600,000 disabling injuries per year due to motor vehicle accidents. Additionally, the cost to society annually equates to $96.1 billion in lost wages, workers' compensation, and health care. To bring these costs into clearer focus, the National Safety Council (1992b) estimated that the 1991 per case cost of motor vehicle related deaths was $450,000 and nonfatal incapacitating injuries was $42,400. Such statistics have prompted researchers to study the impact of various factors upon driving behavior and accident risk (e.g., alcohol consumption, speed limits, and mandatory seat belt laws).

There are many other components which may influence driving behavior and accident risk; among them are personality and emotion. These factors are of such importance that they are highlighted in the Guide For Teacher Preparation In Driver Education (National Highway Traffic Safety Administration, 1975) which states that "transient emotional states" will influence driver performance. Among a few emotions mentioned, anger was given special

attention. It states that drivers who are angry tend to vent their feelings while behind the wheel and display a lack of courtesy and overt hostility toward other drivers.

This display of aggression and hostility has been linked to an increase of high risk driving behaviors and risk of an automobile accident. For example, Schuman, Pelz, Ehrlich, and Selzer (1967) found that a significant percentage of male drivers experience angry, expressive emotions while driving, and that these drivers were more frequently involved in accidents and many received moving violations. Schuman et al. interviewed male drivers between the ages of 16 and 24 concerning their driving habits, attitudes, accidents, and violations. They found that from 40% to nearly 70% of males within this specified age bracket measured high on two to six measures of impulse expression characterized by anger, daredevil driving, speeding, risky driving practices, and anger in three or more traffic situations (e.g., red lights, slow drivers, and pedestrians). Not only did these drivers experience more angry feelings, but they also were riskier drivers with over 65% of the respondents measuring high on impulse expression having two or more accidents in the last year. Even more striking was the finding that 70% of the respondents who received seven points or more on their driver's license due to moving violations in one year also measured high on impulse expression.

In another study, a self-administered questionnaire was given to 532 male drivers over the age of 20. The assessment of aggression was based on a

selected pool of ten items from the Buss aggression scale (Buss, 1961) and questions regarding physical aggression. It was found that compared with paranoia, depression, and suicidal tendencies, aggression was the only major personality variable significantly and positively correlated with accident occurrence, with drivers in general as well as alcoholic drivers (Selzer & Vinokur, 1974). In other research, young men with high general hostility levels had about 9 more crashes per 100 drivers, and 40 more violations per 100 drivers than those with low hostility (Pelz & Schuman, 1974). These statistics support the hypothesis that for young males in particular, high levels of hostility can result in high risk behavior, ultimately resulting in more frequent traffic violations and accidents.

Donovan, Quesser, Salzberg, and Umlauf (1985) conducted a study in which three groups of male drivers were compared. The first group consisted of volunteer drivers from a sample of driving while under the influence (DWI) arrestees attending an alcohol education program. The second group consisted of volunteer drivers with multiple non-alcohol related accidents and violations who were attending a traffic safety education program. The third group consisted of drivers from the general driving population. Each group responded to an extensive self-report questionnaire, measuring demographic, drinking, attitudinal, and personality factors. Donovan et al. found that the respondents in the high risk driving group scored higher on measures of driving aggression and hostility (e.g., assaultiveness, indirect and direct hostility, irritability, and

resentment) than both the general driving population and the DWI groups. This study provides more evidence that aggression and anger may be linked with driving risk.

In subsequent research, Donovan, Umlauf, and Salzberg (1988) surveyed 301 male subjects from a traffic safety education program, and through cluster analyses of driving attitude, personality, and hostility measures, derived three types of high risk drivers. Type one was the most psychologically well adjusted group of individuals and had the lowest levels of aggression and emotionality. Type two was best characterized by impulsivity, acting out behavior, high levels of assaultiveness, and verbal hostility. Type three had high levels of emotional distress (dysphoria and depression) and high levels of covert hostility and irritability. Their findings showed that cluster type two measured highest on general hostility and aggression measures, and cluster type three scored higher on measures of driving related aggression. Interestingly, type three scored higher than type two on a driving risk index. Donovan et al. suggested that expressions of general overt hostility, aggression, and anger are trait characteristics associated with increased driving risk, but an aggressive attitude while driving through which acute and chronic anger are expressed (state anger) tend to be better associated with increased driving risk.

These studies suggest that trait aggressiveness, hostility, and anger are generally related to risky driving behavior and increased accident risk. These studies, however, tend to use general measures of hostility, aggression,

impulsive behavior, and angry emotions to predict risky driving behavior and accident risk. What these studies do not attempt to examine is the relationship of a specific measure of driving anger with increased risky driving behavior and accident risk.

According to Deffenbacher, Oetting, and Lynch (1994), driving anger is conceptualized as a personality trait that is related to general trait anger, but is narrower in scope as it is more situationally and contextually bound. In order to make this concept more clear, Deffenbacher et al. gave an analogy of driving anger compared with anxiety. Just as there is general or trait anxiety, there also are situation-specific anxieties such as test or speech anxieties. Driving anger was defined as more frequent and intense anger as a result of certain situations that occur while operating a motor vehicle. Deffenbacher et al. developed the Driving Anger Scale which was designed to measure the amount of personal anger one generally experiences while operating a motor vehicle (see Appendix A). The scale is useful in exploring driving anger as a personality variable, and it has been used to determine how trait driving anger relates to state driving anger and actual aggressive or risky driving behaviors.

In one study, trait driving anger was shown to be significantly related to state driving measures such as frequency of angry feelings, intensity of anger experienced, aggressive driving behaviors, and risky driving practices (Lynch, Deffenbacher, Oetting, & Yingling, 1995). Subjects were 179 students in an upper division abnormal psychology class at a large western university. By

administering the Driving Anger Scale and correlating the scores with a driving log, Lynch et al. reported that for the total group, general trait anger (Spielberger, 1988), and trait driving anger both tended to correlate significantly with state measures of anger frequency, anger intensity, aggressive behaviors, and risky behaviors while driving. However, by combining males and females into the total group for correlational analysis, these general findings have obscured potential gender differences.

Yingling (1994) correlated scores from the Driving Anger Scale and a driving log which measured subjects' actual frequencies and intensities of anger experienced while driving, and numbers of aggressive and risky behaviors the subjects engaged in while driving. It was found that for females, trait driving anger was significantly correlated with anger frequency, anger intensity, aggressive behaviors, and risky behaviors, whereas general trait anger was not. For males, this pattern was reversed. General trait anger was significantly correlated with anger frequency, anger intensity, aggressive behaviors, and risky behaviors, whereas trait driving anger tended not to relate to these state measures.

The purpose of the current study was to identify factors which may influence the relationship between the Driving Anger Scale and anger frequency, anger intensity, aggressive driving behaviors, and risky driving behaviors differently for males and females. An examination of the Driving Anger Scale's content reveals that the questions that comprise it reflect situations that may be

interpreted as external events that are happening to the person when there is no personal control over the situation (see Appendix A). It is possible then, that these apparent gender differences are partially influenced by locus of control. Locus of control is a term that describes the perception of an individual's destiny as either influenced by factors within one's personal control (internally controlled), or influenced by factors beyond one's personal control, and influenced by fate, luck, or chance (externally controlled)(Rotter, 1966).

Utilizing the Internal-External Locus of Control Scale (Rotter, 1966), McGinnies, Nordholm, Ward, and Bhanthumnavin (1974), found that females held a higher belief in external control of their lives than did males. This finding suggests potential gender differences regarding internal-external locus of control. Similar findings were reported in another study (Parsons & Schneider, 1974). Females generally reported higher levels of external perception of control, whereas males reported higher levels of internal perception of control. Additionally, these findings were shown to be consistent across eight countries, allowing for cross cultural generalization.

A literature review by Donovan, Marlatt, and Salzberg (1983) summarizes prior research regarding how different psychosocial variables are linked to the risk of involvement in traffic accidents. The research suggests that specific personality traits such as expression of overt hostility or aggression and perceived external locus of control are related with increased accident risk.

Specifically, in 1982, Donovan and Marlatt published a study summarizing

how different personality types relate to driving risk among DWI offenders. A ten item scale was utilized to interpret perceived causality or responsibility for automobile accidents. The scale was deemed analogous to Rotter's (1966) general measure of internal versus external locus of control. The responses were assumed to represent a driving related locus of control scale. Donovan and Marlatt found that subjects who perceived an external locus of control were higher in driving aggression and risk. Those who perceived an internal locus of control tended to show the lowest levels of driving aggression and risk. One limitation of this study was that the sample was limited to male DWI offenders, limiting the finding's generalizability to females.

If then, it is understood that females generally report higher levels of external perception of control, and that external perception of control has been linked with an increase in driving aggression and driving risk, the apparent gender differences regarding the Driving Anger Scale and the relationship of the scale's scores with the state measures of anger frequency, anger intensity, aggressive and risky driving may be due in part to the scale's content. Again, the questions that make up the Driving Anger Scale reflect situations that may be interpreted as external events that are happening to the person, lacking personal control. It is possible that the scale appears valid for predicting state driving measures for females because of the externally based situations.

The present study examined the relationship between the Driving Anger Scale and a measure of locus of control by gender. The measure that was used

is the Internal, Powerful Others, and Chance Scales (Levinson, 1974; 1981) (see Appendix B). Despite the fact that the Rotter (1966) scale is widely used in research, for the purpose of this study, the Internal, Powerful Others, and Chance Scales may be better suited to distinguish between externality as a factor of other people's power, and externality as a factor of chance (Levinson, 1981).

The first hypothesis was that for females, there would be a greater relationship between measures of externality and Driving Anger Scale scores than for males. The second hypothesis was that for males and females, the strength of the correlations between measures externality and Driving Anger Scale scores would be greater than the strength of the relationship between a measure of internality and Driving Anger Scale scores. The third hypothesis was that for males and females, Driving Anger Scale scores would be better correlated with external Powerful Others than with external Chance.

Had the first two hypotheses were true, it could have been inferred that the Driving Anger Scale may be biased in content towards externally based situations, thereby explaining in part the apparent gender difference in the Driving Anger Scale's ability in predicting frequency and intensity of angry episodes while driving and aggressive or risky driving behaviors. Had the third hypothesis been true, then it could have been inferred that the Driving Anger Scale is biased toward external Powerful Others.

CHAPTER II

METHOD

Hypotheses

1. The correlations of scores on the Powerful Others and Chance Scales with Driving Anger Scale scores will be stronger for females than for males.

2. The correlations of scores on the Powerful Others and Chance Scales with Driving Anger Scale scores will be stronger than the correlation of scores of the Internal Scale with Driving Anger Scale scores for both males and females.

3. Driving Anger Scale scores will be better correlated with scores on the Powerful Others Scale than with the Chance Scale.

Subjects

Subjects were 53 male and 55 female undergraduate students enrolled in Psychology of Adjustment and General Psychology courses at Austin Peay State University, fall semester 1995. Psychology of Adjustment and General Psychology courses were chosen because undergraduate students from a variety of majors take the course, therefore the sample is more likely to be representative of the general university population. Participation in this study was voluntary, and subjects received extra credit for participation in the study.

Instruments

Driving Anger Scale (Deffenbacher et al., 1994). The short form of the Driving Anger Scale is a set of 14 questions about driving anger (see Appendix A). These questions represent common, potentially provocative driving situations. Subjects are asked to imagine each incident as if it was actually happening to them and to indicate the extent it would anger or provoke them. Driving Anger Scale questions reflect situations like: "Someone drifts over into your lane", "Someone runs a yellow light", and "Someone is driving too slowly in the passing lane holding up traffic." Ratings are made on a Likert-type scale (1 = not at all; 2 = a little; 3 = some; 4 = much; 5 = very much) according to the degree of anger elicited. The total possible score for the Driving Anger Scale ranges between 14 and 70. The short form of the Driving Anger Scale has an alpha reliability of .80, providing an internally consistent measure of driving anger as a general trait (Deffenbacher et al., 1993) and correlates .96 with the long form.

Internal, Powerful Others, and Chance Scales (Levinson, 1974;1981). Each of the Internal, Powerful Others, and Chance Scales are eight item six point likert-type scales (+3 = agree strongly; +2 = agree somewhat; +1 = agree slightly; -1 = disagree slightly; -2 = disagree somewhat; -3 = disagree strongly) that assess perceived internal locus of control, external locus of control by powerful others, and external locus of control by chance factors (see Appendix B). Scores on each scale could possibly range from 0-48. All three scales are

presented to subjects as one attitude scale of 24 items. Split-half reliability for the Internal, Powerful others, and Chance scales range from .62 to .66, and test-retest reliability range from .64 to .78.

Procedure

The option of participation in this study was presented to students enrolled in undergraduate Psychology of Adjustment and General Psychology classes. Interested students completed an informed consent form describing the nature, possible risk, and benefits of this study (see Appendix C). Subjects were informed of their right to voluntary participation and termination, and how confidentiality will be assured to each participant.

Although demographic information has been obtained (see Appendix D), the only information that was used in the analysis was gender. Student anonymity was protected by having the student's name and social security number placed on an extra-credit slip and handed in separately from the scales.

Identification numbers were placed on both the Driving Anger Scale and Internal, Powerful Others, and Chance Scales to allow matching of the data. If the instructor gave consent, extra-credit was awarded to each subject, based on the subject's name and social security number, which was handed in separately from the scales.

After completing the informed consent form, participants filled out the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales in class. The Driving Anger Scale and the Internal, Powerful Others, and Chance

Scales were stapled together. Half of the subjects were presented with the Driving Anger Scale first, and the Internal, Powerful Others, and Chance Scales second. The other half of the subjects were presented with the Internal, Powerful Others, and Chance, Scales first, and the Driving Anger Scale second. This was minimize the possibility of instrumentation order effects.

Statistical analyses

The scores on the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales appeared normally distributed (parametric), therefore, the relationships between these measures for females and males was examined using Pearson's R correlation coefficient.

CHAPTER III

RESULTS

Means and standard deviations of female scores on the Driving Anger Scale, and the Internal, Powerful Others, and Chance Scales are presented in Table 1. Means and standard deviations of male scores on the Driving Anger Scale, and the Internal, Powerful Others, and Chance Scales are presented in Table 2.

Table 1

Means and Standard Deviations of scores on the Driving Anger Scale, and the Internal, Powerful Others, and Chance Scales for Females

Measures	Mean	Standard Deviation
Driving Anger Scale	47.29	9.49
Internal	34.40	5.83
Powerful Others	17.58	8.09
Chance	17.31	8.01

Table 2

Means and Standard Deviations of scores on the Driving Anger Scale, and the Internal, Powerful Others, and Chance Scales for Males

Measures	Mean	Standard Deviation
Driving Anger Scale	44.30	8.52
Internal	37.08	6.52
Powerful Others	18.19	8.87
Chance	18.30	8.52

Means and standard deviations on the Driving Anger Scale for both females and males are similar to those reported in other studies. Deffenbacher et al. (1994) reported means near 47 and standard deviations near 8. Yingling (1994) reported means near 42 and standard deviations ranging from seven to eight. Means and standard deviations on the Internal, Powerful Others, and Chance Scales for both females and males also are similar to those reported in other studies. Levinson (1981) cited several studies with undergraduate subjects on which the Internal scale means ranged from 33 to 36 and standard deviations ranged from 5 to 7. The Powerful Others and Chance Scales' means ranged from 17 to 20, and standard deviations ranged from 7 to 9.

Correlations between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for females are presented in Table 3. Correlations between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for males are presented in Table 4.

Table 3

Relationships between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for Females

Measures	Pearson's R Correlation Coefficients			
	1	2	3	4
1. Driving Anger Scale	-	-.091	.029	-.051
2. Internal		-	-.003	.067
3. Powerful Others			-	.590*
4. Chance				-

*p<.01

Table 4

Relationships between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for Males

Measures	Pearson's R Correlation Coefficients			
	1	2	3	4
1. Driving Anger Scale	-	-.001	.232	.214
2. Internal		-	-.028	-.161
3. Powerful Others			-	.740*
4. Chance				-

*p<.01

Examination of the correlations between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for females shows that the only statistically significant relationship exists (where p<.01) between the Powerful Others and Chance Scales. Examination of the correlations between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales for males also shows that the only statistically significant relationship exists (where p<.01) between the Powerful Others and Chance Scales. All other correlations were statistically non-significant.

CHAPTER IV

DISCUSSION

The results indicate that there are no statistically significant correlations between the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales. It appears that the Driving Anger Scale and the Internal, Powerful Others, and Chance Scales are completely unrelated instruments, as each measures a totally different construct than the other.

The first hypothesis was that for females, there would be a greater relationship between measures of externality and Driving Anger Scale scores than for males. The second hypothesis was that for males and females, the strength of the correlations between measures externality and Driving Anger Scale scores would be greater than the strength of the relationship between a measure of internality and Driving Anger Scale scores. The third hypothesis was that for males and females, Driving Anger Scale scores would be better correlated with external Powerful Others than with external Chance.

Due to the nonexistence of statistically significant relationships between the two measures, the three hypotheses were not confirmed. Because the first two hypotheses were not confirmed, it cannot be inferred that the Driving Anger Scale is biased in content towards externally based situations. Subsequently, the apparent gender difference in the Driving Anger Scale's ability in predicting frequency and intensity of angry episodes while driving and aggressive or risky driving behaviors can not be explained. Because the third hypothesis was not confirmed, it may not be inferred that the Driving Anger Scale is biased toward

external Powerful Others.

The only statistically significant correlation between any of the measures was the relationship between the Powerful Others and Chance scales for both females and males. This relationship was expected, because each is a measure of external locus of control. This relationship is similar to those reported in Levinson's (1981) article, with correlations ranging from .41 to .60.

It is possible that other factors influenced the outcome of this study. Both the Driving Anger Scale and the Internal, Powerful Others and Chance Scales are self-report measures. The use of self-report instruments has inherent limitations such as response bias or acquiescence, as well as the potential for subjects to report socially acceptable responses.

Additionally, the sample consisted of undergraduate university students, who may drive infrequently, if they drive at all. This may have impacted the data because subjects may not have been able to accurately recall or assess the amount of anger they experience while driving. Furthermore, it is possible that the results were biased due to the fact that the research was conducted at a small college where the subjects may commute from semi-rural areas. The results might have been different if the study had been conducted at a large university in an urban area.

Finally, previous research with the Driving Anger Scale has been conducted exclusively with undergraduate college students as subjects. In order to allow the Driving Anger Scale to be generalizable to the general population, it needs to be further researched utilizing different subject populations (e.g. adults

and senior citizens).

Future research with the Driving Anger Scale might allow for a better understanding of the anger one experiences while driving a motor vehicle. As more is learned about automobile driving anger, it may be possible to design clinical interventions that would reduce the amount of anger one experiences behind the wheel. If it is possible to reduce the amount of anger experienced by automobile drivers, then aggressive and risky driving behaviors could be minimized, thereby lowering accident rates.

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APPENDICES

Appendix A: Driving Anger Scale

Because driving may be a serious health risk, we are surveying situations which may bother you or anger you when you are driving. Try to imagine the incident described in items 1 - 14 actually happening to you, then indicate the extent to which it would anger or provoke you.

Please rate each incident according to the following scale:

A) Not at all
B) A little
C) Some
D) Much
E) Very much

1.	Someone drifts over into your lane.	A B C D E
2.	Someone runs a yellow light.	A B C D E
3.	Someone is driving too slowly in the passing lane holding up traffic.	A B C D E
4.	You are not able to find a parking spot.	A B C D E
5.	Two cars have stopped in the middle of the street so the drivers can talk.	A B C D E
6.	Someone is weaving in and out of traffic	A B C D E
7.	Someone cuts in front of you on the highway.	A B C D E
8.	Someone cuts in and takes the parking spot you have been waiting for.	A B C D E
9.	A slow vehicle on a mountain road will not pull over and let people by.	A B C D E
10.	Someone in front of you does not ease into the intersection to make a left turn.	A B C D E
11.	A jogger running out in the road.	A B C D E
12.	Someone cuts across more than one lane at a time.	A B C D E
13.	You pass a radar speed trap.	A B C D E
14.	Someone speeds up when you try to pass them.	A B C D E

Appendix B: Internal, Powerful Others, and Chance Scales

Directions:

On the following two pages is a series of attitude statements. Each represents a commonly held opinion. There are no right or wrong answers. You will probably agree with some items and disagree with others. We are interested in the extent to which you agree or disagree with such matters of opinion.

Read each statement carefully. Then indicate the extent to which you agree or disagree by circling the number following each statement. The numbers and their meanings are indicated below:

If you agree strongly: circle +3
If you agree somewhat: circle +2
If you agree slightly: circle +1

If you disagree slightly: circle -1
If you disagree somewhat: circle -2
If you disagree strongly: circle -3

First impressions are usually best. Read each statement, decide of you agree or disagree and the strength of your opinion, and then circle the appropriate number.

GIVE YOUR OPINION ON EVERY STATEMENT

If you find that the numbers to be used in answering do not adequately reflect your own opinion, use the one that is closest to the way that you feel.

Thank you.

Appendix B (continued)

INTERNAL, POWERFUL OTHERS, AND CHANCE SCALES

Please circle the number below which you think best represents the degree to which you agree or disagree with each statement.

Strongly Disagree -3	Disagree Somewhat -2	Slightly Disagree -1	Slightly Agree +1	Agree Somewhat +2	Strongly Agree +3

1) Whether or not I get to be a leader depends mostly on my ability.	-3	-2	-1	+1	+2	+3
2) To a great extent my life is controlled by accidental happenings.	-3	-2	-1	+1	+2	+3
3) I feel like what happens in my life is mostly determined by powerful people.	-3	-2	-1	+1	+2	+3
4) Whether or not I get into a car accident depends mostly on how good a driver I am.	-3	-2	-1	+1	+2	+3
5) When I make plans, I am almost certain to make them work.	-3	-2	-1	+1	+2	+3
6) Often there is no chance of protecting my personal interest from bad luck happenings.	-3	-2	-1	+1	+2	+3
7) When I get what I want, it's usually because I'm lucky.	-3	-2	-1	+1	+2	+3
8) Although I might have a good ability, I will not be given leadership responsibility without appealing to those in positions of power.	-3	-2	-1	+1	+2	+3
9) How many friends I have depends on how nice a person I am.	-3	-2	-1	+1	+2	+3
10) I have often found that what is going to happen will happen.	-3	-2	-1	+1	+2	+3
11) My life is chiefly controlled by powerful others.	-3	-2	-1	+1	+2	+3

Strongly Disagree -3	Disagree Somewhat -2	Slightly Disagree -1	Slightly Agree +1	Agree Somewhat +2	Strongly Agree +3

12)	Whether or not I get into a car accident is mostly a matter of luck.	-3	-2	-1	+1	+2	+3
13)	People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	-3	-2	-1	+1	+2	+3
14)	It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	-3	-2	-1	+1	+2	+3
15)	Getting what I want requires pleasing those people above me.	-3	-2	-1	+1	+2	+3
16)	Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	-3	-2	-1	+1	+2	+3
17)	If important people were to decide they didn't like me, I probably wouldn't make many friends.	-3	-2	-1	+1	+2	+3
18)	I can pretty much determine what will happen in my life.	-3	-2	-1	+1	+2	+3
19)	I am usually able to protect my personal interests	-3	-2	-1	+1	+2	+3
20)	Whether or not I get into a car accident depends mostly on the other driver.	-3	-2	-1	+1	+2	+3
21)	When I get what I want, it's usually because I worked hard for it.	-3	-2	-1	+1	+2	+3
22)	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	-3	-2	-1	+1	+2	+3
23)	My life is determined by my own actions.	-3	-2	-1	+1	+2	+3
24)	It's chiefly a matter of fate whether or not I have a few friends or many friends.	-3	-2	-1	+1	+2	+3

Appendix C: Informed Consent Form

Informed Consent to Participate in Research

Austin Peay State University
Clarksville, Tennessee 37044

You are being asked to participate in a research study. This form is designed to provide you with information about this study and to answer any of your questions.

1. TITLE OF RESEARCH STUDY

The relationship between self-reported driving anger and locus of control by gender.

2. PRINCIPLE INVESTIGATOR

David A. Yingling, B.S. Under supervision of Sylvia Nassar-McMillan, Ph.D., Psychology Department, Austin Peay State University, Clarksville, TN, (615) 648-7233.

3. THE PURPOSE OF THE RESEARCH

To examine the relationship between a measure of driving anger and measures of locus of control by gender.

4. PROCEDURES FOR THIS RESEARCH

In class, you will pick up the research packet containing two scales. One of the scales is a series of questions about how much anger you experience while driving a motor vehicle. You will be asked to rate the amount of anger you experience in certain driving situations. The other scale is a series of attitude statements representing commonly held opinions. You will be asked to report the extent to which you agree or disagree with each statement. You will be instructed to complete the questionnaires at home and to return them to the researcher at the next class meeting.

5. POTENTIAL RISKS TO YOU

There are no known risks to subjects from participation in this study. There is no deception to be used in this study, and both of the scales have been used in previous research. It is not likely that the scales cause psychological discomfort.

6. POTENTIAL BENEFITS TO YOU OR OTHERS

At your instructor's discretion, you may receive extra-credit for your participation in this study. This study will provide information that may be used to better understand the nature of driving anger, and may result in knowledge about how to make the roads we drive on safer for everyone.

7. DEBRIEFING OF SUBJECTS

A poster summarizing the research findings will be posted in the psychology department when the results are in (estimated May 1996).

7. INFORMED CONSENT STATEMENT

I agree to participate in the present study being conducted by David A. Yingling, a graduate student, under supervision of Sylvia Nassar-McMillan, Ph.D., in the Department of Psychology at Austin Peay State University. I have been informed, orally and in writing of the procedures to be followed and about any benefits or discomfort that may be involved. Mr. Yingling has offered to answer any further questions that I may have regarding the procedures, and he can be contacted by phone (648-7233).

I understand that I am free to terminate my participation within two weeks of the collection of the data without penalty or prejudice, and to have all data obtained from me withdrawn from the study and destroyed.

_____

NAME (please print)

_____

SIGNATURE

_____

DATE

Appendix D: Demographic Information Sheet

1. **Please indicate your gender**: __Male __Female

2. **Please indicate your age**: __younger than 18 years

   __18 to 25 years

   __Older than 25 years

3. **Please indicate your race/ethnic group**:

   __Non Resident Alien __American Indian or Alaska Native

   __Hispanic __Black Non-Hispanic

   __Asian or Pacific Islander __White Non-Hispanic