

THE RELATIONSHIP BETWEEN THINKING STYLE  
AND DELINQUENT BEHAVIOR

by

AMY RODRIGUEZ

A THESIS

Submitted in partial fulfillment of the requirement  
for the degree of Master of Arts  
in the Department of Psychology  
in the Graduate School of  
The University of Alabama

TUSCALOOSA, ALABAMA

2010

Copyright Amy Rodriguez 2010  
ALL RIGHTS RESERVED

## ABSTRACT

The current study investigated the relationship between maladaptive thinking styles and delinquent behavior in a non-offender sample. Participants were 712 college students who completed a series of self-report questionnaires that assessed demographic qualities, maladaptive thinking, and history of delinquent behavior. I hypothesized that level of maladaptive thinking style would significantly predict delinquent behavior. Results suggested that maladaptive thinking endorsed by the current college sample followed a pattern similar to that of offender samples. In addition, univariate analyses in generalized linear modeling demonstrated that maladaptive thinking is a significant predictor of self-endorsed delinquent behavior.

## DEDICATION

This thesis is dedicated to everyone who supported and guided me through the entire process of completing this document. To those who guided my work, thank you for your help, time, and dedication. Most of all, thank you to my family and close friends for being there during the good and bad times, keeping me company from near and afar, and holding me up with your encouraging words and caring actions.

## LIST OF ABBREVIATIONS AND SYMBOLS

$\alpha$	Cronbach's index of internal consistency
$\beta$	In statistical hypothesis testing, the probability of making a Type II error ( $1 - \beta$ denotes statistical power); population values of regression coefficients (with appropriate subscripts as needed)
CFA	Confirmatory factor analysis
$df$	Degrees of freedom
EFA	Exploratory factor analysis
$F$	Fisher's $F$ ratio: A ration of two variances
GLM	Generalized linear model
$p$	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
$r$	Pearson product-moment correlation
$R^2$	Multiple correlation squared; measure of strength of association
$sd$	Standard deviation
$t$	Computed value of $t$ test
$\bar{x}$	Mean: the sum of a set of measurements divided by the number of measurements in the set
$<$	Less than
$\leq$	Less than or equal to
$=$	Equal to

## ACKNOWLEDGMENTS

I would like to thank faculty, colleagues, and my family for their help and guidance in completing my thesis. I am most grateful for the time, suggestions, and knowledge that my advisor and co-chair of my committee, Carl Clements, shared with me over the past years. I appreciate your perspective, expertise, and understanding while completing this project. I would like to thank co-chair of my thesis, Stanley Brodsky, and committee member Jimmy Williams for their time and suggestions during this process. Jamie DeCoster deserves his own acknowledgment for sharing his statistical expertise with me and answering numerous questions along the way. Without Dr. DeCoster's help, this thesis would not have been possible. I would like to thank Martha Crowther for her understanding throughout the difficult times I experienced while completing my thesis. I am greatly indebted to my good friends and colleagues, particularly Jill Rosenbaum, Mitchell Ziemke, and Haley Dillon, for their consistent encouragement, support, and academic assistance throughout this process. In addition, I would like to thank my good friend Claudia Porras for standing by my side through every obstacle and success. I cannot express my full gratitude for all you have done and continue to do. To my amazing family, Linda, Ernest, Laurie, David, and Christian, I love you all so much and thank you for always believing in me and supporting me. This thesis is a product of not only my hard work, dedication, and perseverance, but also that of those mentioned above. The process did not occur as I planned, but I learned a great deal both academically and personally. I am proud of my work.

## CONTENTS

ABSTRACT.....	ii
DEDICATION.....	iii
LIST OF ABBREVIATIONS AND SYMBOLS.....	iv
ACKNOWLEDGMENTS.....	v
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
1. INTRODUCTION.....	1
2. METHODOLOGY.....	12
3. RESULTS.....	15
4. DISCUSSION.....	38
REFERENCES.....	44
APPENDICES.....	48

## LIST OF TABLES

1. Item distribution and factor loadings of the MOTS-CR.....	24
2. Bivariate intercorrelations between MOTS-CR total score and three subscale scores.....	27
3. Model fit statistics for the MOTS-CR and MOTS-R.....	28
4. MOTS-CR factor structure used in Confirmatory Factor Analysis.....	29
5. Average item scores and prorated scores for the MOTS-R and the MOTS-CR .....	31
6. Bivariate intercorrelations between MOTS-CR and MOD-R factors and Totals.....	32
7. Bivariate intercorrelations between the MOD-R Total and demographic variables.....	33
8. Test of between-subjects effects in MOD-R Total GLM model.....	34



## LIST OF FIGURES

1. Scree plot of MOTS-CR Exploratory Factor Analysis.....35
2. Histogram of original MOD-R distribution.....36
3. Histogram of MOD-R distribution after square-root transformation and winsorization...37

## 1. INTRODUCTION

Attempting to understand and predict criminal behavior has been an important and popular area of research for decades. Research has spanned a wide variety of possible personality (e.g. antisocial personality disorder) and environmental variables (e.g. family factors) (Gendreau, Goggin, & Little, 1996) in the hopes of effectively predicting outcomes such as desistance and recidivism. Andrews and Bonta (1994) classified two kinds of risk factors for criminal behavior: static and dynamic. Static characteristics are historical markers that cannot be changed (e.g. age, criminal history, and childhood environment). Dynamic characteristics are those that can change over time and are reflective of the offender's present behavior and criminogenic needs (e.g. cognitions, attitudes, and peer associates; Andrews & Bonta, 1994). Previous research by Gendreau et al. (1996) found that among various risk factors for recidivism, adult criminal history, antisocial personality, companions, and criminogenic needs had the strongest correlation ( $r = .18$ ) with recidivism.

Closely related to dynamic risk factors is the notion of a pervasive criminal thinking style or pattern of maladaptive thinking errors. These errors have been empirically investigated in relation to predicting criminal behavior and recidivism (Yochelson and Samenow, 1976; 1977; Walters, 1990; Mandracchia, Morgan, Garos, & Garland, 2007). The construct of criminal thinking includes both internal components and external factors, such as ingrained attitudes and experience with criminal associates, which may influence an individual's behavior. However, recent research (Mandracchia et al, 2007) suggest that conceptualization of delinquent behavior

should go beyond the scope of criminal thinking theory and incorporate non-criminal theory of overall maladaptive thinking.

### **Noncriminal maladaptive thinking**

Researchers have long investigated and theorized about maladaptive thinking patterns and styles that contribute to problematic behaviors. Beck (1976, 1999, 2004) proposed the notion that dysfunctional thinking processes are the product of spontaneous and unintentional, or automatic, thoughts that are believed to be present in all people. He maintained that such thinking processes affect emotions and behavior, and are particularly associated with depression. Automatic thoughts (e.g., “I am dumb.”) stem from negative self-perceptions that remain subconsciously present until brought to the forefront by a therapist or outside source (Beck, 1976). Beck considered the thoughts to be naturally reflexive (i.e., not intentionally activated and hard to terminate). However, such maladaptive thoughts are likely to result in negative consequences or poor social interactions, and are more likely to be noticed by others that interact with the individual rather than by the actual individual. One’s current automatic thoughts are believed to be rational, even if understood to be have been irrational in the past. Repetitive thoughts are taken at face value regardless of previous understanding (Beck 1976).

Similarly, Ellis (1973, 1977, 1992) proposed the presence of “irrational beliefs” that result in problematic and maladaptive behavior. Individuals with “irrational beliefs” think in terms of indisputable absolutes and often use reasoning that reflects what they believe should, must, or ought to have been. When external stimuli from the environment are encountered and are not consistent with their internal belief system, an extreme form of negativism occurs, such as catastrophizing thoughts or emotions (e.g., “It’s terrible that she cancelled our date!”). Many

individuals experiencing such “irrational beliefs” often have a psychological disorder involving dysfunction in their form or style of emotion, thought, or behavior. For example, the extremely aberrant emotions, thoughts, or behaviors of people with depression, anxiety, or phobia may be manifestations of “irrational beliefs” (Ellis, 1992).

The “irrational belief” consists of four types of beliefs: a) someone or something “should, ought, or must” not be as he, she, or it is; b) a situation is appraised as “atrocious” as it is; c) the mere existence of a person or thing in a manner unfitting of what “must” be is “intolerable”; and d) negative circumstances are associated with errors committed by a discreditable person, making the origin of the problem hopeless (Ellis, 1992). For example, consider a student that receives a below average grade on an essay that they spent a great deal of effort and time writing. Upon receiving the grade, the student would think that the grade “must” be wrong and cannot fathom the situation as reasonable (e.g. “atrocious”). Additionally, the student would not tolerate the grade as acceptable but since the teacher has given unreasonable grades in the past and announced that all grades are final, the situation seems hopeless

Beck’s and Ellis’ theories describe cognitive distortions and errors in thinking that influence both emotion and behavior. The idea of behavior as byproduct to thinking styles or cognitive distortions has also been applied to criminal behavior. Although this connection was not addressed specifically by Beck or Ellis, both theories played a direct role in the investigation of maladaptive thinking styles exhibited by offenders.

### **Criminal Thinking in Adult Offenders**

Yochelson and Samenow (1976, 1977) and Walters (1990) conjectured that criminals have a pervasively maladaptive framework or pattern of thinking that manifests across various

aspects of their lives. They described criminal thinking patterns that consist of thoughts that most people have had before (e.g., considering committing a crime in times of desperation) but understand as unreasonable. However, for individuals with criminal thinking patterns (e.g. commonly offenders), these thoughts are not dismissed with simple reasoning. In fact, these individuals are also believed to have other cognitive tendencies (i.e. patterns of criminal thinking) that assist in the endorsement of such thoughts, as well as the execution of related actions, such as criminal acts. Although criminals are typically unaware of such erroneous and counter-productive thinking styles, these distinct patterns influence both the initiation and sustainment of antisocial behavior. The two lines of theory both assert that criminal behavior is a result of free choice and a culmination of irresponsible thinking that the individual acts upon. However, the two theories differ in how many errors are believed to be present.

Yochelson and Samenow (1976, 1977) phenomenologically derived 52 thinking errors from interviewing 240 offender volunteers. They include 16 “automatic errors of thinking” (p. 359) based on emotions, criminal thinking patterns that reflect irresponsible thinking in all people, and errors “from idea through execution,” (p. 407) which apply to thought functioning before, during, and after a crime. The theorized thinking errors included patterns identified as entitlement (i.e., feelings of ownership, uniqueness, or misidentification), power orientation (i.e., how the criminal perceives his/her control in life), the ability to eliminate fear, and superoptimism (i.e., an extreme form of optimism that gives criminals the confidence to try to achieve unrealistic desires). The likelihood of experiencing these errors increases with criminal behavior. Each type of error is presumed to serve a different purpose subconsciously. For example, the thinking process may differ before and during a crime compared to after a crime in order to decrease impulsivity but increase confidence and support the execution of the criminal

act being carried out (Yochelson & Samenow, 1976). Perfectionism comes into play only with actions and situations that the individual chooses, rather than being a pervasive personality characteristic. The individual minimizes distress and anxiety prior to a crime by planning in detail. Similarly, Superoptimism occurs as an individual nears execution of a crime. In order to gain enough confidence to follow through with the act, the individual fails to realistically consider the consequences of their actions. Similar to Ellis (1977), Yochelson and Samenow (1976) theorized that in order for change in behavior choices and criminal activity to ensue, erroneous (i.e. thoughts that lack external evidence, assess things in extremes) and maladaptive (e.g. increase the likelihood of antisocial and criminal acts) thinking patterns must be addressed and modified.

Walters (1990, 1995, 1996, 2002) based his theory on that of Yochelson and Samenow, attending to what he considered limitations within their work. Walters accounted for confounding variables and clearly defined what was to be understood as “thinking style”. He condensed and used the thinking errors of Yochelson and Samenow’s theory that his own empirical research had established as predictive of antisocial behavior plus two additional thinking styles that were derived from his own clinical experience with offenders (1996). The eight identified criminal thinking styles are:

- Mollification, described as the rationalization of criminal behavior by minimizing the seriousness of the antisocial behavior by blaming victims, and by claiming to be a victim of social injustice;
- Cutoff occurs when certain feelings that are seen as obstacles to following through with a criminal act, such as fear or anxiety, are eliminated;

- Entitlement allows the criminal to experience a sense of ownership and privilege in action;
- Power Orientation explains aggressive behavior used to manipulate others in social interaction and interpersonal relationships;
- Sentimentality accounts for the instances in which a criminal will attempt to compensate for previous wrong doings or criminal acts by performing seemingly generous good deeds, but actually serving a self-centered purpose of atonement;
- Superoptimism is a pattern of overestimating the possibility of resisting negative consequences to criminal behavior;
- Cognitive Indolence encompasses a state of mind that makes little effort to think ideas through and allows the criminal to unquestionably accept an idea or plan conceived and use short cuts when problem solving; and
- Discontinuity proposes that the criminal lifestyle lends itself to failure to follow through or plan due to lack of premeditation and is reflective of the lack of effort included in Cognitive Indolence (Walters 1990, 1995).

Using these eight criminal thinking styles, Walters developed the Psychological Inventory of Criminal Thinking Styles (PICTS) as a means to empirically investigate the presence and manifestation of each style in the criminal lifestyle and thinking process (Walters, 2001). Psychometric analyses conducted at the secondary stage of development and revision found adequate reliability and validity, and Walters continued to build upon the instrument's structure (Walters, 1995, 1996).

The PICTS comprises a four-factor model that encompasses Walters' eight theorized thinking styles. Factor 1 describes the criminal trend to circumvent problems that arise when attempting to commit a criminal act, such as dismissing negative consequences to aberrant social behavior in order to make crime easier to commit. The Cutoff, Cognitive Indolence, and Discontinuity thinking styles items frequently loaded with Factor 1. Factor 2 describes unconscious, psychological methods that criminals used to deceptively alter their self-image in favor of successful execution of a crime. The Entitlement, Mollification, and Superoptimism thinking styles items frequently loaded with Factor 2. Factor 3 describes avoidance or attempts to minimize unfavorable emotions, such as anxiety or fear, which hinder the criminal ability to carry out a criminal act. Factor 4 describes the self-centeredness and oppositional nature of criminal thinking. Specific thinking styles do not uniquely load on Factors 3 and 4 (Walters, 1995).

Walters' later analyses found the PICTS to possess convergent validity with the Personality Assessment Inventory (PAI) antisocial scales, and discriminate validity in reference to the unrelated scales of the PAI that include endorsement of psychopathology and mental health disorders (Walters & Geyer, 2005). Walters (2002) conducted a meta-analysis regarding the PICTS, which resulted in moderate to moderately-high internal consistency and test-retest reliability. A confirmatory factor analysis supported the four-factor model structure of the instrument. Using records research, Walters discovered that the scales had a strong correlation with participant criminal history.

In 2006, researchers at Texas Christian University used both Yochelson and Samenow's, as well as Walter's theories, to develop the Texas Christian University Criminal Thinking Scales (TCU CTS; Knight, Garner, Simpson, Morey, & Flynn, 2006) to investigate criminal thinking



and thought processes in offenders following their treatment for substance abuse. The TCU CTS is comprised of six scales of criminal thinking styles: 1) Entitlement (i.e., the feeling that the world owes them special consideration); 2) Justification (i.e., justifying and attributing criminal behavior to external circumstances); 3) Power Orientation (i.e., the need for power and control through manipulation); 4) Personal Irresponsibility (i.e., level of acceptance of responsibility); 5) Cold-Heartedness (i.e., lack of empathy); and 6) Criminal Rationalization (i.e., views of authority and the legal system) (Knight et al., 2006). An exploratory factor analysis established a four-factor model for the TCU CTS structure, which included a large Factor 1 that encompassed the Entitlement, Justification, and Personal Irresponsibility scales, and the remaining three scales as Factors 2, 3, and 4. A confirmatory factor analysis supported this factor structure, of which three of underlying factors (i.e. Entitlement, Power Orientation, and Justification) are similar or synonymous with three of Walters' criminal thinking styles (i.e. Entitlement, Power Orientation, and Mollification). Psychometric analyses yielded test-retest reliability, internal consistency, and satisfactory reliability from scale correlations (Knight et al., 2006). The TCU CTS sustains appropriate and reliable use for measuring criminal thinking within a sample of offenders receiving substance abuse intervention.

### **Integration of criminal and noncriminal thinking styles**

As noted, researchers have theorized about maladaptive thinking in both criminal and noncriminal samples. Investigators such as Walters (1995, 1996) have established reliable methods by which to measure maladaptive thinking in criminal and juvenile populations. However, virtually no research has examined both the criminal and non-criminal thinking style errors or developed measures that span both constructs. The exception is a line of research described below.

To investigate the reliability and validity of previous research regarding maladaptive thinking styles, Mandracchia, Morgan, Garos, and Garland (2007) developed the first measure to integrate both criminal and noncriminal thinking errors. The Measure of Offender Thinking Styles (MOTS) is based on the theories of Yochelson and Samenow (1976), Walters (1990), Beck (1976), and Ellis (1992). The MOTS was developed to investigate specifically adult offender thinking styles in correctional facilities. Exploratory factor analyses of all 77 theorized thinking errors initially yielded three factors, which were interpreted and labeled Control, Cognitive Immaturity, and Egocentrism (Mandracchia et al., 2007). Items that either loaded on multiple factors or did not load at all were removed from the list and 58 thinking errors were retained.

Mandracchia et al. (2007) described the errors within the Control factor as reflecting a need for “power and command over oneself, other people, and the environment,” (pg. 1038). In addition, Control includes emotional experiences, such as a heightened sense of awareness or anxiety, which allows for a perception of control over the situation and any fear experienced. . Reducing feelings, such as fear and anxiety, that arise because they are about to commit a criminal act is part of Control. Errors within the Cognitive Immaturity factor reflect impulsive judgments or unsupported generalizations that often result in self-pity. Examples include “I don’t think before I act,” and “I am always angry.” Lastly, Mandracchia et al. (2007) described the errors within the Egocentrism factor as indicative of a focus on oneself that “applies to interpreting the actions of others, constructing a view of importance of oneself in relation to the environment, and having expectations for occurrences and living situations,” (pg. 1038).

Psychometric analyses on the MOTS demonstrated low reliability. However, the measure was revised after items were removed in order to increase parsimony. In addition,

double-loading errors were also removed and multiple items for each thinking error were collapsed into one item. Further factor analyses were conducted on each factor and items that demonstrated a minimum factor loading of 0.35 were retained in the MOTS-R. Finally, the 4-point Likert type scale was changed to a 5-point Likert-type scale (Mandracchia, 2009).

### **Purpose of the Present Study**

Combining criminal and noncriminal thinking styles and errors is important in investigating a non-offender population because noncriminal maladaptive thinking errors may lead to destructive behaviors (Mandracchia et al., 2007). The present study aimed to add to the body of theoretical research regarding static and dynamic predictor variables of criminal behavior. In particular, the static variable of age and the dynamic, criminogenic variable of criminal thinking were of interest. I intended to investigate the presence of maladaptive thinking styles in a non-offender, adult college sample.

The current study further developed previous research (Mandracchia et al., 2007; Mandracchia, 2009) by revising the Measure of Offender Thinking Styles-Revised (MOTS-R) for appropriate use with a non-offender, college sample. The present study had two purposes. First, I revised the MOTS-R for appropriate use with a non-offender, college population. Psychometric analyses of the Measure of Offender Thinking Styles – College Revision (MOTS-CR) were conducted and compared to psychometric data for the MOTS-R before proceeding with the study. Second, I examined the relationship among maladaptive thinking styles, as measured by the MOTS-CR, and delinquent behavior, as assessed by the Measure Of Delinquency-Revised (MOD-R), within a college sample. Based on previous literature, the following hypotheses were proposed:

1. Based on the theoretical foundation of the development of the MOTS-R (e.g. criminal and noncriminal theory), I hypothesized that the MOTS-CR would mirror the 3-factor model of the MOTS-R and demonstrate reliabilities comparable to those of the MOTS-R.
2. Previous research supports the notion that criminal thinking styles and maladaptive thinking errors contribute to antisocial behavior (Yochelson & Samenow, 1976, 1977; Walter, 1990). Therefore, I hypothesized that criminal thinking scores on the MOTS-CR would significantly predict self-endorsed delinquency scores on the MOD-R and account for a sizeable portion of variance in delinquency.
3. Based on previous research (Mandracchia, 2009), I expected that the Egocentrism factor of the MOTS-CR will account for most of the variance in participant MOD-R delinquency score, followed by Control and then Cognitive Immaturity.

Based on previous research (Mandracchia, 2009), I expected that sex and criminal history characteristics would be significantly correlated with and predict participant MOTS-CR score.

## 2. Method

### **Participants**

A total of 889 participant protocols were initiated online. However, due to duplicate completion, inability to identify duplicate protocols, and invalid impression management scores, 177 protocols were deleted. Three students did not report sex. Thus, the current study included 217 male and 492 female students enrolled in psychology classes at the University of Alabama or Stillman University in Tuscaloosa, Alabama. Based on Cohen (1992), the current sample size was considered acceptable. Average participant age 19.05 ( $sd = 2.12$ ). The majority of the participants were Caucasian (81.3%) with African Americans (13.8%), Hispanics (1.6%), and all other racial classifications (2.9%) following. Average annual income fell into the \$60,000 to \$75,000 range. Informed consent was waived due to minimal risk to participants.

### **Measures**

**Demographic Questionnaire.** The Demographic Questionnaire was a self-report measure that contained a number of variables including age, gender, ethnicity, last grade completed, parents' marital status, parents' socioeconomic status, criminal history and previous offenses, sentences, and total time spent incarcerated, when applicable.

**Measure of Offender Thinking Styles-College Revision (MOTS-R).** The Measure of Offender Thinking Styles - Revised (MOTS-R; Mandracchia, 2009) is a 70-item, self-report assessment of maladaptive thinking and consists of three composites: Egocentrism, Cognitive Immaturity, and Control. Mandracchia (2009) reported very good reliability for each of the three

factors, with Chronbach's alphas ranging from .807 to .929, and intercorrelations between the three factors ranged from .17 to .65. Additionally, the three factors of the MOTS-R displayed moderate convergent validity with the eight factors of the PICTS, with correlations ranging from .23 to .58.

**Measure of Delinquency-Revised (MOD-R).** The Measure of Delinquency-Revised (MOD-R) measures delinquency and antisocial behavior by means of self-endorsement (Brannen, 2008). The MOD-R is a three-factor, 22-item measure in which participants will indicate the number of times they have engaged in the specified behaviors during the three different time periods. Higher scores on the MOD-R are indicative of a more frequent involvement in four different forms of antisocial behavior, specifically reactive and immature behavior, callous behavior, and substance abuse. An example item from the MOD-R is: "Gone onto someone's land when they didn't want you to be there, or without their permission." Brannen (2008) reported very good reliability for each of the three factors with Chronbach's alphas ranging from .75 to .84. In addition, intercorrelations between the three factors ranged from .25 to .48, all of which were significant ( $p < .01$ ). The MOD-R has been normed on a college population and will serve to gather antisocial and delinquent behavior information on each participant, which in turn, will be used in statistical analyses.

**Paulhus Deception Scales (PDS).**

The Paulhus Deception Scale (Paulhus, 1998) is a 40-item questionnaire that measures a respondent's tendency to provide self-reported answers that would be considered socially desirable. The PDS includes two subscales: Self-Deceptive Enhancement (SDE) and Impression Management (IM). Considering I will be asking participants to disclose personal information

regarding their criminal history, the rationale for using the PDS includes further investigation of inflated scores on the Impression Management subscale.

## **Procedure**

The study was conducted online with an identification process in order to compensate participants with psychology class credit. Participants provided their first name, last name, and student identification number at the end of the study. Participants were asked to complete the demographic questionnaire and three measures. After class credit was assigned to participants, identifying information was deleted and research numbers were used.

## **Research Design and Statistical Analyses**

In order to test Hypothesis 1, a principal components exploratory factor analysis (EFA) was conducted on participant responses to the MOTS-R. A confirmatory factor analysis (CFA) in structural equation modeling was conducted to measure model fit of the MOTS-CR with the current sample. (e.g., item-factor loads, factor and scale reliabilities). The current study had a correlational design to examine delinquency as a function of criminal thinking. The dependent variable, delinquency, was measured by means of the MOD-R (Brannen et al., 2004). The predictor variable in the study was criminal thinking, as measured by means of the MOTS-R (Mandrachia, 2009). Regression analyses in Generalized Linear Modeling were used to test all other hypotheses and determine which of the MOTS-CR factors could significantly account for a significant portion of the variance in MOD-R scores of delinquency.

### 3. RESULTS

Analyses of the current study were conducted in three parts. SPSS was used to divide the total sample of 712 participants into two groups for separate factor analyses. A random sample of 250 cases was selected in SPSS and used to conduct initial exploratory factor analyses (Part 1). The remaining 462 cases were retained for later confirmatory factor analyses and generalized linear modeling (Part 2). In Part 1, an EFA was conducted on an altered version of the 70-item MOTS-R. Prior to this analysis, five items (4, 5, 46, 57, and 69) were removed because their wording implied definite criminal activity. Because participants were given the option of answering “not applicable,” such responses became missing values when entered into SPSS. Part 2 used a confirmed factor structure of the college revision of MOTS-R. For the purposes of this study, the revised instrument was named the Measure of Offender Thinking Styles – College Revision (MOTS-CR) and was used in Part 3 to predict delinquent behavior.

#### **Revision of the MOTS-R**

For the EFA, a principal components exploratory factor analysis using a maximum-likelihood extraction method and a direct oblimin rotation was applied to the 65 retained items of the Measures of Offender Thinking Styles – Revised (MOTS-R; Mandracchia, 2009). An examination of the scree plot of the eigenvalues (Figure 1) of the initial factor analysis suggested an extraction of three factors.



Subsequent factor analyses using a maximum-likelihood extraction and direct oblimin rotation were performed and the number of factors was constrained to three factors. A minimum factor loading of 0.30 on the pattern matrix was used as the cut-off for indicating meaningful contribution of an item to a given factor (Aron, Aron, & Coups, 2005), as well as to adhere to inclusion criteria used for the original MOTS-R (Mandracchia et al, 2007; Mandracchia, 2009). In addition, items that loaded onto more than one factor were deleted from the scale. Of the original 70 items, 52 were retained in the MOTS-CR, and analyses demonstrated excellent reliability of the scale ( $\alpha = .933$ ). Chronbach's alphas for each of the three factors ranged from .635 to .948. Intercorrelations between the three factors were significant and ranged from .234 to .535. Table 1 displays factor item loadings of the MOTS-CR. The factor names as described below are included in Table 1.

The item content of the three factors mirrored that of the MOTS-R. The first factor consisted of 30 items and included 26 items from the original MOTS-R Cognitive Immaturity composite. The remaining four items included three items from the Control composite and one item from the Egocentrism composite. The second MOTS-CR factor included 13 Control items and one Cognitive Immaturity item, for 14 total items. Factor 3 consisted of eight items, including seven Egocentrism items and one Control item. Based on the similarity of item content within the factor structures of the two instruments (MOTS-R with offender samples and MOTS-CR with college students), the three factors were assigned the same names: Cognitive Immaturity, Control, and Egocentrism. The three factors were significantly correlated ( $p < .001$ ) with each other and the total score of the MOTS-CR. Cognitive Immaturity had the strongest correlation to the measure's total score, due in part to its larger number of items. In addition, this

factor and Control were the two most highly correlated factors ( $r = .535$ ), Table 2 displays these correlations.

### **Comparing the MOTS-R and the MOTS-CR**

In order to compare model fit of the MOTS-R and the MOTS-CR factor structures, confirmatory factor analyses were conducted with each model using data from the current college sample. In order to conduct confirmatory factor analyses, 77 cases with missing data (16.67%) were deleted from the sample and 385 cases were retained for analyses. A confirmatory factor analysis (CFA) in structural equation modeling using maximum likelihood estimates was used to measure model fit of both the MOTS-R and the MOTS-CR.

In the present study, multiple indices were used to assess model fit. The Chi-square to degrees of freedom ratio ( $\chi^2 / df$ ; Wheaton, Muthen, Alwin, & Summers, 1977), the Comparative Fit Index (CFI; Bentler, 1990), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993) for each model is reported. Table 3 displays fit indices for both the MOTS-CR and the MOTS-R. For the Chi-Square to degrees of freedom ratio, values around 2 (or lower) indicate adequate fit. The observed ratio ( $\chi^2 / df$ ) was 2.931 for the MOTS-CR. For the CFI and TLI indices, values of .90 or greater reflect adequate fit of the model. For the MOTS-CR, the observed values were CFI = .743 and TLI = .732. MacCallum, Browne, and Sugawara (1996) noted that RMSEA values of .05 or less indicate good fit, values up to .08 indicate reasonable fit, values ranging from .08-.10 indicate mediocre fit, and values greater than .10 indicate poor fit. The observed RMSEA was .071 and considered to reflect reasonable fit. Overall, these statistics were mixed and indicated that the MOTS-CR model provided poor to adequate fit. Although the model did not

demonstrate adequate fit on all indices, model modification was not conducted. Overall, statistics for MOTS-R model indicated a very poor fit. All fit indices were inferior to those observed for the MOTS-CR. Based on its superior model fit, the MOTS-CR was used in further analyses in the present study. Final item content of each factor of the MOTS-CR is displayed in Table 4.

Lower scores on the MOTS-CR indicated more agreement with maladaptive items and greater overall maladaptive thinking. Overall, college participants endorsed the greatest maladaptive thinking in relation to Egocentrism ( $x = 19.50$ ,  $sd = 4.28$ ). Further, the mean score on the Control subscale was 49.62 ( $sd = 8.88$ ). Participants averaged a score of 110.66 ( $sd = 18.94$ ) on the Cognitive Immaturity subscale. Total scores on the MOTS-CR ranged from 61 to 239 ( $x = 179.78$ ,  $sd = 26.58$ ). Subscale scores for the MOTS-CR and the MOTS-R were averaged and prorated for comparison between the two measures and are reflected in Table 5. On average, college student participants showed slightly less Cognitive Immaturity-based maladaptive thinking compared to previous offender samples. By contrast, college students scored slightly lower (i.e. less adaptive) on the Control and Egocentrism subscales. Average score per item across the 52 items on the MOTS-CR was 3.457, which was similar to average 3.285 item score on the MOTS-R. Overall, these differences are quite small, suggesting that offenders and college students do not seem to be responding very differently regarding thinking styles.

### **Dependent Measures**

Participants reported engagement in delinquent behavior via the Measure of Delinquency – Revised (MOD-R). Specifically, delinquent behavior was operationalized as specific delinquent acts during four periods of their life. The nature of behaviors presented on the MOD-

R ranged in seriousness of offense. For example, three items inquire about previous theft of objects valued below \$5.00, exceeding \$50.00, and between the two amounts. Some items ask about acts equivalent to misdemeanors while others are related to acts considered felonies (e.g. participation in sexual activity with an unwilling partner). Therefore, quantitatively, responses spanned a wide range of accounts endorsed. Figure 2 displays the original MOD-R distribution.

Participants' mean MOD-R total was 24.2 ( $sd = 26.5$ ) across 22 items, suggesting that, on average, each person reported engaging in 24 acts of delinquency in their lifetime. However, the preponderance of these acts were in the Substance Abuse ( $x = 12.34$ ,  $sd = 17.30$ ) and Reactive/Immaturity ( $x = 10.81$ ,  $sd = 12.48$ ) categories in the milder range of delinquency as compared to the Callous/Instrumental category ( $x = 1.05$ ,  $sd = 3.91$ ). The lower base rates of Callous/Instrumental-related delinquent behavior were expected within a college population. Scores on the three composites were quite skewed, with ranges of 44.72, 143.90, and 193.40.

Due to skewness of the distribution, a square-root transformation was performed on each of the items of the MOD-R following the procedure of Brannen (2008). In addition, although subsequent statistical analyses were robust to violations of normality, a winsorization transformation was conducted on each of the composite scores of the MOD-R to further reduce skewness. This procedure brings extreme outliers back into the distribution by setting them at a pre-determined maximum. In this case, winsorization cut-off scores were set at three standard deviations from the mean. For the Substance Abuse composite, a cut-off score of 64.25 was established and seven outliers were winsorized. For the Reactive/Immaturity composite, a cut-off score of 48.23 was established and five outliers were winsorized. For the Callous/Instrumental composite, a cut-off score of 12.79 was established and four outliers were winsorized. Figure 3 displays the MOD-R distribution after square-root transformation and

winsorization. Further normalization of the distribution was evidenced by a reduction in the standard deviation.

### **Thinking Styles and Delinquent Behavior: Basic Associations**

Pearson correlations were conducted to examine the bivariate relations among the factors of the MOTS-CR and the MOD-R, as well as total scores on each measure (Table 6).

Participants' total scores on the MOTS-CR had a significant bivariate relationship with the three factors and total scores of the MOD-R ( $p < .001$ ). Correlations were strongest between the factors of the MOD-R and the Cognitive Immaturity and Control factors of the MOTS-CR ( $p < .001$ ; note bold  $r$ 's in Figure 6). All bivariate correlations between the two measures were negative, confirming that greater endorsement of maladaptive thinking styles (i.e. lower scores on the MOTS-CR) is associated with more self-reported engagement in delinquent behavior.

### **Predicting Delinquent Behavior**

In order to determine appropriate variables to be included in the regression model, Pearson correlations were conducted among predictor variables (i.e. MOTS-CR total and factors, plus age, sex, race, income) and the dependent variable, the MOD-R total score. More maladaptive thinking was associated with higher levels of self-reported delinquency. Preliminary correlation analysis revealed that the MOTS-CR total score was significantly correlated with the MOD-R total score, ( $r = -.262, p < .001$ ). Thus, the three factors of the MOTS-CR were used in further analyses to predict delinquent behavior in greater detail. Likewise, demographic variables were examined, and results demonstrated that sex was significantly correlated with the MOD-R total score ( $p < .01$ ) (See Table 7). Males reported higher delinquency rates. In addition, residuals of each of the independent variables were graphed against residuals of the

model without that predictor variable in order to determine whether the variable was appropriate to keep in the model. The scatterplot demonstrated a negative relationship between the sex residuals and the model residuals. Similarly, residuals of race appeared to have a positive relationship with the model residuals. These findings suggested that the sex and race variables might uniquely contribute to the predictive value of the model. The relationships between the residuals of the Age and Income variables did not appear to have an apparent pattern. Subsequently, based on examination of Pearson correlation and residual graphs, the sex and race variables were included in the predictive model of delinquent behavior.

### **Predictive Models**

Generalized Linear Modeling (GLM) was conducted to examine delinquent behavior as a function of five predictor variables: sex, race, and Cognitive Immaturity, Control, and Egocentrism, as measured by the MOTS-CR. The final model was a significant predictor of delinquent behavior, with about 20% ( $R^2 = .202$ ) of the variance in delinquent behavior accounted for by the model,  $F(10, 370) = 9.370, p < .001$ . See Table 9. Egocentrism ( $p = .004$ ), race ( $p = .013$ ), and Control ( $p = .047$ ), emerged as significant predictors of the model. Notably, race emerged as a significant predictor despite the variable's non-significant bivariate correlation with the dependent variable. This finding suggests that race may have acted as a suppressor variable in delinquent behavior for African Americans ( $\beta = -16.537, t(3) = -2.14, p = .036$ ). Further discussion of the race variable as a significant predictor in the current and all subsequent analyses is provided in the Discussion section.

Subsequent analyses conducted in GLM used the same predictor variables to examine their relation to the three composites of the MOD-R: Reactive/Immature and Callous/Instrumental delinquent behavior, and Substance Abuse. Univariate analyses were

conducted in GLM to examine Reactive/Immature delinquent behavior as a function of the predictor variables. The final model was a significant predictor of Reactive/Immature delinquent behavior, with about 24% ( $R^2 = .236$ ) of the variance in delinquent behavior accounted for by the model,  $F(10, 370) = 11.441, p < .001$ . Egocentrism emerged as the only significant predictor of the model,  $\beta = -.266, t(1) = -2.100, p = .036$ . Cognitive Immaturity, Control, sex, and race were not significant predictors in the model.

Similarly, regarding predictors of Callous/Instrumental behavior, the final model was significant, with about 12% ( $R^2 = .123$ ) of the variance in delinquent behavior accounted for by the model,  $F(10, 370) = 5.211, p < .001$ . Control emerged as the only significant predictor of the model,  $\beta = -.042, t(1) = -2.979, p = .003$ . Similarly, analyses examining Substance Abuse as a function of predictor variables demonstrated that the final model was significant, with about 12% ( $R^2 = .124$ ) of the variance in substance abuse accounted for by the model,  $F(10, 370) = 5.240, p < .001$ . Race emerged as the most significant predictor of the model,  $F(3, 370) = 7.788, p < .001$ . Egocentrism emerged as the next most significant predictor of the model,  $\beta = -.502, t(1) = -2.765, p = .006$ . Cognitive Immaturity, Control, and sex were not significant predictors in the model.

### **Exploratory analyses**

In order to determine whether maladaptive thinking was related to sex and criminal history characteristics, Pearson correlations were conducted among the three factors of the MOTS-CR, sex, and criminal history variables, including arrests, charges, convictions, and time spent incarcerated. Time spent in a juvenile facility, jail, or prison was collapsed into a general “time spend incarcerated” variable. A significant positive correlation was found between sex and the Control factor of the MOTS-CR ( $p = .008$ ). This finding suggested that women

participants endorsed significantly less agreement with control-based maladaptive thinking items. However, there were no significant relationships between criminal history characteristics and maladaptive thinking style, as measured by the MOTS-CR. Thus, subsequent analyses included only sex as a predictor variable of thinking style. Univariate analyses were conducted in GLM to examine maladaptive thinking style, as measured by the MOTS-CR, as a function of sex. Results indicated that sex was not a significant predictor of overall maladaptive thinking,  $F(1, 383) = 2.022, p > .05$ . Based on these findings, subsequent analyses involving factors of the MOTS-CR were dismissed.



Table 1

*Item distribution and factor loadings of the MOTS-CR*

	Cog Imm	Control	Ego
14. I tend to focus on negative things and forget about what is good in my life.	<b>.826</b>	-.116	-.015
12. When people tell me I'm good at something, I find it hard to believe them.	<b>.804</b>	-.187	.017
27. I tend to see the worst in situations.	<b>.787</b>	-.013	-.058
40. I tend to expect that the worst will happen	<b>.754</b>	-.147	.091
49. I have a tendency to have "tunnel vision," where I only see things in a negative light.	<b>.738</b>	.035	-.162
55. When people give me negative feedback, I realize how inadequate I am.	<b>.734</b>	-.035	-.069
32. No matter how much good stuff is said about me, if one "negative" thing is said, that is what I will remember	<b>.718</b>	-.087	.203
15. I start out with good intentions, but then things go wrong	<b>.712</b>	-.013	.011
26. Even if I do something right, I still feel I am a failure	<b>.708</b>	.038	-.153
1. I have often felt worthless or inadequate because of what others have said about me	<b>.700</b>	-.259	-.026
54. I can't enjoy the present because of all the bad things in my past	<b>.680</b>	.149	-.102
68. Even though people don't tell me, I know they think negatively of me	<b>.680</b>	.026	.123
28. When things go well, it's usually because of luck	<b>.671</b>	.106	-.034
11. I find myself quitting tasks regularly; they just aren't worth the time I put into them	<b>.663</b>	.093	-.182
13. I am so different from other people that no one truly understands me	<b>.657</b>	.034	.178
19. I feel worthless if I don't do well	<b>.650</b>	-.021	.089
65. Awful things from the past will always haunt my future	<b>.643</b>	.122	.019
31. I tend to blow little things out of proportion	<b>.627</b>	-.121	.077
48. Having one good experience doesn't mean anything when the majority of things that happen to me are negative	<b>.617</b>	.283	-.039
35. I only try to make changes in my life if I feel things are awful or I am emotionally upset	<b>.589</b>	.076	.191
52. I find that if I make one mistake on the job, I can't let it go	<b>.570</b>	-.024	.204
59. It seems my mind is always racing <sup>a</sup>	<b>.561</b>	.124	.317
21. I have trouble maintaining consistency in my life	<b>.539</b>	.158	-.147

6. When my partner and I get into a fight, I know it is because she/he wants to leave me	<b>.534</b>	.077	-.170
7. I am often filled with rage and anger	<b>.494</b>	.178	-.091
8. I don't stop to think before I act, I just act	<b>.487</b>	.172	-.046
39. I don't think before I act; I usually act according to how I feel at that moment.	<b>.467</b>	.195	-.002
62. I'm not very good about following through on things that require a great deal of time and effort	<b>.428</b>	.169	-.222
2. I expect that I will be the best at whatever I do <sup>a</sup>	<b>-.426</b>	.413	.317
9. I am always angry	<b>.425</b>	.245	-.208
45. My mind is always racing with ideas <sup>a</sup>	<b>.403</b>	.098	.318
66. I just can't get along with some people <sup>a</sup>	<b>.397</b>	.004	.300
33. I despise people who do not treat me fairly	<b>.386</b>	.291	.265
70. The sexual conquest is more important to me than the quality of the sex	<b>.314</b>	.269	-.061
10. I am continuously thinking of ways to make life more exciting <sup>b</sup>	<b>.285</b>	.249	.261
20. It is dangerous to disclose too much about oneself <sup>b</sup>	<b>.282</b>	.225	.136
30. I am always in command	<b>-.030</b>	<b>.727</b>	.069
63. Power and control are necessary for me to function in life	.117	<b>.691</b>	-.195
47. Life is much easier when I control the attitudes and feelings of those around me	.163	<b>.657</b>	-.034
67. Power is the most important thing a person can have <sup>a</sup>	.101	<b>.653</b>	-.303
34. You are either a "top dog" or you're nothing	.158	<b>.640</b>	-.035
29. Without power, you have nothing <sup>a</sup>	.319	<b>.604</b>	-.040
18. A real man doesn't feel afraid	-.112	<b>.601</b>	-.171
25. I am #1 in everything I do	-.232	<b>.593</b>	.162
58. I love power so much that I will do anything to achieve it, be it manipulative or conning <sup>a</sup>	.228	<b>.582</b>	-.311
23. I find myself looking for ways to gain power	-.056	<b>.580</b>	.150
41. It is necessary for me to control other people's emotions in order to keep a handle on things <sup>a</sup>	.300	<b>.577</b>	-.227
60. I find myself always wanting to be the leader in everything	.074	<b>.565</b>	.243
38. When I was a kid I wanted to be ruler of the world	.143	<b>.536</b>	-.001
44. People would say I have "macho" hobbies	.047	<b>.518</b>	.008
36. I would rather have the power of crime than the power associated with some noncriminal careers <sup>a</sup>	.232	<b>.470</b>	-.355
64. I will tolerate things that are disagreeable to me	.147	<b>.458</b>	.204
42. I haven't done anything to anyone that they didn't deserve	.182	<b>.391</b>	.074
17. I live for the moment, not the future or the past	-.229	<b>.373</b>	.063
56. I rarely feel anxious or afraid about anything I plan on doing	-.200	<b>.359</b>	.179

61. Once I make a judgment about someone, there is little chance of my changing my view <sup>a</sup>	.352	<b>.354</b>	.087
37. When it comes to things I care about, I am a perfectionist	.102	.006	<b>.628</b>
53. I prefer to do things myself, that way I know they will be done right	.197	.020	<b>.552</b>
51. There is no excuse for someone to treat me unfairly	-.012	.040	<b>.550</b>
43. I live for today, because I could die tomorrow	-.020	-.033	<b>.488</b>
22. I think of myself as one of a kind	-.101	.120	<b>.475</b>
50. I'm not like everyone else	.225	-.050	<b>.428</b>
3. I can be very professional when it comes to things I care about <sup>a</sup>	-.312	-.004	<b>.358</b>
16. Each day should be lived to the fullest, because it could be your last	-.225	-.107	<b>.307</b>
24. No one tells me what I can and cannot do in a relationship	.105	.216	<b>.304</b>

---

*Note.* 13 items removed during factor analysis. 18 total items removed from MOTS-R.

<sup>a</sup> Item deleted due to double loading. <sup>b</sup> Item deleted due to inadequate loading below .30.

Table 2

*Bivariate intercorrelations between MOTS-CR total score and three subscale scores*

	Cog Imm	Control	Egocentrism
Cognitive Immaturity	1.000		
Control	.535***	1.000	
Egocentrism	.234***	.432***	1.000
MOTS-CR Total	.929***	.785***	.472***

*Note:* \*\*\*  $p \leq .001$

Table 3

*Model fit statistics for the MOTS-CR and MOTS-R*

<b>Fit Index</b>	$\chi^2$ /df	CFI	TLI	RMSEA
<b>Good-to-Adequate Fit</b>	<b>2.00 or lower</b>	<b>.900 or higher</b>	<b>.900 or higher</b>	<b>.050-.080</b>
MOTS-CR	2.777	.742	.753	.068
MOTS-R	3.059	.650	.639	.073

Table 4

*MOTS-CR factor structure used in Confirmatory Factor Analysis*

---

**Cognitive Immaturity**

---

- 14. I tend to focus on negative things and forget about what is good in my life.
  - 12. When people tell me I'm good at something, I find it hard to believe them.
  - 27. I tend to see the worst in situations.
  - 40. I tend to expect that the worst will happen
  - 49. I have a tendency to have "tunnel vision," where I only see things in a negative light.
  - 55. When people give me negative feedback, I realize how inadequate I am.
  - 32. No matter how much good stuff is said about me, if one "negative" thing is said, that is what I will remember
  - 15. I start out with good intentions, but then things go wrong
  - 26. Even if I do something right, I still feel I am a failure
  - 1. I have often felt worthless or inadequate because of what others have said about me
  - 54. I can't enjoy the present because of all the bad things in my past
  - 68. Even though people don't tell me, I know they think negatively of me
  - 28. When things go well, it's usually because of luck
  - 11. I find myself quitting tasks regularly; they just aren't worth the time I put into them
  - 13. I am so different from other people that no one truly understands me
  - 19. I feel worthless if I don't do well
  - 65. Awful things from the past will always haunt my future
  - 31. I tend to blow little things out of proportion
  - 48. Having one good experience doesn't mean anything when the majority of things that happen to me are negative
  - 35. I only try to make changes in my life if I feel things are awful or I am emotionally upset
  - 52. I find that if I make one mistake on the job, I can't let it go
  - 21. I have trouble maintaining consistency in my life
  - 6. When my partner and I get into a fight, I know it is because she/he wants to leave me
  - 7. I am often filled with rage and anger
  - 8. I don't stop to think before I act, I just act
  - 39. I don't think before I act; I usually act according to how I feel at that moment.
  - 62. I'm not very good about following through on things that require a great deal of time and effort
  - 9. I am always angry
  - 33. I despise people who do not treat me fairly
  - 70. The sexual conquest is more important to me than the quality of the sex
- 

**Control**

---

- 30. I am always in command
- 63. Power and control are necessary for me to function in life
- 47. Life is much easier when I control the attitudes and feelings of those around me
- 34. You are either a "top dog" or you're nothing

- 18. A real man doesn't feel afraid
  - 25. I am #1 in everything I do
  - 23. I find myself looking for ways to gain power
  - 60. I find myself always wanting to be the leader in everything
  - 38. When I was a kid I wanted to be ruler of the world
  - 44. People would say I have "macho" hobbies
  - 64. I will tolerate things that are disagreeable to me
  - 42. I haven't done anything to anyone that they didn't deserve
  - 17. I live for the moment, not the future or the past
  - 56. I rarely feel anxious or afraid about anything I plan on doing
- 

### **Egocentrism**

---

- 37. When it comes to things I care about, I am a perfectionist
  - 53. I prefer to do things myself, that way I know they will be done right
  - 51. There is no excuse for someone to treat me unfairly
  - 43. I live for today, because I could die tomorrow
  - 22. I think of myself as one of a kind
  - 50. I'm not like everyone else
  - 16. Each day should be lived to the fullest, because it could be your last
  - 24. No one tells me what I can and cannot do in a relationship
- 

*Note:* Items listed in descending order of factor loading. Items scored on a 5-point Likert scale

(1 = Strongly Agree, 5 = Strongly Disagree).

Table 5

*Average item scores and prorated scores for the MOTS-R and the MOTS-CR*

	Total items	Prorated Score (All items)	Cognitive Immaturity	Control	Egocentrism
MOTS-R (offenders)	70	3.285	3.289	3.662	2.524
MOTS-CR (college Ss)	52	3.457	3.689	3.544	2.438

*Note.* Lower scores indicate more maladaptive thinking styles.



Table 6

*Bivariate intercorrelations between MOTS-CR and MOD-R factors and Totals*

	Cog Imm	Control	Ego	MOTS-CR Total	R/I	C/I	Sub Ab	MOD-R Total
Cog Imm <sup>a</sup>	1.00							
Control <sup>a</sup>	.535***	1.00						
Ego <sup>a</sup>	.234***	.432***	1.00					
MOTS-CR Total	.929***	.785***	.472**	1.00				
R/I	-.180***	-.258***	-.156**	-.239***	1.00			
C/I	-.189***	-.267***	-.118*	-.243***	.472***	1.00		
Sub Ab	-.168**	-.150**	-.118*	-.189***	.392***	.312***	1.00	
MODR Total	-.214**	-.248**	-.164**	-.262***	.787***	.525***	.872***	1.00

Note. <sup>a</sup>Variable included in final predictive models.

\*\*\*  $p \leq .001$ . \*\*  $p < .01$ . \*  $p < .05$ .

Table 7

*Bivariate intercorrelations between the MOD-R Total and demographic variables*

	MOD-R Total	Age	Income	Sex	Race
MOD-R Total	1.000				
Age	.012	1.000			
Income	.091	-.134**	1.000		
Sex <sup>a</sup>	-.322***	.100	-.024	1.000	
Race <sup>a</sup>	.019	.021	-.141**	.001	1.000

*Note.* \*\*\*  $p \leq .001$ . \*\*  $p < .01$ .

<sup>a</sup> Variable included in final predictive models.

Table 8

*Test of between-subjects effects in MOD-R Total GLM model*

Source	Type III S	df	Mean Squares	F	Sig
Corrected	33754.873	10	3375.487	9.370	.000
Intercept	27740.073	1	27740.073	77.004	.000
Cognitive Immaturity	832.272	1	832.272	2.310	.129
Control	1433.323	1	1433.323	3.979	.047
Egocentrism	3057.851	1	3057.851	8.488	.004
Sex	307.873	1	307.873	.855	.356
Race	3938.269	3	1312.756	3.644	.013
Sex*Race	1672.926	3	557.6427	1.548	.202
Error	133290.059	370	360.243		
Total	370066.517	381			
Corrected Total	167044.933	380			

*Note.*  $R^2 = .202$ . Computed using  $\alpha = .05$

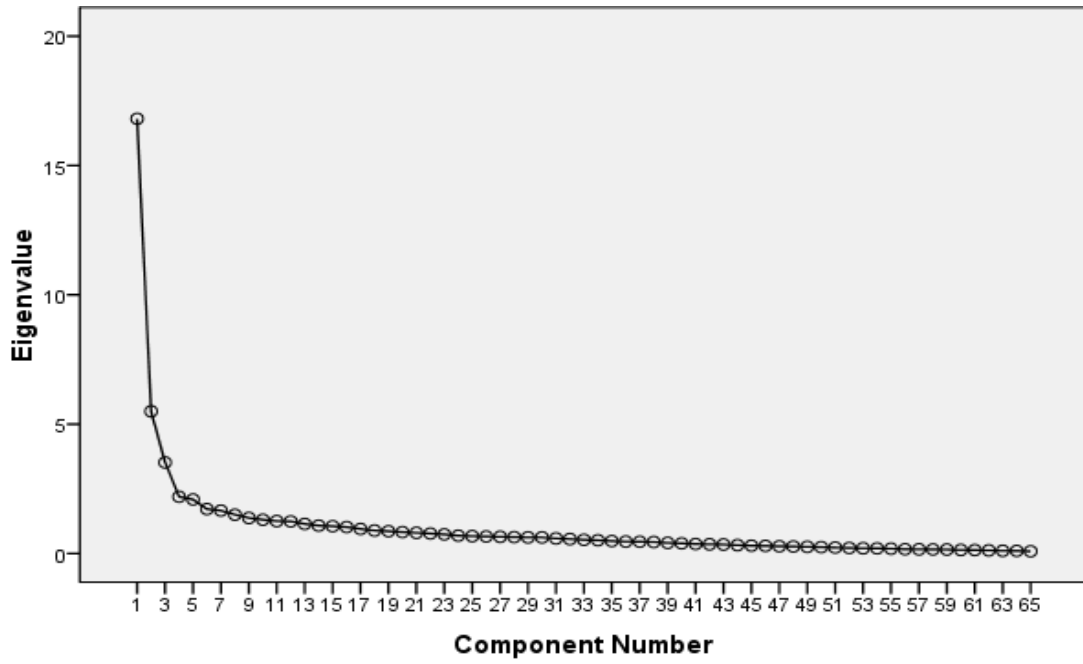


Figure 1. Scree plot of MOTS-CR exploratory factor analysis.

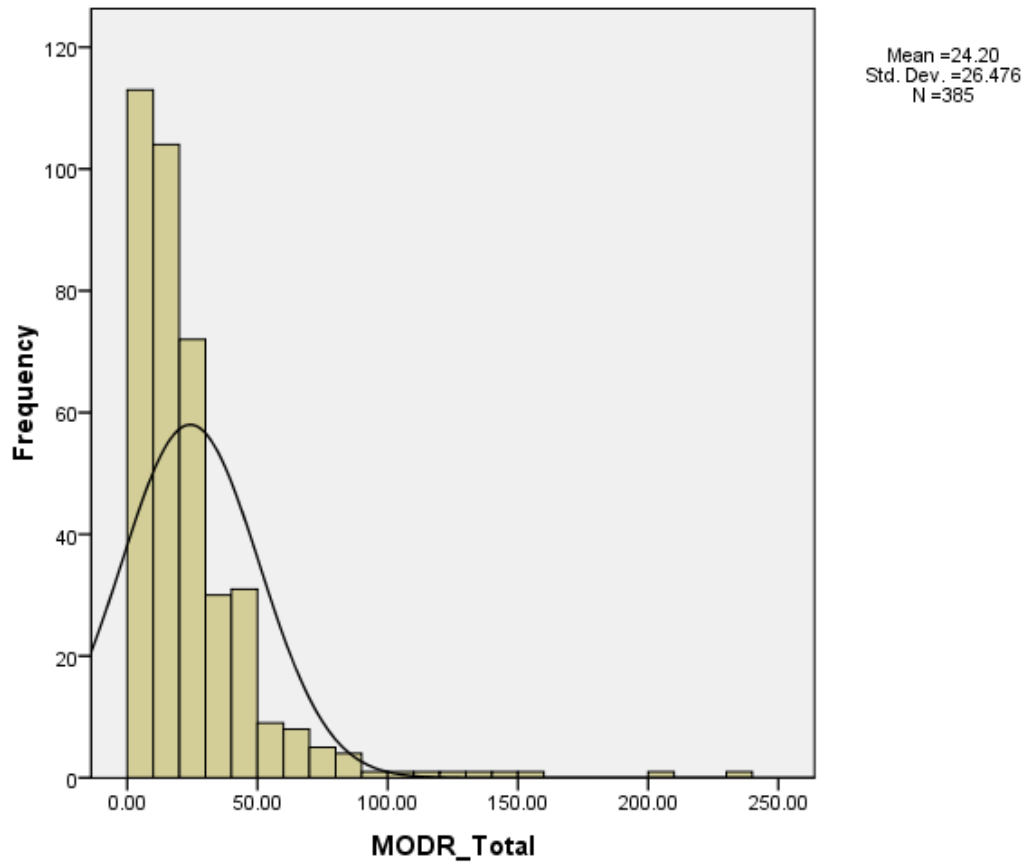


Figure 2. Histogram of original MOD-R distribution.

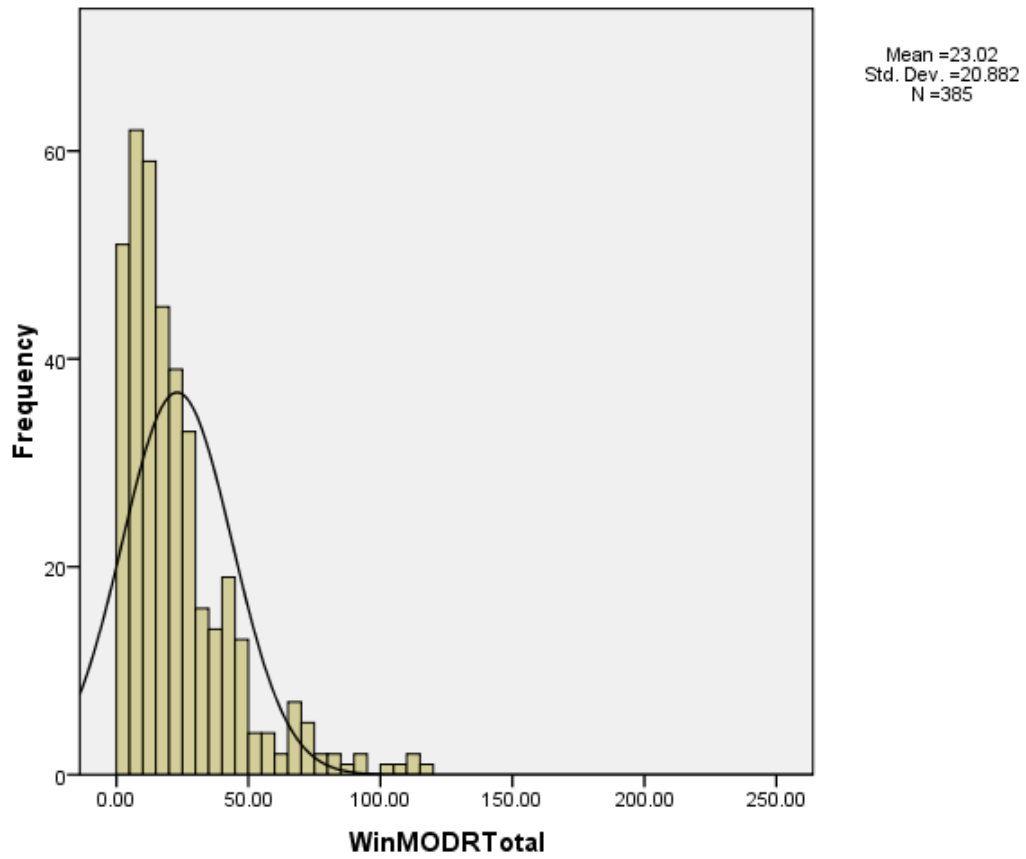


Figure 3. Histogram of MOD-R distribution after square-root transformation and winsorization.

#### 4. DISCUSSION

The purpose of the current study was to investigate the extent to which maladaptive thinking, derived from both criminal and non-criminal theory, could significantly predict delinquent behavior in a college sample. The MOTS-R, originally designed to measure thinking styles in a criminal population, was altered slightly for the college sample. As predicted, the factor structure and reliability of the MOTS-CR were comparable to the original. Examination of the EFA scree plots and factor loadings supported this hypothesis. Psychometrically, the factor structures of the two models were comparable, and all but 18 of the original 70 items were retained in the revision of the measure. In addition, item distribution (52 items) among the three factors of the MOTS-CR was nearly identical to that of the MOTS-R (88.5% overlap) and reflected similar patterns of maladaptive thinking across offenders and the non-offender, college sample. These findings suggested that both offenders and non-offenders engage in many of the same thinking errors and their conceptualization of cognitions, emotions, and environmental stimuli is fundamentally similar.

Cognitive Immaturity items reflected extreme assumptions that seem uncompromising. Items included inflexible thoughts that focus on the negative aspects of situations, for example, “I tend to focus on the negative things,” “I see the worst,” and “I only see things in a negative light.” Some items reflect a catastrophizing attitude related to negative emotions (e.g. “Even if I do something right, I still feel I am a failure”). In addition, some of the items in this factor suggest an overall generalization of opinion (e.g. “Having one good experience doesn’t mean

anything when the majority of things that happen to me are negative.”) Further, this subscale reflects self-pitying thoughts.

Factor 2, the Control subscale, was comprised of two types of items. First, items suggested a need or desire for power over other people, others’ emotions, and the environment. These items encompass both past and current control, as well as thoughts about obtaining control and the effects of having such power. For example, power may be obtained by means of being a leader in social situations or refusing to negotiate with others when in disagreement. Second, the Control factor included items regarding avoidance or management of negative feelings, including fear and anxiety. The minimization or elimination of such feelings may allow for a perception of greater control in an adverse or challenging situation, such as while engaging in risky or delinquent behavior.

Lastly, Egocentrism consisted of items that focus on the individual, including a respondent’s evaluation of oneself, their behavior, and their relationship with others. The individual who endorses such items is often placed in positions of importance when considering situations involving others (e.g. “There is no excuse for someone to treat me unfairly”).

Prorated average scores on these three subscales of the MOT-CR were slightly less maladaptive for college students, but otherwise closely mirrored the responses of an offender sample on the original MOTS-R. In relation to the current college sample, a high index of maladaptive thinking and endorsement of numerous items may be attributed to youth or continuing cognitive development. College participants may be more likely to adopt a self-focused, control-orientated stance on their involvement with others and the environment due to lack of experience or emerging independence. While the college sample for this study was



predominantly youthful, the offender sample for the original MOTS-R was more diverse with respect to age.

The hypothesis regarding the association of thinking styles (via the MOTS-CR) and delinquent behavior (reflected via MOD-R scores) was supported. The final model, which included sex and race, examined delinquency scores as a function of maladaptive thinking (i.e. based on cognitive immature, egocentric, and controlling tendencies) and demographic variables (i.e. sex, race). The model significantly predicted MOD-R total scores, as well as MOD-R composite scores of Reactive/Immature, Callous/Instrumental, and Substance Abuse delinquent behavior. Results suggested that egocentric-based and control-based maladaptive thinking were most associated with relatively higher levels of delinquent behavior in the current college sample.

Race emerged as a significant predictor of self-reported delinquent behavior in the current study. Considering that race did not have a significant bivariate correlation with delinquent behavior, these findings suggest that the relationship between these two variables is more complex. Sheskin (2007) explains that suppressor variables can increase predictability in regression analyses when independent variables are correlated. Race was significantly correlated with the Control and Egocentrism factors, and the emergence of race as a significant predictor of the model suggests that race may be causing a suppression effect in the model. Egocentrism emerged as the only other significant predictor in models that included race as a significant independent variable. Therefore, it was concluded that race is a suppressor variable of the irrelevant variance of Egocentrism. When the variance in Egocentrism that is unrelated to delinquent behavior (i.e. MOD-R scores) yet related to race is partialled out, the remaining variance is more strongly related to delinquent behavior. The conclusion of race as a suppressor

variable is supported by the increase in absolute value of Egocentrism's correlation ( $r = .164$ ) with delinquent behavior to a semipartial correlation of .172. Conceptually, these results suggest that participant race does not directly predict delinquent behavior but indirectly affects the statistical prediction of delinquent behavior via its relationship with Egocentrism.

In predicting delinquent behavior specifically related to emotional reactivity and substance abuse, egocentrism accounted for a significant proportion of the variance. Thus, maladaptive thinking related to one's view of personal importance seemed to be a significant contributing factor to engagement in delinquent behavior in this college sample. Considering their mean age, college students in this study who showed higher levels of impulsive behavior appeared to adopt immature and naïve perspectives of social situations. In addition, results suggested that race caused a suppression effect in the prediction of substance abuse. Results regarding Callous and Instrumental delinquent behavior supported the notion that control and power-oriented maladaptive thinking is an important component of acts such as sex with an unwilling partner and intentionally causing serious injury to another person. Regardless of race or cognitive maturity, the need for power and ability to avoid negative emotions (e.g. anxiety, fear) seemed to drive this type of delinquent behavior. These findings suggest that college students engaging in callous behavior may do so to fulfill control-based needs rather than as a result of biased or rigid thinking style.

Lastly, although results suggested that women endorse less agreement with Control items on the MOTS-CR, all subsequent analyses regarding maladaptive thinking as a function of sex yielded no significant results. These findings suggest that sex does not predict maladaptive thinking as an independent variable. In the current study, males and females did not endorse significantly different thinking styles.

## **Limitations of the current study**

One limitation of the current study may be the lack of highly endorsed delinquent behavior in the sample. For example, all 22 items of the MOD-R had a mode of 0 and standard deviations ranged from .475 to 6.681. Attempts to normalize the delinquency distributions substantially reduced skewness. However, low base rates were observed. Demographic variables regarding participant criminal history were not significantly correlated with other demographic variables, maladaptive thinking, or delinquent behavior. Limited endorsement of delinquent behavior may reflect limited external validity to other college samples. In addition, the current sample was racially homogeneous, with 81.7% of the sample self-identifying as Caucasian. This lack of diversity may also reduce generalizability of results to other samples or populations. Regarding maladaptive thinking and delinquent behavior, the current study consisted of one major limitation. The MOTS-CR model in CFA demonstrated fair to adequate fit, rather than good fit. Although refraining from model specification made comparison with the MOTS-R parallel, this strategy did not allow for improvement of model fit. Thus, the current 52-item, three-factor MOTS-CR model may not be the best means of assessing maladaptive thinking in the current sample. In addition, the Cognitive Immaturity factor of the MOTS-CR did not emerge as a significant predictor in any of the models for examining delinquent behavior. Notably, this factor included the greatest number of items. In addition, this factor included 4 items (13% of total items in the factor) that were not of the original MOTS-R Cognitive Immaturity composite. This lack of significance and overlap with the Control and Egocentrism factors' content may be reflective of this less-than-good model fit.

## **Future directions for research**

As noted earlier, findings suggested that the construct of maladaptive thinking for offenders and non-offenders was very similar. Further, even in a low base-rate delinquency context, college students' thinking styles were associated with self-reported infractions. Findings of the current study may have social implications for the conceptualization of criminality, suggesting that offenders and some youthful non-offenders think more similarly than commonly believed. The clear difference then would be that of level and degree of maladaptive thinking and behavior. Thus, future research may be better served by using the MOTS-R in order to make direct comparisons between offender and non-offender populations. Since the completion of this study, Mandracchia and Morgan (2010) have revised the MOTS-R once more, including a reduction in items to 65 in order to make the measure more parsimonious and demonstrate better model fit. Future research should strive to study maladaptive thinking and delinquent behavior in more demographically diverse samples or regions to address possible issues with external validity. Similarly, studies that reveal greater endorsement of delinquent behavior may be helpful in further conceptualizing the relationship between maladaptive thinking and delinquent behavior in a non-offender sample. In addition, future research investigating general maladaptive thinking should consider validating the MOTS-R in other offender (e.g. juvenile delinquents) and non-offender (e.g. ethnic minority) samples.

## REFERENCES

- Andrews, D. A. & Bonta, J. (1994). *The psychology of criminal conduct*. Cincinnati, OH: Anderson.
- Aron, A., Aron, E. N., & Coups, E. J. (2005). *Statistics for the behavioral and social sciences A brief course* (3<sup>rd</sup> ed.). Upper Saddle River, NJ: Pearson Education.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press, Inc.
- Beck, A. T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York, NY: HarperCollins Publishers, Inc.
- Beck, A. T., Freeman, A., Davis, D. D. & Associates. (2004). *Cognitive therapy of personality disorders*. New York: The Guilford Press.
- Bentler, P. M. (1990). *Comparative fit indexes in structural models*. *Psychological Bulletin*, 107 (2), 238 – 246.
- Brannen, D. N. (2008). The role of emotional reasoning and antisocial behavior in successful psychopathy (Doctoral dissertation, University of Alabama, 2008). *Dissertation Abstracts International*, 68, 6952.
- Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds), *Testing Structural Equation Models* (pp. 136 – 162). Beverly Hills, CA: Sage.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.
- Ellis, A. (1973). *Humanistic psychotherapy: the rational-emotive approach*. New York: The Julian Press, Inc.
- Ellis, A. (1992). Group rational-emotive and cognitive-behavioral therapy. *International Journal of Group Psychotherapy*, 42, 63-80.
- Ellis, A., & Grieger, R. (1977). *Handbook of rational-emotive therapy*. New York: Springer Publishing Company.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology*, 34, 575 – 607.
- Knight, K., Garner, B. R., Simpson, D., Morey, J. T. & Flynn, P. M. (2006). An assessment of criminal thinking. *Crime and Delinquency*, 52(1), 159-177.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130-149.

- Mandracchia, J. T. (2009). *Inmate thinking patterns: An integrative approach*. Unpublished manuscript, Department of Psychology, Texas Tech University, Lubbock, Texas.
- Mandracchia, J. T. & Morgan, R. D. (in press). Understanding criminals' thinking: Further examination of the Measure of Offender Thinking Styles – Revised. *Assessment*.
- Mandracchia, J. T., Morgan, R. D., Garos, S., & Garland, J. T. (2007) Inmate thinking patterns: An empirical investigation. *Criminal Justice and Behavior*, 34(8), 1029-1043.
- Paulhus, D.L. (1998). *The Paulhus Deception Scales: BIDR Version 7*. Toronto/Buffalo: Multi-Health Systems.
- Sheskin, D. J. (2007). *Handbook of parametric and nonparametric statistical procedures* (4<sup>th</sup> ed). Boca Raton, FL: Chapman & Hall.
- Stillman College school characteristics (Semester). Retrieved January 27, 2009, from <http://www.campuscorner.com/alabama-colleges/stillman-college.htm>.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38 (1), 1 – 10.
- University of Alabama quick facts: Demographics (Fall 2007). Retrieved January 27, 2009, from <http://quickfacts.ua.edu/demographics.html>.
- Walters, G. D. (1990). *The criminal lifestyle: Patterns of serious criminal conduct*. Newbury Park: Sage Publications.
- Walters, G. D. (1995). The Psychological Inventory of Criminal Thinking Styles. Part I: Reliability and preliminary validity. *Criminal Justice and Behavior*, 22, 307-325.
- Walters, G. D. (1996). The Psychological Inventory of Criminal Thinking Styles. Part III: Predictive validity. *Journal of Offender Therapy and Comparative Criminology*, 40, 105-112.
- Walters, G. D. (2001). *The Psychological Inventory of Criminal Thinking Styles. Version 4.0*.
- Walters, G. D. (2002). The Psychological Inventory of Criminal Thinking Styles (PICTS): A review and meta-analysis. *Assessment*, 9, 278-291.
- Walters, G. D. & Geyer, M. D. (2005). Construct validity of the Psychological Inventory of Criminal Thinking Styles in relationship to the PAI, disciplinary adjustment, and program completion. *Journal of Personality Assessment*, 84, 252-260.
- Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological methodology*, 8, 84 – 136.
- Yochelson, S. & Samenow, S. E. (1976). *The criminal personality, volume I: A profile for change*. Northvale, New Jersey: Jason Aronson, Inc.

Yochelson, S. & Samenow, S. E. (1977). *The criminal personality, volume II: The change process*. New York: Jason Aronson.

## Appendices



## APPENDIX A

### UNIVERSITY OF ALABAMA Participant Information Sheet

You are being asked to take part in a research study. This study is called *Delinquent Behavior in College Students*. The study is being done by Amy Rodriguez, who is a doctoral student. Ms. Rodriguez is being supervised by Dr. Carl B. Clements, who is a professor and licensed clinical psychologist at the University of Alabama.

#### **What is this study about?**

This study is being conducted in order to learn more about delinquent behavior in young adults. For years researchers have investigated how offenders think and behave. The investigators of this study want to take what we have learned about offenders and examine whether non-offenders share some of the same thinking patterns and behaviors.

#### **Why is this study important--What good will the results do?**

This knowledge is important because identifying and understanding the thinking patterns and behaviors of people who engage in delinquent behavior can help researchers develop tests to recognize these characteristics. Also, this information can be used to help develop enhanced prevention programs for child and juvenile delinquents.

#### **Why have I been asked to take part in this study?**

You have been asked to be in this study because you are enrolled in an Introduction to Psychology class at a college or university.

#### **How many people besides me will be in this study?**

About 500 other people will participate in this study.

#### **What will I be asked to do in this study?**

If you decide to be in this study, you will be asked to do these things:

- Answer basic questions about yourself, such as your age, race, and annual income.
- Either agree or disagree with a series of statements, including various thoughts and opinions about daily life issues.
- Provide information about any previous legal problems you have encountered, including previous arrests, criminal charges, convictions or incarcerations.
- Provide information about various types of behaviors in which you may have or have not engaged.

**\*\*\*Please Note: The personal information you provide in this study will be kept completely confidential. Only Ms. Rodriguez and Dr. Clements will have access to the personal information you provide in this study. The information you provide will be separated from any identifying information (i.e. your name, student ID number) immediately after course credit is awarded.**

**How much time will I spend being in this study?**

Being in this study will take about 30 to 45 minutes.

**Will I be paid for being in this study?**

No, you will not be paid for participating in this study.

**Will being in this study cost me anything?**

There will be no cost to you except for your time in completing the questionnaires.

**Can I take myself out of this study?**

Yes, you may withdraw from the study at anytime if you no longer wish to participate.

**What are the benefits (good things) that may happen to me if I am in this study?**

There are no direct benefits to you from being in this study. Depending on your educational institution, you may receive .5 hours course credit in your Introduction to Psychology class for participation in this study.

**What are the benefits to scientists or society?**

The results of this study will help psychologists better understand the presence of various thinking patterns and behaviors in college students. Scientists are also interested in understanding how thought patterns of delinquents may differ from other young people, particularly college students. Society will benefit from a by developing better methods of predicting delinquent behavior and preventing the escalation of delinquency.

**What are the risks (dangers or harm) to me if I am in this study?**

The only potential risk of participating in this study is that you may feel certain questions are too personal and revealing. In order to minimize this risk, this study is being conducted online to allow you to complete the questionnaires in the privacy of your own home or in a private setting of your choice. In addition, you may withdraw from the study at any point or refuse to answer any question you are not comfortable answering.

**\*\*\*We strongly encourage you to answer all questions entirely and as honestly. Remember, all identifying information will be kept separate from the information you provide immediately after course credit is awarded.\*\*\***

**How will my confidentiality (privacy) be protected? What will happen to the information the study keeps on me?**

To ensure confidentiality, your name will be kept separate from all other study materials. Only the investigators will have access to your personal data. All records of your name (e.g. list to provide course credit) will be erased or destroyed once all credit has been given for participation. There will be no identifying information of any kind on the questionnaires that would allow the researcher, or anyone else, to determine which person completed the materials.

**What are the alternatives to being in this study? Do I have other choices?**

Please see your class instructor for any alternative procedures or assignments you can complete if you choose not to participate in this study.

**What are my rights as a participant?**

Taking part in this study is voluntary—it is your free choice. You may choose not to take part at all. If you start the study, you can stop at any time. Leaving the study will not result in any penalty or loss of any benefits you would otherwise receive.

The University of Alabama Institutional Review Board (IRB) is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

**Who do I call if I have questions or problems?**

If you have questions about the study later on, you may contact Amy Rodriguez at [arodriguez1@crimson.ua.edu](mailto:arodriguez1@crimson.ua.edu) or Dr. Carl Clements at [cclement@as.ua.edu](mailto:cclement@as.ua.edu). If you have any questions about your rights as a research participant you may contact Ms. Tanta Myles, The University of Alabama Research Compliance Officer, at (205)-348-5152.

APPENDIX B

**Demographic Questionnaire**

1) Age: \_\_\_\_\_

2) Ethnicity:

- \_\_\_\_\_ Caucasian
- \_\_\_\_\_ African American
- \_\_\_\_\_ Hispanic
- \_\_\_\_\_ Other

3) What is your classification in college?

- \_\_\_\_\_ Freshman
- \_\_\_\_\_ Sophomore
- \_\_\_\_\_ Junior
- \_\_\_\_\_ Senior, 4<sup>th</sup> year
- \_\_\_\_\_ Senior, 5<sup>th</sup> year and beyond

4) Annual income – Your income if you are Independent  
OR Your providers' income if you are Dependent.

- |                           |                             |
|---------------------------|-----------------------------|
| _____ Less than \$14,999  | _____ \$90,000 - \$104,999  |
| _____ \$15,000 - \$29,999 | _____ \$105,000 - \$119,999 |
| _____ \$30,000 - \$44,999 | _____ \$120,000 - \$134,999 |
| _____ \$45,000 - \$59,999 | _____ \$135,000 - \$149,999 |
| _____ \$60,000 - \$74,999 | _____ \$150,000 and greater |
| _____ \$75,000 - \$89,999 |                             |

5) Which option best fits the type of home in which you grew up?

- |                                       |                                                           |
|---------------------------------------|-----------------------------------------------------------|
| _____ Both biological parents present | _____ Extended family                                     |
| _____ Single parent, mother           | _____ Two adoptive parents                                |
| _____ Single parent, father           | _____ Blended family (1 biological parent, 1 step-parent) |
| _____ Grandparent (s)                 |                                                           |

6) Have you ever been arrested?

- \_\_\_\_\_ Yes \_\_\_\_\_ No

7) If so, how many times have you been arrested?

\_\_\_\_\_

8) Have you ever been charged with a crime?

- \_\_\_\_\_ Yes \_\_\_\_\_ No

9) Have you ever been convicted of a crime?

- \_\_\_\_\_ Yes \_\_\_\_\_ No

10) Have you ever been incarcerated in a juvenile detention center, camp, or ranch?  
\_\_\_\_ Yes \_\_\_\_ No

11) Have you ever been incarcerated in a county or state jail?  
\_\_\_\_ Yes \_\_\_\_ No

12) Have you ever been incarcerated in a state, federal, or psychiatric prison?  
\_\_\_\_ Yes \_\_\_\_ No

## APPENDIX C

### MOTS-R

This measure has statements which describe possible ways you may think about yourself, others, and life in general. Please respond to each of the statements below by showing how much that statement is like your beliefs. Circle the number that best describes how much you personally agree with the statement.

- 1 = Strongly Agree**  
**2 = Agree**  
**3 = Mixed or Neutral**  
**4 = Disagree**  
**5 = Strongly Disagree**

1. I have often felt worthless or inadequate because of what others have said about me (Cognitive Immaturity)	1 2 3 4 5
2. I expect that I will be the best at whatever I do (Egocentrism)	1 2 3 4 5
3. I can be very professional when it comes to things I care about (Egocentrism)	1 2 3 4 5
4. The closer I got to committing a crime, the more confident I became (Control)	1 2 3 4 5
5. I wouldn't commit crimes if life were more fair to me (Control)	1 2 3 4 5
6. When my partner (wife, lover) and I get into a fight, I know it is because she/he wants to leave me (Control)	1 2 3 4 5
7. I am often filled with rage and anger (Cognitive Immaturity)	1 2 3 4 5
8. I don't stop to think before I act, I just act (Cognitive Immaturity)	1 2 3 4 5
9. I am always angry (Cognitive Immaturity)	1 2 3 4 5
10. I am continuously thinking of ways to make life more exciting (Egocentrism)	1 2 3 4 5
11. I find myself quitting tasks regularly; they just aren't worth the time I put into them (Cognitive Immaturity)	1 2 3 4 5

12. When people tell me I'm good at something, I find it hard to believe them (Cognitive Immaturity)	1 2 3 4 5
13. I am so different from other people that no one truly understands me (Egocentrism)	1 2 3 4 5
14. I tend to focus on negative things and forget about what is good in my life (Cognitive Immaturity)	1 2 3 4 5
15. I start out with good intentions, but then things go wrong (Cognitive Immaturity)	1 2 3 4 5
16. Each day should be lived to the fullest, because it could be your last (Egocentrism)	1 2 3 4 5
17. I live for the moment, not the future or the past (Cognitive Immaturity)	1 2 3 4 5
18. A real man doesn't feel afraid (Control)	1 2 3 4 5
19. I feel worthless if I don't do well (Cognitive Immaturity)	1 2 3 4 5
20. It is dangerous to disclose too much about oneself (Egocentrism)	1 2 3 4 5
21. I have trouble maintaining consistency in my life (Cognitive Immaturity)	1 2 3 4 5
22. I think of myself as one of a kind (Egocentrism)	1 2 3 4 5
23. I find myself looking for ways to gain power (Control)	1 2 3 4 5
24. No one tells me what I can and can not do in a relationship (Control)	1 2 3 4 5
25. I am #1 in everything I do (Control)	1 2 3 4 5
26. Even if I do something right, I still feel I am a failure (Cognitive Immaturity)	1 2 3 4 5

27. I tend to see the worst in situations (Cognitive Immaturity)	1 2 3 4 5
28. When things go well, it's usually because of luck (Control)	1 2 3 4 5
29. Without power, you have nothing (Control)	1 2 3 4 5
30. I am always in command (Control)	1 2 3 4 5
31. I tend to blow little things out of proportion (Cognitive Immaturity)	1 2 3 4 5
32. No matter how much good stuff is said about me, if one "negative" thing is said, that is what I will remember (Cognitive Immaturity)	1 2 3 4 5
33. I despise people who do not treat me fairly (Cognitive Immaturity)	1 2 3 4 5
34. You are either a "top dog" or you're nothing (Control)	1 2 3 4 5
35. I only try to make changes in my life if I feel things are awful or I am emotionally upset (e.g., angry, anxious, depressed) (Cognitive Immaturity)	1 2 3 4 5
36. I would rather have the power of crime than the power associated with some noncriminal careers (Control)	1 2 3 4 5
37. When it comes to things I care about, I am a perfectionist (Egocentrism)	1 2 3 4 5
38. When I was a kid I wanted to be ruler of the world (Control)	1 2 3 4 5
39. I don't think before I act; I usually act according to how I feel at that moment (Cognitive Immaturity)	1 2 3 4 5
40. I tend to expect that the worst will happen (Cognitive Immaturity)	1 2 3 4 5
41. It is necessary for me to control other people's emotions in order to keep a handle on things (Control)	1 2 3 4 5



42. I haven't done anything to anyone that they didn't deserve (Control)	1 2 3 4 5
43. I live for today, because I could die tomorrow (Egocentrism)	1 2 3 4 5
44. People would say I have "macho" hobbies (Control)	1 2 3 4 5
45. My mind is always racing with ideas (Egocentrism)	1 2 3 4 5
46. When I am thinking of committing a crime, I can't let fear or worries stand in my way (Control)	1 2 3 4 5
47. Life is much easier when I control the attitudes and feelings of those around me (Control)	1 2 3 4 5
48. Having one good experience doesn't mean anything, when the majority of things that happen to me are negative (Cognitive Immaturity)	1 2 3 4 5
49. I have a tendency to have "tunnel vision," where I only see things in a negative light (Cognitive Immaturity)	1 2 3 4 5
50. I'm not like everyone else (Egocentrism)	1 2 3 4 5
51. There is no excuse for someone to treat me unfairly (Egocentrism)	1 2 3 4 5
52. I find that if I make one mistake on the job, I can't let it go (Cognitive Immaturity)	1 2 3 4 5
53. I prefer to do things myself, that way I know they will be done right (Egocentrism)	1 2 3 4 5
54. I can't enjoy the present, because of all the bad things in my past (Cognitive Immaturity)	1 2 3 4 5
55. When people give me negative feedback, I realize how inadequate I am (Cognitive Immaturity)	1 2 3 4 5

56. I rarely feel anxious or afraid about anything I plan on doing (Control)	1 2 3 4 5
57. By the time I actually commit a crime I know everything will work out as planned (Control)	1 2 3 4 5
58. I love power so much that I will do anything to achieve it, be it manipulative or conning (Control)	1 2 3 4 5
59. It seems my mind is always racing (Egocentrism)	1 2 3 4 5
60. I find myself always wanting to be the leader in everything (Control)	1 2 3 4 5
61. Once I make a judgment about someone, there is little chance of my changing my view (Control)	1 2 3 4 5
62. I'm not very good about following through on things that require a great deal of time and effort (Cognitive Immaturity)	1 2 3 4 5
63. Power and control are necessary for me to function in life (Control)	1 2 3 4 5
64. I will not tolerate things that are disagreeable to me (Control)	1 2 3 4 5
65. Awful things from the past will always haunt my future (Cognitive Immaturity)	1 2 3 4 5
66. I just can't get along with some people (Egocentrism)	1 2 3 4 5
67. Power is the most important thing a person can have (Control)	1 2 3 4 5
68. Even though people don't tell me, I know they think negatively of me (Cognitive Immaturity)	1 2 3 4 5
69. I turned to a life of crime to survive (Control)	1 2 3 4 5
70. The sexual conquest is more important to me than the quality of the sex (Control)	1 2 3 4 5

APPENDIX D

MOD-R

Please indicate *how often* you have participated in the following behaviors by writing in the number of times you have done each activity at the specified ages (even if you didn't get caught or in trouble for it).

For example, if you rode a roller coaster 10 times before age 10, 0 times between the ages of 10 and 15, 3 times since the age of 16 until one year ago, and 1 time in the last year, your responses would look like this:

How often have you:	Under the age of 10	Ages 10-15	Age 16 until one year ago	In the last year
A. Ridden on a roller coaster	10	0	3	1

*If you are not sure about the exact number of times you have participated in each activity please use your best approximate guess.*

***How many times?***

How often have you:	Under the age of 10	Ages 10-15	Age 16 until one year ago	In the last year
1. Gone onto someone's land when they didn't want you to be there, or without their permission?				
2. Threatened to hurt someone?				
3. Been told to bring your parents to school for something you did wrong?				
4. Hurt someone badly enough for him/her to need bandages or a doctor?				
5. Hit or threatened to hit a member of your family (or spouse) in anger?				
6. Taken something not belonging to you worth less than \$5.00?				
7. Become intoxicated from beer or liquor?				
8. Purposely damaged or destroyed property belonging to your parents or other family				

members?				
9. Been sent to the principal's office or to student affairs for bad behavior?				
10. Taken something not belonging to you worth over \$50.00?				
11. Bought or provided liquor for a minor?				
12. Smoked marijuana?				
13. Beaten up on somebody or fought someone (physically)?				
14. Taken drugs or pills other than marijuana? (non-prescription)				
15. Bought or gotten something that was stolen by someone else?				
16. Taken something worth more than \$5.00 but less than \$50.00?				
17. Damaged or messed up something not belonging to you?				
18. Participated in sexual activity with an unwilling partner?				
19. Gotten "kicked out" of the house by your parents?				
20. Used someone's credit card without permission?				
21. Intentionally done something to cause great injury or death to another person?				
22. Been drunk in a public place?				

APPENDIX E

PDS

Read each statement below, and select the number that best describes you, from *Not True* to *Very True* about you.

1 ----- 2 ----- 3 ----- 4 ----- 5  
Not True True Very True

- \_\_\_\_\_ 1. My first impressions of people usually turn out to be right.
- \_\_\_\_\_ 2. It would be hard for me to break any of my bad habits.
- \_\_\_\_\_ 3. I don't care to know what other people really think of me.
- \_\_\_\_\_ 4. I have not always been honest with myself.
- \_\_\_\_\_ 5. I always know why I like things.
- \_\_\_\_\_ 6. When my emotions are aroused, it biases my thinking.
- \_\_\_\_\_ 7. Once I've made up my mind, other people seldom change my opinion.
- \_\_\_\_\_ 8. I am not a safe driver when I exceed the speed limit.
- \_\_\_\_\_ 9. I am fully in control of my own fate.
- \_\_\_\_\_ 10. It's hard for me to shut off a disturbing thought.
- \_\_\_\_\_ 11. I never regret my decisions.
- \_\_\_\_\_ 12. I sometimes lose out on things because I can't make up my mind soon enough.
- \_\_\_\_\_ 13. The reason I vote is because my vote can make a difference.
- \_\_\_\_\_ 14. My parents were not always fair when they punished me.
- \_\_\_\_\_ 15. I am a completely rational person.
- \_\_\_\_\_ 16. I rarely appreciate criticism.
- \_\_\_\_\_ 17. I am very confident of my judgments.
- \_\_\_\_\_ 18. I have sometimes doubted my ability as a lover.
- \_\_\_\_\_ 19. It's all right with me if some people happen to dislike me.
- \_\_\_\_\_ 20. I don't always know the reasons why I do the things I do.
- \_\_\_\_\_ 21. I sometimes tell lies if I have to.
- \_\_\_\_\_ 22. I never cover up my mistakes.
- \_\_\_\_\_ 23. There have been occasions when I have taken advantage of someone.
- \_\_\_\_\_ 24. I never swear.
- \_\_\_\_\_ 25. I sometimes try to get even rather than forgive and forget.
- \_\_\_\_\_ 26. I always obey laws, even if I'm unlikely to get caught.
- \_\_\_\_\_ 27. I have said something bad about a friend behind his or her back.
- \_\_\_\_\_ 28. When I hear people talking privately, I avoid listening.
- \_\_\_\_\_ 29. I have received too much change from a salesperson without telling him or her.
- \_\_\_\_\_ 30. I always declare everything at customs.

1 ----- 2 ----- 3 ----- 4 ----- 5  
Not True Very True

- \_\_\_\_\_ 31. When I was young I sometimes stole things.
- \_\_\_\_\_ 32. I have never dropped litter on the street.
- \_\_\_\_\_ 33. I sometimes drive faster than the speed limit.
- \_\_\_\_\_ 34. I never read sexy books or magazines.
- \_\_\_\_\_ 35. I have done things that I don't tell other people about.
- \_\_\_\_\_ 36. I never take things that don't belong to me.
- \_\_\_\_\_ 37. I have taken sick leave from work or school even though I wasn't really sick.
- \_\_\_\_\_ 38. I have never damaged a library book or store merchandise without reporting it.
- \_\_\_\_\_ 39. I have some pretty awful habits.
- \_\_\_\_\_ 40. I don't gossip about other people's business