INFORMATION PROCESSING, PSYCHOPATHY, AND JUROR DECISION MAKING IN A CAPITAL MURDER CASE

A Dissertation

by

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ABSTRACT

The United States legal system relies on the ability of jurors to impartially consider complex psychological testimony despite research indicating that they are unable to distinguish between scientifically rigorous evidence and evidence based on less objective methods. The purpose of this study was to better understand how different forms of expert testimony and juror information processing mode influence decision making in a capital case.

Mock jurors completed a measure identifying their preferences for processing information in a rational, logical manner (Rationality) and an affect-driven, emotional manner (Experientiality). Following this, participants were instructed to alter their cognitive processing through written instructions given by the judge. Specifically, participants were primed to employ a rational, analytical mindset or rely on their gut-instincts and intuition. Participants were then presented with a capital murder case vignette and expert testimony (clinical opinion or actuarial) concerning defendant likelihood for future violence (high or low) and psychopathy diagnosis (psychopath or no diagnosis). Finally, a subsample of participants participated in a deliberations activity.

Results suggest testimony type did not have a significant influence on juror ratings of future dangerousness or ultimate verdict. However, participants who reviewed clinical opinion testimony asserting the defendant was a psychopath perceived the defendant to be more psychopathic than participants who heard actuarial testimony

making the same assertions. This effect was driven specifically by participants' higher ratings of the defendant's affective and interpersonal psychopathy traits. In addition, participation in the deliberations activity resulted in significant changes in perceptions of psychopathy. Specifically, participants who heard clinical opinion testimony asserting that the defendant was a psychopath perceived the defendant as significantly more psychopathic following the deliberations activity compared to their pre-deliberations ratings.

Future research examining the relationship between psychopathy evidence and legal decision making should consider the relationship between individual information processing and perception of psychopathic traits. Further, these data support the importance of including deliberations in mock jury research. Finally, these data lend further support to the effectiveness of clinical opinion testimony, particularly in regards to its influence on juror perceptions of defendant psychopathic traits.

DEDICATION

This work is dedicated to the two most important people in my life. My husband, who kept me going and was endlessly supportive, and my son, who made me laugh when I needed it the most. So this is for Brian, who made it all possible, and for Jameson, who made it all worth it.

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1. INTRODUCTION

The structure of the American legal system places enormous weight on the ability of jury members to impartially consider complex scientific evidence. To assist jury members in this regard, courts have allowed expert testimony when it is determined that the testimony can assist the jury to understand evidence or determine an important fact (Fed. R. Evd. 702). Medical doctors have been acting in this regard for centuries but it was not until the 1962 United States Supreme Court (USSC) ruling in *Jenkins v. U.S.* that psychologists could be utilized as expert witnesses if their unique knowledge could assist the trier of fact. Since this time psychologists have consistently offered their expert knowledge in a variety of capacities (Melton, Petrila, Poythress, & Slobogin, 2007). A significant focus of this testimony in both civil and criminal contexts for psychiatrists and psychologists has been on the prediction of future violent behavior. For example, mental health professionals have opined about future dangerousness in cases concerning involuntary civil commitment (*O'Connor v. Donaldson*, 1975), the detention of a sexual offender after completion of court imposed sentences (*Kansas v. Hendricks*, 1997), and pretrial detention of defendants (*United States v. Salerno*, 1987). Similarly, the USSC majority opinion in *Barefoot v. Estelle* (1983) asserted it is within the scope of expertise for an expert mental health professional to opine about a capital defendant's likelihood for committing future violent acts. This type of expert testimony may be particularly useful in jurisdictions that require jurors to weigh this factor when contemplating sentencing decisions in capital cases (*Jurek v. Texas*, 1976).

Although mental health expert testimony is supposedly held to the same scientifically rigorous standards as other forms of expert testimony (*Kumho Tire Co. v. Carmichael*, 1999), many psycholegal scholars have questioned whether such evidence should be admitted at trial (Shuman & Sales, 1998). For example, Grove and Meehl (1996) argued that:

> All policymakers should know that a practitioner who claims not to need any statistical or experimental studies but relies solely on clinical experience as adequate justification, by that very claim is shown to be a nonscientifically minded person whose professional judgments are not to be trusted. (p. 320).

Similarly, Morse (1978) long ago argued that clinical opinion testimony, as opposed to testimony based on scientifically sound methodology, is outside the scope of a clinician's responsibilities, ethically questionable, and also admitted into evidence far too often. In contrast, Kwartner and Boccaccini (2008) opine that most experienced-based methods have at least some empirical support, but acknowledge that it is at the discretion of experts whether to emphasize the clinical or empirical basis in their testimony.

Inherent in the *Barefoot* ruling was the notion that lay jurors are able to distinguish scientifically rigorous testimony from testimony based on less objective means. Despite this assumption, research has not supported this belief (Krauss, Lieberman, & Olson, 2004; Krauss & Sales, 2001). The recent Texas Supreme Court ruling in *Coble v. State* (2010) suggests that criminal courts are beginning to recognize that clinical opinion expert testimony is highly fallible and potentially inadmissible in

relation to predictions of 'future dangerousness,' but federal evidentiary standards established under *Daubert v. Merrell Dow Pharmaceuticals* (1993) allow each judge significant discretion when determining the admissibility of such evidence. As such, the admissibility of expert testimony may vary between courtrooms and rely heavily on the knowledge, experience, and opinion of each presiding judge. Meaning, testimony based on the expert's clinical opinion may be rejected by one judge as inadmissible but allowed by another judge as meeting *Daubert* evidentiary standards. It is necessary to understand how legal decision makers digest this information and what impact mental health testimony has on court decisions.

In addition to testimony concerning future dangerousness, the construct of psychopathy is being introduced by mental health professionals into the courtroom with increasing frequency to inform legal decision makers in a variety of contexts (Lally, 2003; Lloyd, Clark, & Forth, 2012; Viljoen, McLachlan, & Vincent, 2010), including sexually violent predator trials, parole hearing, and death penalty cases (DeMatteo & Edens, 2006; DeMatteo et al., 2013; Walsh & Walsh, 2006). Research has demonstrated that psychopathy, as measured by the Psychopathy Checklist-Revised (Hare, 2003), is modestly to moderately associated with specific outcome variables (e.g., criminal recidivism) considered important by legal decision makers (Gendreau, Goggin, & Smith, 2002; Guy, Edens, Anthony, & Douglas, 2005, Singh, Desmarais, & Van Dorn, 2013; Singh, Grann & Fazel, 2011; Yang, Wong & Coid, 2010).

Given that psychopathy evidence is often introduced as informing the mental health expert's opinions concerning future dangerousness (DeMatteo & Edens, 2006;

DeMatteo et al., 2013) it is important to understand what impact this type of evidence has on decision makers. A number of studies have examined the potentially prejudicial nature of the psychopathy construct on decisions rendered by judges (Murrie, Boccaccini, McCoy, & Cornell, 2007), juvenile parole officers (Murrie, Cornell, & McCoy, 2005), clinicians (Rockett, Murrie, & Boccaccini, 2007), and mock jurors (Cox, DeMatteo, & Foster, 2010; Cox, Edens, Clark, Smith & Magyar, 2013; Edens, Deforges, Fernandez, & Palac, 2004). However, to date, no research has examined how psychopathy evidence reported in the context of clinical and/or actuarial testimony is digested by legal decision makers.

The aim of the present study was to examine how different forms of expert testimony, clinical opinion and actuarial, concerning psychopathy and future dangerousness affect juror decision making in a capital case. For the purposes of this research, clinical opinion testimony was defined as testimony based on a clinician's own experiences and idiosyncratic beliefs absent an empirically supported assessment measure (Shuman & Sales, 1998). In contrast, actuarial testimony is defined as testimony based on a defendant's obtained scores on a statistically derived formula (Meehl, 1954). The effect of clinical opinion and actuarial testimony on juror verdict, ratings of defendant dangerousness, level of psychopathy, psychopathic traits, and were examined.

A second aim of this study was to investigate the method through which jurors process information and examine how this interacts with expert testimony to impact decision making. Specifically, this study attempted to understand the differential effects

of experiential and rational processing. Experiential processing is defined as processing information in a manner than is emotional, unreflective and affect driven (Epstein, 1994). In contrast, rational processing is evaluative and relatively affect-free. The effect of experiential and rational processing on juror verdict, ratings of defendant dangerousness, level of psychopathy, and psychopathic traits was examined.

To investigate these questions, undergraduate Psychology students and jury-eligible community members were recruited and given a short vignette about a capital trial based loosely on *Coble v. Texas* (2010[1]). In *Coble,* the defendant was convicted of capital murder and sentenced to death after the court heard expert testimony asserting the defendant was likely to be a continuing threat to society. Using a 2 x 2 design, this project instructed jurors to engage in a specific information processing mode (Rational or Experiential) and then exposed jurors to different forms of prosecution and defense expert testimony (clinical opinion or actuarial) regarding the defendant's level of future dangerousness. Testimony-type was counterbalanced such that prosecution clinical opinion testimony was always contradicted by subsequent actuarial testimony by a defense witness and prosecution actuarial testimony was always contradicted by subsequent clinical opinion testimony by a defense witness. Jurors then provided sentencing recommendations for the defendant and rendered ratings concerning their perceptions of the defendant's likelihood of future violence and the extent to which he exhibited psychopathic traits.

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[1]*Coble v. Texas* was originally heard by a Texas criminal court in 1990. However, for the purposes of this study information concerning the case was taken directly from the Texas Court of Criminal Appeals decision rendered and published in 2010.

Before describing the methodology of this study and obtained results, the relevant psychological literature and case law will be discussed. Specifically, reviews will be provided regarding the purpose and admissibility of mental health expert testimony, research concerning the appropriateness of expert testimony concerning future dangerousness, different forms of expert testimony, and the effect of expert testimony on juror decision making. In addition, the construct of psychopathy will be explored, including its historical and theoretical contexts, application to the legal system, and influence on juror decision making. Finally, Cognitive-Experiential Self Theory will be reviewed, including its application to juror decision making.

1.1 Aggravating and Mitigating Factors

To understand the context through which mental health professionals may be called by the court to provide expert opinions concerning future dangerousness, it is necessary to first understand the legal constructs of aggravating and mitigating factors in capital murder trials. In response to *Furman v. Georgia* (1972), in which the USSC ruled that the death penalty was unconstitutional because it violated the United States Constitutional 8th Amendment's prohibition of cruel and unusual punishment, states began to establish more structure in regards to factors that juries could consider when determining the appropriateness of a capital sentence (Cunningham, 2006). This structure included a clearer outline of aggravating and mitigating factors, or evidence that juries must consider during the sentencing phase of a capital trial. These factors were meant to eliminate the arbitrariness with which the death penalty previously had been imposed and reduce the number of defendants eligible for this sentence. Mitigating

factors include any elements presented by the defense in an attempt to convince the jury to impose a lesser sentence. There are no restrictions on what type of evidence this may entail and can include such factors as defendant mental disorder, good behavior while incarcerated, and childhood abuse.

Aggravating factors, on the other hand, are evidence presented by the prosecution to convince the jury that a death sentence is appropriate. This evidence is limited in scope and can include the nature of the crime, circumstances of the crime scene, and the defendant's state of mind at the time of the offense. In Texas, as well as a handful of other jurisdictions, jurors must consider the likelihood that the defendant will pose a continuing threat to society if not given a death sentence (*Jurek v. Texas*, 1976). In fact, Morier (1987) determined that future dangerousness is the one factor that may be most important when a jury is contemplating a capital sentence; when jurors opt for a sentence of life in prison, they cite their inability to agree on the potential risk to society as the main issue of contention among jurors. Considering the USSC has upheld the admissibility of future dangerousness testimony by psychological expert witnesses, and certain states require jurors to consider this aggravating factor when determining a capital offender's sentence, the ability of mental health experts to reliability and validly measure this outcome is of particular importance.

1.2 Admissibility of Expert Testimony

In *Jenkins v. U.S.* (1962) the USSC ruled psychologists could testify concerning a defendant's mental illness if their knowledge could assist the trier of fact. Since this ruling the legal and ethical implications of mental health testimony have remained a

heated topic among psycholegal scholars. Melton et al. (2007) asserted that psychological expert testimony should be allowed if the knowledge exhibited by the psychologists is specialized and can assist in answering the ultimate legal question. Taking a more conservative stance, Morse (1978) argued that psychologists should only be permitted to testify concerning their observations of a defendant's behavior, as opposed to interpreting the meaning of said behavior.

The USSC has also directly addressed the question of testimony concerning defendant future dangerousness by mental health professionals. In the landmark ruling of *Barefoot v. Estelle* (1983), the USSC refused to overturn the death penalty sentence of Thomas Barefoot, a Texas man accused and convicted of murdering a police officer. During the sentencing phase of the trial, a psychiatrist testified that there was a "100% chance" the defendant would pose a continuing threat to society, despite never having interviewed Barefoot. During the appellate process, the American Psychiatric Association submitted an amicus curiae brief supporting the defendant's assertion that such testimony should be inadmissible because it does not meet federal evidentiary standards. The USSC disagreed and upheld the admissibility of such testimony, asserting that the nature of the adversarial system (i.e., the right of a defendant to introduce an expert of an opposing opinion) would allow for jurors to determine the accuracy of such testimony. This ruling, in effect, left the door open for the admission of this type of evidence, which continues to be provided in capital cases around the country, particularly Texas.

Although *Jenkins* permitted expert testimony by psychologists and *Barefoot* permitted mental health professionals to testify concerning future dangerousness, both of these rulings must be considered in light of the more recent USSC ruling in *Daubert v. Merrell Dow Pharmaceuticals* (1993). Writing for the majority opinion, Justice Harry Blackmun asserted that courts must individually consider scientific expert testimony and determine its methodological strength and applicability to the legal question at hand. In making this determination, the court must consider the testability of the expert's assertion as well as the established error rate of the methodology being utilized. In effect, the ruling established each individual judge as a "gatekeeper" and charged him or her with reevaluating evidence that had previously been admitted under ostensibly less stringent standards. The USSC further substantiated this ruling in *Kumho Tire Co. v. Carmichael* (1999) in which the majority opinion ruled the newly established *Daubert* standard applies to all categories of expert testimony.

In response to the USSC's *Daubert* ruling, in 2000 the United States Congress amended Federal Rule of Evidence (FRE) 702 to state that scientific, technical, or specialized knowledge is only admissible in a court of law if it is based on sufficient scientific data, is the product of reliable methodology, and standardized methodology was applied for that specific case. Among other states, Texas accepted FRE 702 as well as adopted the *Daubert* standard for both civil and criminal hearings.[2]

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[2]In the state of Texas the *Daubert* standard is generally referred to as the "*Kelly/Daubert"* standard because of the Texas Supreme Court ruling in *Kelly v. State* (1992), which is consistent with the USSC *Daubert* decision.

1.3 Expert Testimony Concerning Future Dangerousness

Although the *Daubert* standard asserts that expert testimony must be based on scientifically sound methodology, the individual discretion with which judges can admit such testimony is problematic. Specifically, research indicates few judges actually consider *Daubert* criteria when making decisions concerning testimony admissibility. In addition, although *Daubert* established seemingly specific standards on which to measure expert testimony, studies have found individual courts are continuing to weigh expert credentials as more important than the general acceptance of methodology by the scientific community, peer review, or error rate of a particular methodology (see Kwartner & Boccaccini, 2008, for an overview).

Furthermore, research has indicated the consideration of future dangerousness, at least in capital cases, will likely be erroneous. In a series of studies, Cunningham and colleagues investigated capital defendants and their institutional disciplinary infractions post-conviction. The results of one study indicated government-appointed clinicians were likely to overestimate an inmate's likelihood of future violence, with less than 1% of inmates (who were identified during sentencing as being a continuing risk to society) committing a violent act that resulted in injury. Additionally, 28% of inmates never received a single disciplinary infraction, including any minor discrepancies, at six years post-sentencing (Cunningham, Reidy, & Sorensen, 2007).

In a second study, Cunningham, Reidy, and Sorensen (2008) reviewed the prison records for 145 male federal capital offenders serving sentences of life in prison. Although these offenders were described by the prosecution as being a continuing threat

to society, reviews of their prison disciplinary records (at an average of 6.17 years post-admission) indicate they were no more likely than their non-capital offending counterparts to commit a violent or nonviolent disciplinary infraction. Furthermore, when the prosecution asserted future dangerousness during the trial, data concerning subsequent institutional violence suggested their prediction was no better than chance. In a follow up study, Cunningham, Sorensen, and Reidy (2009) determined jury predictions about inmate dangerousness was not significantly predictive of actual institutional misconduct measured, on average, five years post-sentencing, even after controlling for initial jury verdict. In fact, in considering base rate of institutional violence, when jurors determined a capital defendant would be a future danger, their predictions were incorrect 97% of the time.

Cunningham, Sorensen, Vigen, and Woods (2011) retrospectively reviewed disciplinary records of former death row inmates who later had their sentences commuted. Despite being labeled by juries as a continuing threat to society, prevalence rates of violent assaults were comparable to capital offenders sentenced to life in prison. The low base rates of violent behavior remained low even after former death row offenders entered the general prison population. Meaning, the absence of violent assaultive behavior could not be attributed to heightened security and restrictions found in death row settings. Instead, the numbers of assaultive incidences were comparable across settings and none of the reported assaults resulted in life-threatening injuries to the victims. Cunningham et al. (2011) conclude capital juries are consistently inaccurate in their ability to predict rare, violent, behavior which results in high false positive rates.

Finally, Edens, Buffington-Vollum, Keilen, Roskamp, and Anthony (2005) examined disciplinary records for 155 inmates sentenced to death in the state of Texas. Despite expert testimony to the contrary, none of the inmates committed another murder and only 5.2% of inmates committed an assaultive act resulting in an injury requiring more than first aid. Taken together, these findings suggest that caution must be used when allowing clinicians to render opinions concerning the future dangerousness question in capital cases.

1.4 Actuarial Versus Clinical Prediction in Violence Risk Assessment

A number of social science studies have established that predictions of future violent behavior are more accurate when based on actuarial assessment of the individual as opposed to unstructured clinical opinion (Gardner, Lidz, Mulvey, & Shaw, 1996a, 1996b; Mossman, 1994).Clinical opinion assessment is defined as judgments and decision making that relies on a clinician's personal experience, rather than on data derived from statistically reliable and valid research (Shuman & Sales, 1998). In contrast, actuarial assessment is decision making rendered from a statistically derived formula. In the actuarial method, human judgment is eliminated and conclusions are drawn solely from the prescribed relationship between empirical data and the behavior of interest (Meehl, 1954). Notably, the clinical opinion approach should not be equated with a clinical or treatment setting and the actuarial approach should not be equated to automated decision rules alone (Dawes, Faust, & Meehl, 1989). Instead, Dawes, Faust, and Meehl (1989) argue that virtually any data are quantifiable. The differentiation

between these two approaches, although frequently explored in social science literature, has not consistently been clear in the courtroom (Shuman & Sales, 1998).

A recent Texas Supreme Court case, however, did distinguish between these two approaches to decision making. In the appellate decision of the capital case *Coble v. State* (2010), the Texas Supreme Court ruled that clinical opinion testimony concerning future dangerousness originally offered by the prosecution was not admissible because it failed to meet evidentiary standards established under *Daubert.*[3] Inconsistent with the USSC ruling in *Barefoot*, the Texas Supreme Court, in essence, acknowledged that *Coble* jurors may have difficulty differentiating scientifically sound testimony from testimony based on clinical opinion. An investigation of this assertion is described below.

Briefly, it should be noted that a third approach, commonly referred to as guided professional judgment, was developed because of concerns about the inflexibility of the actuarial approach and lack of empirical support for clinical opinion (Lieberman et al., 2007). Guided professional judgment combines the flexibility of clinical opinion with the structure of actuarial instruments. A number of risk assessment instruments have been developed which utilize this approach (e.g., Historical-Clinical-Risk Management-20, Webster, Douglas, Eaves, & Hart, 1997; Sexual Violence Recidivism-Revised, Boer, Hart, Kropp, & Webster, 1997) and advocates argue these measures focus on empirically

[3] At first glance, this ruling appears to support the notion that courts are becoming aware of the fallibility of clinical judgment and are also willing to exclude this type of evidence for failing to meet minimum scientific requirements. However, in *Coble* the Texas Supreme Court went on to state that there was no proof that the fallible clinical opinion testimony significantly influenced jurors in their decision making, and therefore refused to overturn the original sentencing decision.

supported risk factors and allow the clinician to combine and weigh factors in whatever manner s/he believes is appropriate. Although some researchers have examined the effect of guided professional judgment on juror decision making (Krauss, Lieberman, Olson, 2004) this approach is not the focus of the current investigation.

1.5 Future Dangerousness Testimony and Juror Decision Making

Considering the USSC ruling in *Barefoot v. Estelle* (1983), social scientists have attempted to better understand the impact of psychological expert testimony concerning future dangerousness on jury decision making. Inherent in the *Barefoot* ruling is the assumption that jurors are able to accurately distinguish more empirically based, scientific evidence from less reliable clinical opinion. A number of studies have investigated whether jurors are able to make this distinction. Krauss and Sales (2001) presented undergraduate mock jurors with information from a capital case including future dangerousness expert testimony that was constructed as either clinical opinion or actuarial in nature. In addition, participants received one of four different adversarial procedures: cross-examination, constructed as either ineffective or effective, and competing expert testimony, given as either clinical opinion or actuarial. In the 'ineffective' condition the expert witness was cross-examined and the defense attorney attacked the credibility of the witness without attacking the content of the testimony. In the 'effective' cross-examination condition the defense attorney attacked the material and content of the expert witness' testimony. In the 'competing expert' conditions a second expert was presented and countered the original expert's testimony, using either clinical opinion or actuarial methods.

Participant decision making was measured pre- and post- exposure to expert testimony. Regardless of type (clinical opinion versus actuarial) participants rated the defendant as significantly more dangerous following exposure to this testimony. Clinical opinion testimony, however, had a greater impact than actuarial testimony. This preference for clinical opinion testimony remained even after the presentation of adversarial procedures. Importantly, mock jurors rated both types of testimony as equally scientific, suggesting an inability to identify the potential fallibility of clinical opinion testimony even when presented with adversarial evidence emphasizing its flaws. In addition, although mock jurors were more influenced by clinical opinion testimony, there was no difference in their ratings of testimony impact on their verdict, suggesting jurors might be unaware of the impact of expert testimony on their decision making processes.

In a follow up study, Krauss and Lee (2003) attempted to understand how deliberations might impact juror decision making. Researchers presented undergraduates with case information and expert testimony identical to those given by Krauss and Sales (2001). Participants rated the defendant's likelihood of future dangerousness prior to and directly after engaging in fifteen minutes of unmonitored deliberations with a group of peers. Results mirrored those of Krauss and Sales (2001) in that jurors favored clinical opinion testimony and reported more confidence in their dangerousness ratings of the defendant. Interestingly, when jurors heard actuarial expert testimony their ratings of defendant dangerousness initially increased and subsequently returned to baseline after

engaging in deliberations. Finally, deliberations resulted in a decrease in juror ratings of expert effectiveness, regardless of type of testimony presented.

Taken together, these experimental studies support the hypothesis that juror decision making is strongly influenced by expert testimony concerning future dangerousness. Furthermore, these data seem to indicate jurors are more influenced by clinical opinion testimony, are unaware of the impact of this type of testimony, and are unable to recognize its potential fallibility.

As stated previously, juror consideration of defendant future dangerousness during capital sentencing is legally mandated in some jurisdictions. In part because of an effort to inform jurors of defendant future dangerousness, testimony concerning the construct of psychopathy has become increasingly popular in this context (DeMatteo & Edens, 2006; DeMatteo et al., 2013; Walsh & Walsh, 2006). Next we examine the theoretical foundations of the psychopathy construct, whether psychopathy is a relevant factor to consider when assessing future dangerousness, and the potential implications of the introduction of psychopathy testimony.

1.6 Psychopathy

Due in part to Hervey Cleckley's revolutionary book, *The Mask of Sanity* (1941), the construct of psychopathy has become increasingly popular in both research and clinical settings. According to Cleckley, psychopathy is defined by 16 traits: superficial charm and good intelligence; absence of delusions; absence of nervousness; unreliability; insincerity; lack of remorse; inadequately motivated antisocial behavior; failure to learn from experience; incapacity for love; general poverty in affective

relations; lack of insight; unresponsiveness in interpersonal relations; uninviting behavior with our without substance abuse; suicidal threats rarely acted on; impersonal and trivial sexual relations; and a failure to follow any life plan.

Although Cleckley's original conceptualization referenced the presence of "inadequately motivated antisocial behavior," he did not specify *criminal* behavior as a central component to the psychopathy construct.[4] Currently, a debate exists among leading theorists and researchers concerning the essentiality of criminal conduct to the psychopathy construct. One side of the debate holds that antisociality, including juvenile delinquency, is a critical element of psychopathy (Hare & Neumann, 2005). Scholars with opposing views hold that criminal behavior is a correlate of the disorder but not necessarily requisite (Skeem & Cooke, 2010). Although current research supports the assertion that psychopathy can exist in the absence of criminal conduct (DeMatteo, Heilbrun, & Marczyk, 2005, 2006), the issue is far from resolved (Skeem & Cooke, 2010).

For the purposes of the current investigation, it is important to acknowledge that, while criminality may or may not be a central component to the psychopathy construct, it is often associated with psychopathy both in the literature (Hare & Neumann, 2005; Vitacco, Neumann, & Jackson, 2005) and the legal system (Lally, 2003; Lloyd, Clark, & Forth, 2010). Further, if the criminal behavior was not present, there would be no legal proceedings in which to introduce the psychopathy construct. As such, psychopathy has

[4] Skeem and Cooke (2010) differentiate criminal behavior from antisocial behavior by defining criminal behavior as a violation of an established law while antisocial behavior is defined more broadly as a behavior that interrupts societal interests (i.e. noncriminal manipulative behavior).

been increasingly introduced into the courtroom to aid legal decision-makers in answering a variety of questions including informing future dangerousness opinions (DeMatteo & Edens, 2006; DeMatteo et al., 2013; Gagnon, Douglas, & DeMatteo, 2007).

1.7 The Psychopathy Checklist-Revised

Originally developed as a method of operationalizing the assessment of psychopathy in a criminal population, the PCL was published in its original form in 1980. Scored using a semi-structured interview and file review, the revised version of the measure includes 20 items loosely based on Cleckley's original criteria (see Table 1 for a complete list of PCL-R items).

Table 1.

Psychopathy Checklist-Revised Items.

Factor	Item	Item Description
Factor 1		
	Glib/Superficial charm	Smooth talking, may create a positive first impression, too slick to be believable
	Grandiose self-worth	Self-assured or cocky; attitude remarkably different from like circumstances and accomplishments
	Pathological lying	Readiness and ease at lying, deception has intrinsic value
	Conning/Manipulative	Scams and schemes to defraud or manipulate others; criminal and non-criminal acts
	Lack of remorse or guilt	No concern for effects of behaviors on others; may admit to this or feign sorrow that is insincere
	Shallow affect	Superficial emotions; limited range and depth of emotions; may include dramatic, short-lived overreactions
	Callous/Lack of empathy	Absence of concern for others' feelings or welfare
	Failure to accept responsibility	Rationalization, denial, or minimization of the consequences of one's actions
Factor 2		
	Need for stimulation/Proneness to boredom	Chronic, extensive desire for stimulation and risk-taking; may refuse things that are dull or routine
	Parasitic lifestyle	Financial dependence on others even though capable of work
	Poor behavioral controls	Short-tempered, prone to outbursts; May be easily offended and frustrated
	Early behavior problems	Serious behavioral problems prior to the age of 12 (may include theft, fire-setting, drug-use, truancy, etc.) that typically result in complaints from others
	Impulsivity	Behavior lacks in planning and is poorly thought-out
	Lack of life goals	Inability or unwillingness to follow a reasonable life plan
	Irresponsibility	Habitually fails to live up to basic responsibility; No sense of obligation or loyalty

Table 1. Continued.

Factor	Item	Item Description
	Juvenile delinquency	History of antisocial behavior prior to the age of 18. Must include charges and convictions resulting from formal contact with the legal system
	Revocation of conditional release	Violated release (e.g., failure on parole) or escaped from a penal institution
	Criminal versatility	Adult criminal record involves a wide array of offense types
Not appearing on either factor		
	Promiscuous sexual behavior	Sexual relations are impersonal, trivial, or indiscriminate
	Many short-term marital relationships	Marriage includes a live-in relationship involving some overt or implied level of commitment

Initial data indicated the appropriateness of a two-factor model of the PCL-R, with Factor 1 associated with affective/interpersonal dimensions and Factor 2 associated with antisocial behavior and lifestyle (Hare, 2003). However, other models such as the three-factor (Cooke & Michie, 2001) and four-factor (e.g. Vitacco, Rogers, Neumann, Harrison, & Vincent, 2005) model have also been examined. The three-factor model outlines interpersonal, affective, and lifestyle components of psychopathy, and omits criminality as a central component. In contrast, the four-factor model retains PCL-R items that specifically relate to criminal conduct. The debate concerning the appropriateness of each model relates to the debate concerning the essentiality of criminal conduct in the psychopathy construct referenced earlier.

Considering the PCL-R is being used in real world cases to assist the trier of fact with increasing frequency, many scholars have investigated the appropriateness of utilizing the measure in this manner. Key elements to consider when determining the suitability of a measure for a specific purpose is both the reliability of the tool and its validity as it pertains to the specific question at hand. It is common for the PCL-R to be referred to as globally reliable and valid (Hare & Neumann, 2008). However, a large portion of the research on the PCL-R has only examined the measure in the research laboratory. When utilized in "real world" settings, the utility of the PCL-R is less promising. Specifically, recent data have indicated the PCL-R demonstrates less than adequate reliability between raters in adversarial settings (DeMatteo et al., 2013; Lloyd et al., 2010; Murrie, Boccaccini, Johnson, & Janke, 2008; see also Edens, Magyar, & Cox, 2013, for a more thorough review).

1.8 Psychopathy in Legal Settings

During legal proceedings the psychopathy concept is most commonly introduced through the use of the PCL-R (Viljoen et al., 2010). Considering the frequency in which the measure is used to address defendant future dangerousness (Viljoen et al., 2010), the predictive validity of the measure in this context must be examined. A number of meta-analyses have determined that the PCL-R may be predictive of recidivism after an offender is released from incarceration (Gendreau et al., 2002; Leistico, Salekin, DeCosta, & Rogers, 2008; Walters, 2003), with the factor assessing behavioral characteristics (Factor 2) driving a large portion of the modest to moderate effect sizes. However, there is mixed empirical evidence concerning the ability of the PCL-R to

predict institutional misconduct and violence, with most studies reporting non-significant or modest correlations between PCL-R scores and institutional misconduct, particularly violent conduct in U.S. prisons (Edens et al., 2005; Edens et al., 2001; Guy et al., 2005; Walters, 2003). Given the central question in death penalty cases is ”will the defendant commit a dangerous act while serving a sentence of life in prison without the possibility of parole?” that the PCL-R is actually not able to predict this outcome is troubling. For this reason, many psycholegal scholars caution against the use of the measure for addressing this specific question (Bersoff, 2008; Cunningham, 2006; Edens, 2001; Edens, Magyar, & Cox, 2013).

1.9 Juror Decision Making and Psychopathy

Although the empirical support for introducing the PCL-R into capital cases is questionable at best (see Edens, 2001; Edens, Magyar, & Cox, 2013), the construct continues to be introduced during these proceedings (DeMatteo & Edens, 2006; DeMatteo et al., 2013; Edens & Cox, 2012; Walsh & Walsh, 2006). Because of this, scholars have attempted to investigate the effect of psychopathy testimony on juror decision making in this capacity. In a simulated capital case Edens, Deforges, Fernandez, and Palac (2004) presented mock jurors with a case vignette and varied the defendant’s clinical diagnosis by condition: presented as either psychotic, psychopathic, or no diagnosis. Although the participants overestimated the likelihood that the defendant would commit a future violent act in every condition, this effect was most prevalent when the defendant was diagnosed as a psychopath.

In a follow-up study 231 undergraduate mock jurors read a capital case vignette as well as expert testimony concerning the defendant's level of future dangerousness and psychiatric diagnosis (again given as either psychopathic, psychotic or no diagnosis). Consistent with Edens et al. (2004), across conditions participants grossly overestimate the likelihood that the defendant would be violent in the future. However, this overestimation was particularly prevalent in the psychopathy and psychosis conditions. Further, data suggest juror perceptions of a defendant's level of psychopathy predicted their support for a death sentence. This effect was significant even when analyses were restricted to participants who had already determined the defendant was a "continuing threat to society" suggesting the introduction of psychopathy testimony to inform future dangerousness decisions could be considered prejudicial.

In another study researchers attempted to better understand the prejudicial effect of the psychopathy label on capital juror sentencing decisions. Cox, DeMatteo, and Foster (2010) varied the defendant's likelihood for future violence, given by a psychological expert witness as either high or low, and the presence of a psychopathy label, either present or absent. The defendant's estimated violence risk was more predictive of jurors' final verdict; meaning, the defendant who was presented as a future risk of violent behavior was more likely to receive the death penalty, regardless of psychopathy label. Interestingly, when asked to rate the likelihood that the defendant would commit another violent crime if given a sentence of life in prison, the defendant who was presented as a high likelihood for future violence and not a psychopath was rated by participants as more likely to be violent than the defendant who was presented

as a high likelihood for future violence and a psychopath (although this finding only approached significance). The authors concluded that, contrary to previous findings, the label "psychopath" might have worked in a mitigating manner in that jurors used the diagnosis to explain the defendant's bad behavior.

In addition to studies focusing on adult offenders, scholars have also investigated how psychopathy testimony influences juror decision making with juvenile offenders. Boccaccini, Murrie, Clark, and Cornell (2008) presented 891 jury-pool members with a vignette of a juvenile offender on trial and manipulated key variables of interest including antisocial behavior, psychopathic personality traits, and mental health diagnosis. Data suggest diagnostic label was not as influential as psychopathic traits and antisocial behavior, however, jurors who were told the defendant "is a psychopath" rated him as more likely to be violent and deserving of a harsher punishment than the defendant who simply "met criteria for psychopathy."

In addition to studies examining the effect of psychopathy on juror decision making, a number of studies have investigated how psychopathy testimony influences other players in the legal system including juvenile judges (Murrie et al., 2007), probation officers (Murrie et al., 2005), and clinicians (Rockett et al., 2007). Globally, research has indicated psychopathy testimony may influence perceptions of recidivism risk (Murrie et al., 2007; Murrie et al., 2005; Rockett et al., 2007), treatment amenability (Vidal & Skeem, 2007) and the need for harsher punishments (Jones & Cauffman, 2008).

Taking a different approach, Edens, Davis, Fernandez Smith, and Guy (2012) aggregated control group data from three studies in which mock jurors rated a defendant's psychopathic traits and rendered ultimate sentences absent of any expert testimony regarding psychopathy. Results indicate that participants' death verdicts were highly associated with affective/interpersonal traits. This association was not as strong with either behavioral psychopathic traits or overall psychopathic ratings. These data suggest juror decision making may be influenced by specific psychopathic traits (i.e. affective/interpersonal) attributed to the defendant as opposed to a global psychopathy rating.

Given that the Edens et al. (2012) data included undergraduate students exclusively, Cox, Clark, Edens, Smith, and Magyar (2013) attempted to extend these findings to a sample of representative community members. Participants reviewed a capital case vignette and rated the defendant on 30 personality characteristics theoretically associated with the psychopathy construct. Consistent with Edens et al. (2012) perceptions of affective and interpersonal traits significantly predicted support for the death penalty. In particular, jury member rating of the defendant's remorselessness was particularly relevant in support for the death penalty.

Another study examined the relationship between various theoretically relevant constructs and lay participants' perceptions of a fictional capital defendant's psychopathic traits. Edens, Clark, Smith, Cox and Kelley (2013) provided a brief capital case vignette to 285 community members awaiting jury duty. Importantly, the description of the defendant was deliberately kept vague to ensure that participant

ratings of the defendant's psychopathic traits were not based on concrete information about his behavior or antisocial conduct. Interestingly, layperson ratings of psychopathic features were significantly predicted by their perceptions of the defendant's boldness, intelligence, future dangerousness, and "evilness." These findings are generally consistent with previous research which suggest laypersons perceive psychopaths to be social adept and bright people, but also potentially dangerous and "evil" (Edens et al., 2012; Guy & Edens, 2006; Helfgott, 1997).

Despite the abundance of laboratory research suggesting mental health testimony concerning psychopathy influences jury members, to date only one study has surveyed actual jury members about their perceptions of risk in sexually violent predator trials. To understand how these perceptions are related to offender obtained scores on risk measures, Boccaccini, Turner, Murrie, Henderson, and Chevalier (2013) surveyed actual jurors at the conclusion of 26 SVP trials about their perceptions of the respondents' risk of reoffending. Results suggest defendants' scores on various risk measures including the Static-99 (Hanson & Thornton, 2000), MnSOST-R (Epperson et al., 1998), and PCL-R were not significantly predictive of jurors' perceptions of dangerousness. In fact, the researchers concluded that there was no evidence that jurors were swayed by the risk measures at all. Although interesting, replication of this research is necessary before any definitive conclusions can be drawn.

In summary, research suggests psychopathy evidence has an impact on juror decision making, although the magnitude and implications of that impact remain somewhat unsettled (Boccaccini et al., 2013; Cox et al., 2010; Edens, 2001). Given the

high stakes of capital cases, a thorough understanding of how psychopathy influences legal decision making is imperative. Next we explore the method through which jurors process information and later examine how cognitive processing and expert testimony interact to impact juror decision making.

1.10 Cognitive Experiential Self Theory

Cognitive-Experiential Self Theory (CEST; Epstein, 1973, 1991, 1994) holds that there are two major systems through which an individual processes information and adapts to the world. More primitive in nature, the experiential system encourages the automatic and effortless assessment of information. It is affect-driven and guides an individual's processing and subsequent behavior through emotions and intuition. When employing the experiential system an individual is likely to think in a manner that is unreflective, categorical, personal, and action oriented (Epstein, 1994). In contrast, the rational system is an evolutionarily younger system that requires direct effort on the part of the individual. This system is analytical, relatively affect-free, and encodes information through the direct evaluation of data.

Notably, Epstein (1973) emphasizes that neither system is superior to the other. The experiential system is more fallible and may lead individuals to conclude events are causally related when, in actuality, they are only arbitrarily related. However, Epstein (1994) emphasizes that the experiential system is evolutionarily adaptive and better able to promote rapid assessment of stimuli. Importantly, when individuals are aware of the experiential system, they can actively engage in rational processing in an effort to override its influence (Epstein, 1991).

CEST assumes that all behavior is a joint effort between both the experiential and rational system (1973). Importantly, individual differences exist in the employment of each system and an individual's ability to engage in one mode of information processing over the other is largely determined by an innate tendency to favor one system. However, effective training can promote individuals to engage in analytical thinking and hone rational processing skills (Epstein, 1991).

A series of research findings have used the CEST model to explain various cognitive processes. Epstein, Denes-Raj, and Pacini (1995) examined the CEST conceptual framework and conjunction errors. Conjunction errors occur when one assumes that a combination of specific conditions is more probable than a single, more general, condition. A common example that appears in the social psychology literature is the "Linda problem" in which a woman is more likely to be identified as a bank teller and a feminist (as opposed to only a bank teller) based on descriptive information commonly associated with feminists (Epstein et al., 1995). Through a series of four studies examining CEST and conjunction errors, data suggest that priming participants for later concrete thinking resulted in subsequent rational processing. The authors concluded the CEST model sufficiently explained the tendency for people to engage in conjunction errors.

A second study examined the concept of the worldview defense and CEST. Worldview defense is derived from terror management theory and states that one's own awareness of one's mortality amplifies one's positive reactions to those who support one's personal worldview and negative reactions to those who dispute one's personal

worldview. Simon et al. (1996) found that participants who were encouraged to engage in experiential processing responded to mortality salience through increased worldview defense and death related thoughts. In contrast, participants who were encouraged to engage in rational processing (via written instructions) were less likely to respond to mortality salience with increased worldview defense. Results provide support for the fundamental assumptions of CEST, namely the presence of two distinct mechanisms for information processing.

Finally, Epstein, Lipson, Holstein, and Huh (1992) examined CEST and counterfactual thinking. Counterfactual thinking generally refers to the tendency of an individual to generate alternative outcomes to a negative event (Epstein et al., 1992). In a series of studies researchers presented participants with vignettes and asked them to respond to a variety of "if only" questions while engaging in either rational or experiential thinking. Results suggest priming the experiential system reduced participants' ability to subsequently engage in rational thinking. The authors concluded the experiential system can successfully influence the rational system, lending support for the hypothesis that the two mechanisms, while distinct, are not completely independent.

1.11 Measuring the CEST Dual-processing System

To adequately measure an individual's dual-processing modes, Epstein, Pacini, Denes-Raj and Heier (1996) created the Rational-Experiential Inventory (REI). Now in its revised form, the self-report REI (Pacini & Epstein, 1999) measures an individual's preferred method of information processing using two scales; the Need for Cognition

(NFC) scale assesses an individual's tendency to rely on rational processing and the Faith in Intuition (FI) scale is designed to measure an individual's inclination towards experiential processing. Each of the scales is further divided into two subscales. NFC Rational Ability refers to perceptions of a high level of ability to think analytically and logically. NFC Rational Favorability (also referred to as "Rational Engagement," Pacini & Epstein, 1999) refers to a reliance on and preference for thinking in an analytical manner. In contrast FI Experiential Ability refers to a high level of ability with respect to intuitive impressions and gut instincts. Finally, FI Experiential Favorability (also referred to as "Experiential Engagement," Pacini & Epstein, 1999) refers to reliance on gut feelings and intuitive impressions.

Pacini and Epstein (1999) determined NFC and FI scales are positively correlated to variables of theoretical interest, including measures of emotional expressivity and big five personality traits. Importantly, the two scales are not significantly correlated with each other, lending support for the orthogonal nature of the constructs. A number of studies have utilized the REI to examine information processing in a variety of contexts including examining the relationship between rational and experiential processing and working memory (Fletcher, Marks & Hine, 2012), self-esteem (Shimizu & Pelham, 2011), gambling (Emond & Marmurek, 2010) and, importantly, juror biases (Gunnell & Ceci, 2010; McCabe, Krauss, & Lieberman, 2010). A shortened version of the measure, the Rational-Experiential Inventory-Short (REI-S; Norris, Pacini, & Epstein, 1998) has also recently gained popularity as a method of assessing information processing (Finucane & Gullion, 2010; Lindeman, 2011; Silva, Bridges, & Metzger, 2005).

1.12 CEST and Juror Decision Making

Lieberman, Krauss, Kyger, and Lehoux (2007) examined the effect of information processing and expert testimony type in a Sexually Violent Predator (SVP) civil commitment hearing[5]. Undergraduate mock jurors were primed to engage in either experiential or rational processing through written instructions given by the hypothetical presiding judge. Participants then read a case vignette and either clinical opinion, guided professional judgment, or actuarial testimony. Participants who were experientially primed rated the defendant as more likely to engage in violent behavior in the future when they heard clinical expert testimony, as opposed to actuarial testimony (there was no significant difference between clinical opinion and guided professional judgment testimony). Interestingly, gender seemingly mediated this finding, in that women rated the defendant as a high likelihood for recidivism regardless of processing mode or testimony. Although interesting, this mediation effect is not unusual in studies examining juror verdicts of sexually violent predators (Guy & Edens, 2003, 2006) meaning women may consistently be more punitive when considering violence risk for sexual offenders.

In a follow up study, McCabe, Krauss, and Lieberman (2010) examined individual differences in information processing and how this related to expert testimony and juror decision-making. In contrast to previous studies, the researchers did not

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[5] Sexually Violent Predator (SVP) laws have been enacted in many jurisdictions as a direct result of public concern regarding serial sexual offending. These laws allow for the indeterminate civil commitment of sexual offenders after the offender completes his or her allotted sentence as determined by a criminal court. Approximately 20 states, including Texas, have enacted some form of a SVP civil commitment law (Lieberman et al., 2007).

attempt to manipulate juror information processing and instead measured participant preferred method of processing. Participants completed the REI prior to viewing a simulated SVP civil commitment hearing via videotape. Included in the simulation was expert testimony, presented as either clinical or actuarial, cross-examination of the expert witness, closing arguments presented by both defense and prosecution lawyers, and final instructions given by the judge. Both undergraduate participants and jury-eligible community members participated and results indicate undergraduate participants scored higher on measures designed to assess rational processing. There were no differences, however, between groups in terms of experiential processing. Interestingly, community mock jurors were more punitive and rated the defendant as more dangerous than undergraduate jurors; this finding was even more apparent when community jurors were exposed to clinical testimony, regardless of their initial preferred processing mode. Importantly, when researchers controlled for participant confidence in their verdict, processing mode was not a significant predictor in final verdict for either community or undergraduate participants.

These findings were further substantiated by Krauss, McCabe and Lieberman (2011) who examined whether differences in information processing styles accounted for dissimilarities between community and undergraduate mock jurors. The data suggested community participants were more likely to favor commitment of a SVP after hearing clinical testimony, regardless of their preferred processing style. In addition, community representative jurors reported being more confident in their verdicts when presented with clinical opinion testimony as opposed to actuarial testimony and rated

both types of testimony as equally scientific and influential in the decision-making process. In light of the USSC decision in *Barefoot v. Estelle* (1983) this finding raises concerns about the ability of jurors to distinguish between empirically sound and scientifically based testimony versus more subjective, clinical opinion testimony.

Finally, Lieberman and Krauss (2009) examined the effect of testimony type and label familiarity on juror decision making in a SVP civil commitment hearing. Participants were primed to engage in either experiential or rational processing and then exposed to clinical opinion or actuarial testimony concerning a label that was considered familiar ("psychopath") or unfamiliar ("pedophile"). Contrary to previous findings, participants who were rationally primed were more persuaded by clinical opinion testimony than actuarial testimony when the testimony was paired with the familiar diagnosis. This effect did not occur with the unfamiliar label. These findings raise interesting questions concerning the influential effect of a mental health diagnosis and whether this effect can override a rationally primed participant's preference for actuarial testimony.

Currently, only one study has examined how information processing, as conceptualized by CEST, relates to juror decision making in a capital case. Krauss, Lieberman, and Olson (2004) administered Krauss and Sales' (2001) original stimulus materials and attempted to manipulate juror processing through seemingly arbitrary tasks. Specifically, participants in the rational processing group were presented with a series of various mathematical equations and instructed to complete the calculations. Participants in the experiential group, on the other hand, were asked to draw a picture

describing their current emotional state. Results were as expected in that mock jurors were differentially influenced by actuarial or clinical testimony depending on their primed processing mindset. In addition, verdicts given by the experientially primed participants who were exposed to clinical testimony were the most robust, meaning, juror dangerousness ratings were not affected by adversarial procedures.

1.13 Methodological Considerations in Mock Jury Research

Given that many of the studies discussed above have utilized undergraduate mock jurors (i.e., Cox et al., 2010; Edens et al., 2004; Guy & Edens, 2003; Krauss et al., 2004; Krauss & Sales, 2001) the ecological validity of mock juror research should be briefly addressed. One of the most prominent questions of validity raised by psycholegal scholars in regards to mock jury research concerns the use of undergraduate students instead of community-dwelling jury eligible adults (Bornstein, 1999). Because of the general ease of access to undergraduate students, they have remained popular participants in mock jury studies despite questions regarding whether their data can generalize to the population as a whole (Sears, 1986). Bornstein (1999) reviewed 26 studies which examined the differences between undergraduate and community member mock juror decisions. Although some studies found modest differences between student and nonstudent mock jurors (which, in general, indicated students may be less punitive than their community counterparts), overall, the majority of studies failed to find consistent differences. Bornstein (1999) concluded there is strong evidence that students and nonstudents respond to trial relevant factors in a similar manner.

A second methodological design element to consider is the presence of juror deliberations during the study procedures. A number of studies have demonstrated differences in juror decision making between pre- and post-deliberations when complex testimony or legal instructions are presented during trial (Diamond & Levi, 1996; Kerwin & Shaffer, 1994). Citing these studies as well as a number of others, Diamond (1997) concluded that a lack of deliberation conditions is a genuine threat to external validity and a fundamental flaw in past and present jury research. These potential threats to validity are important to consider when examining the literature concerning juror decision making, expert testimony, and psychopathy. Specifically, a number of studies investigating these topics utilized undergraduate mock jurors and only one study (Krauss & Lee, 2003) included a deliberations portion of the selected protocol.

2. CURRENT STUDY

Given the preceding literature review, a number of important research questions have yet to be addressed concerning the relationship between types of expert testimony, juror information processing mode, and juror decision-making in capital murder cases. One purpose of the current study was to expand on previous findings (Krauss & Sales, 2001; Krauss & Lee, 2003) by manipulating forms of expert testimony and exploring the impact of this variable on jury decision making. Specifically, the impact of clinical opinion and actuarial testimony on participant verdict and ratings of defendant dangerousness was explored. In addition, this study is the first to examine the differential impact of types of expert testimony on mock juror's perceptions of a defendant's level of psychopathy and psychopathic traits.

Second, the current study sought to understand how juror information processing affects juror ratings of a defendant on variables important in a capital context. Specifically, this study examined if experiential and rational information processing primes had a differential impact on decision making regarding verdict, ratings of future dangerousness, and perceptions of level of psychopathy and psychopathic traits. Finally, this study sought to understand if type of expert testimony and information processing prime interact to impact participant decision making.

To investigate these questions, participants were presented with a case vignette loosely based on the *Coble v. Texas* (2010) capital murder case. Prior to the presentation of stimulus materials, participant processing mode was measured in the context of preferences for rational and emotional processing. Utilizing a 2 X 2 design, participants

were then primed to employ a specific processing mode (experiential vs. rational) and read different types of psychological expert testimony (clinical opinion vs. actuarial). In each condition the prosecution expert opined that the defendant was a high likelihood for future violence and a psychopath, after which the expert for the defense asserted that he was a low likelihood for future violence and not a psychopath. Testimony-type was counterbalanced such that prosecution actuarial testimony was always contradicted by defense clinical opinion testimony and prosecution clinical opinion testimony was always contradicted by defense actuarial testimony.

After reading through stimulus materials, participants voted for a sentence of either life in prison (without the possibility of parole) or death. Next, participants rated the likelihood that the defendant presented a continuing threat to society. Participants then rated the defendant on various theoretically and historically relevant personality and behavioral traits loosely based on the PCL-R (Hare, 2003) as well as made ratings concerning the importance of different types of evidence (e.g., expert testimony, facts of the crime) on their decision making. Finally, to increase the external validity of these findings, the participants recruited from the TAMU Department of Psychology Undergraduate Participant Pool participated in small group deliberations before rendering a final verdict, dangerousness ratings, and ratings of global psychopathy and psychopathic traits.

Based on the findings of Lieberman et al. (2007), Lieberman and Krauss (2007), and Krauss et al. (2004) it was hypothesized participants who were first exposed to prosecution clinical opinion testimony would be more punitive (i.e., more likely to

sentence the defendant to death and view him as more dangerous and psychopathic) than participants who were first exposed to prosecution actuarial testimony. In addition, it was hypothesized that experientially primed participants would be more punitive (i.e., more likely to sentence the defendant to death and view him as more dangerous and psychopathic) than rationally primed participants.

Further, it was hypothesized that experientially primed participants would be more punitive (i.e., more likely to sentence the defendant to death and view him as more dangerous and psychopathic) when experiencing prosecution clinical opinion expert testimony asserting the defendant was a high likelihood for future dangerousness. In contrast, rationally primed participants would be more likely to sentence the defendant to death when experiencing prosecution actuarial testimony asserting the defendant was a high likelihood for future dangerousness (see Table 2).

Finally, considering the potential relationship between participant preferred processing mode and decision making (Krauss, McCabe & Lieberman, 2011) it was hypothesized that REI-S FI scores would be positively correlated with death verdicts, ratings of future dangerousness, global ratings of psychopathy and psychopathic traits. In contrast, REI-S NFC scores would demonstrate no relationship with ratings of future dangerousness, global ratings of psychopathy and psychopathic traits.

Table 2.

Hypotheses.

Condition	Prime	Expert for the Prosecution	Expert for the Defense	Hypothesized participant rating
1	Experiential	Clinical testimony, high likelihood of violence/Psychopathy	Actuarial testimony, low likelihood of violence/No psychopathy	Death penalty; High likelihood for future violence; High psychopathy
2	Experiential	Actuarial testimony, high likelihood of violence/Psychopathy	Clinical testimony, low likelihood of violence/No psychopathy	Life in prison; Low likelihood for future violence; Low psychopathy
3	Rational	Clinical testimony, high likelihood of violence/Psychopathy	Actuarial testimony, low likelihood of violence/No psychopathy	Life in prison; Low likelihood for future violence; Low psychopathy
4	Rational	Actuarial testimony, high likelihood of violence/Psychopathy	Clinical testimony, low likelihood of violence/No psychopathy	Death penalty; High likelihood for future violence; High psychopathy

3. METHOD

3.1 Participants

Undergraduate sample. Two groups of participants were recruited for this study. One hundred and thirty-six undergraduate students enrolled in the Texas A&M University Department of Psychology Undergraduate Participant Pool participated in study procedures and were included in final analyses. This sample included 91 women (66.9%) and 45 men (33.1%) with a mean age of 18.52 years (*SD* = .81). The majority of participants identified themselves as Caucasian (69.9%) followed by Hispanic (19.1%), African American (3.7%), or "other" (7.4%). In terms of religious affiliation, participants mostly identified as a sect of Christianity. Finally, in terms of political affiliation, participants largely identified with the Republican Party (see Tables 3 & 4).

Table 3.

Undergraduate Sample Religious Beliefs.

Religion	Frequency	Percent
Catholic	42	30.9
Other	33	24.3
Protestant (non-Evangelical)	30	22.1
Protestant (Evangelical)	22	16.2
Jewish	3	2.2
Hindu	2	1.5
Muslim	1	.7

Note. Data missing from three participants.

Table 4.

Undergraduate Sample Political Affiliation.

Political Affiliation	Frequency	Percent
Republican	72	52.9
Democrat	22	16.2
Independent	18	13.2
Other	16	11.8
Libertarian	5	3.7

Note. Data missing from three participants.

Community Sample. Some researchers have questioned the generalizability of using undergraduate students as mock jurors (e.g., Diamond, 1997), given the demographic differences between undergraduate students and community members (see Bornstein, 1999). For this reason, community members were recruited for participation through the online marketplace, Amazon Mechanical Turk (MTurk). MTurk is a relatively new "marketplace" that allows companies and researchers to recruit individuals from across the world to complete surveys and experiments. Studies that have evaluated the representativeness of this method of recruitment have generated fairly positive results. Buhrmester, Kwang, and Gosling (2011) found that the MTurk sample is more representative of the US population than other internet accessible samples and is significantly more diverse than typical samples of undergraduate college students. Importantly, the authors also argued the data collected from MTurk participants met or exceeded psychometric standards reported in standard internet samples. However, Ross,

Zaldivar, Irani, and Tomlinson (2010) found MTurk participants are somewhat younger and more educated than the U.S. population. Utilization of this sample allows for a more demographically diverse sample and increases the generalizability of this study.

Recruited participants were initially compensated $0.50 for their time. Due to initial low recruitment rates, however, this amount was increased to $1.50. To increase the ecological validity, recruitment was restricted to U.S. citizens over the age of 18. A total of 123 MTurk workers were included in final analyses. Participants consisted of 71 women (57.7%) and 52 men (42.3%) with an average age of 38.26 (*SD* = 11.76). The majority of participants were Caucasian (83.9%) followed by "other" (8.9%), Hispanic (4.0%) and African American (3.2%). In terms of education, the majority of participants had a high school diploma or equivalent (33.9%), whereas 31.5% completed a four-year college degree, 15.3% had completed post-graduate courses, 14.5% completed some college courses, and 2.4% had not completed high school (with data missing from three participants). Participants were diverse in terms of their religious beliefs and political affiliation (see Tables 5 & 6).

Table 5.

Community Sample Religious Beliefs.

Religion	Frequency	Percent
Catholic	17	13.7%
Other	58	46.8%
Protestant (non-Evangelical)	22	17.7%

Table 5 Continued.

Religion	Frequency	Percent
Protestant (Evangelical)	16	12.9%
Jewish	2	1.6%
Hindu	5	4.0%
Muslim	2	1.6%

Note. Data missing from two participants.

Table 6.

Community Sample Political Affiliation.

Political Affiliation	Frequency	Percent
Republican	10	8.1%
Democrat	59	47.6%
Independent	42	33.9%
Other	5	4.0%
Libertarian	2	1.6%

Note. Data missing from three participants.

3.2 Materials

Demographic and Death Qualification Questionnaire. Participants completed a demographic questionnaire (Appendix A) inquiring about their age, race/ethnicity, gender, political affiliation, and religious affiliation. In addition, participants were asked two questions to assess if they would be willing to impose a sentence of death if the

prosecution sought such a punishment and if they would be able to consider all possible sentencing options (i.e., death penalty and life in prison without the possibility of parole) available in a capital case. Such questions are necessary to ensure the generalizability of the sample, particularly in light of *Witherspoon v. Illinois* (1968), in which the USSC held that prospective jurors may be excluded from service if their attitudes concerning the death penalty would affect their ability to impartially determine a person's guilt or innocence, and *Lockhart v. McCree* (1986), in which the Supreme Court upheld the constitutionality of the death-qualification process.

Rational-Experiential Inventory-Short. The REI- S (Appendix B) is a 24-item likert-type survey designed to measure an individual's preferences in information processing. The measure includes two subscales; the 12-item Need for Cognition scale (NFC; $\alpha = .85$) which assesses an individual's rational processing and the 12-item Faith in Intuition scale (FI; $\alpha = .91$), which emphasizes a pre-conscious affective processing style. Epstein et al. (1996) demonstrated the validity of the Rational-Experiential Inventory, from which the REI-S was derived. In addition, a number of studies have utilized the REI-S to measure experiential and rational processing styles (Finucane, & Gullion, 2010; Lindeman, 2011; Silva et al., 2005).

Experimental Stimuli: The Case. Simulated capital case material (Appendix C) was loosely based on the Texas death penalty case, *Coble v. State* (2010). The description of the crime was taken directly from the reported case with slight modifications made for purposes of brevity. In addition, some circumstances of the crime were altered to decrease the likelihood of overly high base rates of support for a

death sentence for the defendant (i.e., the number of victims was decreased). The defendant, Billie Wayne Coble, was ultimately found guilty of capital murder and sentenced to death.

Prosecution Clinical Opinion Testimony/Defense Actuarial Testimony. Expert testimony concerning defendant dangerousness and level of psychopathy was presented as part of the trial transcript during which both prosecution and defense mental health expert witnesses provided evidence solicited by the retaining attorneys. Both testimonies consisted of statements concerning: (1) the witness's education and experience, (2) the clinical interview conducted with the defendant, (3) the witness' opinion concerning the defendant's level of psychopathy, (4) the witness's opinion concerning the defendant's likelihood of committing a future violent act.

The prosecution's expert witness opined that the defendant was a high likelihood to reoffend and met criteria for psychopathy. The expert explained that this opinion was based on his years of experience and a 2.5 hour interview with the defendant (i.e., clinical opinion). In contrast, the defense's expert witness asserted that the defendant was a low likelihood to reoffend and did not meet criteria for psychopathy. This testimony also included affirmation that his opinion was based on a 2.5 hour clinical interview with the defendant as well as data gathered using standard psychological risk assessment measures (i.e., actuarial; see Appendix F)

Prosecution Actuarial Testimony/Defense Clinical Opinion Testimony. As explained in the above condition, expert testimony concerning defendant dangerousness and level of psychopathy was presented as part of the trial transcript during which both

prosecution and defense mental health expert witnesses provided evidence. Again, both testimonies consisted of statements concerning: (1) the witness' education and experience, (2) the clinical interview conducted with the defendant, (3) the witness's opinion concerning the defendant's level of psychopathy, (4) the witness's opinion concerning the defendant's likelihood of committing a future violent act.

In this condition, the prosecution's expert witnesses opined that the defendant was a high likelihood to reoffend and met criteria for psychopathy based on a 2.5 hour interview with the defendant and data gathered from standardized risk assessment measures (i.e., actuarial). In contrast, the defense's expert witness asserted that the defendant was a low likelihood to reoffend and did not meet criteria for psychopathy. He based his testimony on a 2.5 hour clinical interview with the defendant and his clinical experience (i.e., clinical opinion; see Appendix G).

In each condition the education and level of experience for both experts was comparable. In addition, to avoid a confound where actuarial testimony was more complex than clinical testimony and thus less comprehended by participants, every effort was made to present the actuarial testimony in an easy to understand manner (Lieberman et al., 2007).

Manipulation Instructions. Prior to reading through the stimulus materials participants were given written instructions concerning their obligation in a death penalty case. Consistent with Texas case law (*Jurek v. Texas*, 1976), instructions specified that participants consider two issues:

1. Will the defendant constitute a continuing threat to society? That is, is there a likelihood that the defendant will commit violent criminal acts in the future?
2. Taking into account the defendant's background, character, and the circumstances of the crime, is there sufficient justification for the crime that would warrant a sentence of life in prison rather than death?

In order for a death penalty to be imposed, the participant must have determined the answer to the first question was "yes" and the answer to the second question was "no." In all other cases, the participant was instructed to impose a sentence of life in prison without the possibility of parole.

Similar to other studies that have successfully primed participants to employ either a rational or experiential mindset (e.g., Lieberman & Krauss, 2009; Lieberman et al., 2007), embedded in these instructions were statements designed to provoke a specific mindset for the participant. Participants in the experiential processing mode condition were instructed to "…go with your gut feeling… consider your initial intuitive response" (Appendix E). Participants in the rational processing mode condition were instructed to "…logically consider all of the evidence presented. Try to be as rational and analytical as possible" (Appendix D).

Dependent Measure: Case Evaluation form. Following the initial presentation of expert testimony the dependent variables were assessed via the case evaluation form (Appendix H). The case evaluation form focused on participants' reactions to four general areas of interest. First, participants were asked to decide which sentence they would impose given the information that they received: life in prison with no possibility

of parole or the death penalty. Second, participants were asked to rate (on a scale from 0 to 100) the likelihood that the defendant would commit another violent crime (including murder) if given a sentence of life in prison without the possibility of parole.

Participants then rated (on a scale from 0 to 100) how "psychopathic" they believed the defendant to be. Finally, participants rated the defendant on twenty personality traits generally associated with the psychopathy construct. Utilized in previous research to assess lay person perception of psychopathy (Cox et al., 2013; Edens et al., 2012), these items were loosely based on the trait labels of the PCL-R with some elaboration on items for illustrative purposes. For example, "Irresponsibility" was described as "Irresponsible behavior (such as owes money, poor work history, drunk driving)" and "Shallow affect" was described as "Shallow emotions (e.g., cold or generally unemotional)." This was done to decrease the possibility of participant confusion due to complex and/or clinical verbiage.

Dependent Measure: Evidence Rating Form. In response to the Supreme Court's decision in *Furman v. Georgia* (1972), states were required to establish structured rules regarding which evidence should be considered in capital sentencing hearings (see Edens, 2001). Previous studies have evaluated how participants respond to specific aggravating factors, such as a history of past offenses and the heinousness of the current offense (although Texas law technically does not allow for a direct consideration of these factors in sentencing determinations). Although prior research has suggested that participants rate the defendant's past offenses as more influential in their decision making than expert testimony or current offense (Krauss et al., 2011), this effect might

be moderated by processing mode (Lieberman et al., 2007). Consistent with the guidelines specified in *Furman v. Georgia* (1972) and to clarify the findings of earlier studies, participants completed likert-scale (1-7) ratings of the extent to which specific aggravating and mitigating evidence were influential in their decision making processes (Appendix I).

Comprehension questionnaire. To eliminate threats to internal validity due to lack of participant motivation or comprehension, participants answered three multiple choice questions to assess their understanding of basic facts of the case (Appendix J).

Manipulation Check. Finally, participants completed four multiple choice questions to assess their comprehension of manipulation instructions (Appendix K). Each question focused on a specific aspect of the manipulation instructions (i.e. processing mode, type of expert testimony). Participants were removed from analyses if they answered more than one item incorrectly.

Participants also completed seven likert-scale items to evaluate the extent to which they employed an experiential mindset (Manipulation Check- Post-procedures Experientiality; Appendix L). Although it was originally proposed that participants would complete the entire REI-S at this point in the procedures, after consultation with an expert in cognitive processing and decision making, it was determined that this would not accurately reflect the level of priming because participants could be influenced by their earlier responses on the items (H. Lench, personal communication, April 16, 2013). Instead, seven items from the REI-S FI scale were chosen and slightly reworded to decrease item familiarity and the likelihood that participant ratings would be influenced

by their earlier responses on the REI-S items. The seven items were compiled to create a new scale and scores on this scale were computed by summing of each of the items.

3.3 Procedure

A total of 303 participants were recruited for this study. One hundred and fifty undergraduate participants were recruited through the TAMU Psychology Department's Sona System and given a time slot to appear at the location in which the experiment was conducted. To increase the external validity of the deliberations portion of the experiment, groups of 6-12 participants[6] completed the study during a single testing session.

In addition, 153 MTurk workers completed the study through Amazon Mechanical Turk. After logging onto the website, participants selected the study from a list of studies on the MTurk website. To provide participants with a brief description of the study the link was accompanied by the sentence "read a short vignette about a capital murder case and answer questions about your thoughts and opinions." Participants were only granted access to the study if, while registering as an MTurk participant, they identified as over the age of 18 a United States citizen. If participants met these criteria and they selected this study, they were given access to a link routing them to the online platform, Qualtrics, from where they completed the study. Qualtrics is a web-based system that allows for the creation and implementation of customized comprehensive surveys and is available for use by faculty, staff and students of the TAMU system. The

[6] In *Williams v. Florida* (1970) the USSC ruled that a jury of six people was sufficient to meet the sixth amendment's guarantee of a trial by jury. However, the majority of jurisdictions continue to require a jury of twelve for criminal cases (Greene, Heilbrun, Fortune, & Nietzel, 2007).

link to the Qualtrics study was active on MTurk for 98 days; the online marketplace format does not allow for the assessment of the number of people who attempted to access the link but were either unable or unwilling to complete the study protocol.

Prior to beginning study protocol participants were informed that their participation was voluntary and they could withdrawal at any time. After completing the informed consent process participants were given a packet and instructed to complete the materials in the order in which they were presented. To encourage participant motivation and attention to stimulus materials (Matz & Wood, 2005) undergraduate participants were also informed prior to beginning study procedures that they would be expected to deliberate with their peers and defend their decision making.

Following the informed consent process, participants completed a demographic questionnaire. Noted above, as part of the demographic questionnaire participants were asked about their views concerning the death penalty to ensure they would be willing to consider all possible sentencing options in a capital case (*Lockhart v. McCree*, 1987). Participants who acknowledged that they would be unwilling to consider the death penalty under any circumstances or who reported that they would automatically impose the death penalty if the defendant was found guilty were deemed not "death qualified" and removed from further analyses (undergraduate sample $n = 10$, MTurk sample $n = 19$). In addition, participants who failed to accurately respond to questions regarding basic facts of the case (undergraduate sample $n = 5$, MTurk sample $n = 11$) were also removed from final analyses.

After the demographic questionnaire participants completed the REI-S (Norris, Pacini, & Epstein, 1998). Participants were then cognitively primed utilizing an experimental procedure consistent with Lieberman, Krauss, Kyger, and Lehoux (2007). After undergoing the experimental procedure, participants were presented with a short description of the Texas death penalty case, *Coble v. State* (2010) followed by expert testimony presented by the prosecution that was either clinical opinion or actuarial in nature. Regardless of the type of testimony, the content stated that the expert witness believed the defendant to be a high likelihood for future violence and a psychopath.

Following presentation of the prosecution's expert testimony, participants reviewed the testimony provided by the defense's expert witness. This testimony was counterbalanced with the prosecution's expert testimony. When the prosecution's expert testified that the defendant was a high likelihood for future violence using clinical opinion methods, the defense's expert testified that he was a low likelihood for future violence using actuarial methods (and vice versa).

After reading through the above materials, participants completed the Case Evaluation Form and Evidence Rating Form assessing for specific variables of interest. In addition, to ensure participants appropriately attended to case information, they completed three multiple choice questions concerning basic facts of the case. Finally, to assess the effectiveness of the priming procedure participants completed four multiple-choice questions to evaluate if they understood the priming instructions as well as the seven item manipulation check scale to evaluate the effectiveness of the priming instructions on their mode of processing.

After individually completing the above protocol, participants were informed that they must reach a group consensus on which verdict to impose: life in prison without the possibility of parole or death. Consistent with a previous study employing similar methodology (Krauss & Lee, 2003), participants were given 15 minutes to discuss the facts of the case and deliberate. Regardless of whether participants reached a consensus, after 15 minutes the experimenter returned and participants again completed the Case Evaluation and Evidence Ratings forms.

After recruitment through MTurk, community participants completed the above protocol via the online survey system, Qualtrics. Participants logged onto the survey system and completed the materials in the order presented above. However, given that this population completed the protocol online, no deliberations portion was possible.

3.4 Planned Analyses

Verdict. A binomial logistic regression was utilized to examine the effects of testimony type (actuarial vs. clinical opinion) and priming (rational vs. experiential) on participant verdict. This statistical analysis is appropriate to investigate the relationship between a dichotomous dependent variable (verdict) and two or more independent variables of any measurement scale.

Given the previous findings suggesting a relationship between participant preferred information processing and decision making (Krauss, McCabe & Lieberman, 2011), a second binomial logistic regression was utilized to examine the effects of testimony type and prime on participant verdict while statistically controlling for REI-S NFC and FI scores. Controlling for these potentially confounding variables was

appropriate to account for unique differences in participants' responses that may not be due to the independent variable. In addition, the inclusion of covariates may eliminate some systematic variance that is otherwise not able to be controlled.

Dangerousness and Psychopathy Ratings. To examine the effects of testimony type (actuarial vs. clinical opinion) and priming (rational vs. experiential) on participant ratings of defendant likelihood of future violence, a 2 X 2 analysis of variance (ANOVA) was utilized. An analysis of variance is appropriate when comparing one dependent variable (dangerousness ratings) in two groups (testimony type, priming condition). Identical analyses were conducted to examine the effects of testimony type and prime on ratings of the likelihood of future murder, global ratings of psychopathy, and PCL-R Total and Factor scores.

In addition, 2 X 2 analyses of covariance (ANCOVA) were conducted to control for potential variance from confounding variables (REI-S NFC and FI) that might impact the dependent measures. Controlling for these confounding variables was appropriate to account for unique differences in participants' responses that may not be due to the independent variables.

Exploratory analyses. Exploratory analyses were also conducted to examine various areas of theoretical and methodological interest. Specifically, analyses were conducted to investigate participant ratings of evidence important in their decision making processes. In addition, analyses were also conducted to examine the effect of deliberations on dependent variables of interest.

4. RESULTS

4.1 Primary Analyses

Verdict. A binomial logistic regression was utilized to examine the effects of testimony type (actuarial vs. clinical opinion) and priming (rational vs. experiential) on participant verdict. The independent variables of prime and testimony as well as the interaction were entered into the equation simultaneously, as there was no theoretical reason to enter the variables in a step-wise fashion. Results suggest neither testimony (β = -.06, SE = .39) nor prime (β = .08, SE = .40) independently significantly predicted juror verdict ratings. In addition, these variables did not interact to significantly predict juror verdict ratings (β = -.12, SE = .55; R^2= .001[7]; $\chi^2(3) = .23$, $p = .97$).

Future Dangerousness ratings. Participants rated the defendant's future dangerousness through two likert-type items measuring the defendant's likelihood of committing another violent act and the defendant's likelihood of committing another murder. On a scale ranging from 0-100% the participants rated the defendant, on average, a 56.29% (*SD* = 27.03) likelihood to commit a future violent act.

The effect of testimony and priming on future violence ratings was first examined using an analysis of variance (ANOVA). Results approached significance for testimony (see Table 7), with participants in the prosecution clinical opinion condition rating the defendant more highly (*M* = 59.59, *SD* = 26.69) than participants in the prosecution actuarial condition (*M* = 53.31, *SD* = 27.08). No significant difference was found between ratings of experientially primed participants, (*M* = 56.46, *SD* = 27.81)

[7] Cox & Snell measure (Field, 2005)

and participants rationally primed (*M* = 56.12, *SD* = 26.32; see Table 7). For the interaction between testimony type and prime on future dangerousness ratings results were non-significant (see Table 7) suggesting prime and testimony did not interact to significantly impact juror ratings of defendant future dangerousness.

Participants also rated the likelihood that the defendant would commit a future murder, (*M* = 46.72, *SD* = 26.67). The effect of testimony and priming on future murder ratings was examined using an ANOVA. No significant difference between ratings of participants exposed to prosecution clinical opinion testimony (*M* = 48.46, *SD* = 26.27) and those exposed to prosecution actuarial testimony (*M* = 45.15, *SD* = 27.03; see Table 7). Examining the main effect of prime, no significant differences were found between experientially primed (*M* = 46.85, *SD* = 26.80) and rationally primed (*M* = 46.59, *SD* = 26.65) participants (see Table 7). The interaction between prime and testimony type was non-significant, suggesting prime and testimony did not interact to significantly impact juror ratings of defendant future dangerousness.

Global Psychopathy Ratings. Participants completed multiple ratings of the defendant's level of psychopathy including global ratings of psychopathy and ratings on each of the PCL-R's 20 items. In terms of global psychopathy ratings (likert-type scale ranging from 0-100), participants rated the defendant as fairly psychopathic (*M* = 71.24, *SD* = 20.80).

The effect of testimony and priming on participant global psychopathy ratings was analyzed. Results indicated a significant effect of testimony (see Table 7) with participants hearing clinical opinion evidence from the prosecution rating the defendant

as more psychopathic (*M* = 74.39, *SD* = 18.38) than participants hearing actuarial evidence from the prosecution (*M* = 68.38, *SD* = 22.45). No significant difference was found between participants experientially primed (*M* = 72.15, *SD* = 21.64) and those participants rationally primed, (*M* = 70.31, *SD* = 19.96; see Table 7). Finally, for the interaction of testimony type and prime results were non-significant (see Table 7), suggesting prime and testimony did not interact to significantly affect global psychopathy ratings (see Table 7).

PCL-R Total Score Ratings. Next, the effect of testimony and priming on PCL-R total score ratings was analyzed using an ANOVA. Results suggest no significant effect of testimony on participant ratings of the defendant's PCL-R Total score (see Table 7), with similar means between prosecution clinical opinion testimony (*M* = 30.01, *SD* = 5.73) and actuarial testimony (*M* = 29.29, *SD* = 6.64). Further, there was no significant difference between mean ratings of participants primed experientially (*M* = 29.74, *SD* = 6.03) and participant primed rationally (*M* = 29.63, *SD* = 6.43; see Table 7). Finally, the interaction between testimony type and prime was also non-significant (see Table 7) suggest testimony and prime did not interact to significantly affect PCL-R Total score ratings.

PCL-R Factor Ratings. Participant ratings of defendant psychopathic traits in terms of PCL-R Factor 1 and 2 were also examined. In terms of participant ratings of PCL-R Factor 1 traits, an ANOVA indicated testimony type had a significant effect on participant ratings (see Table 7) with participants exposed to prosecution clinical opinion testimony rating the defendant significantly higher on PCL-R Factor 1 items (*M* = 13.11,

SD = 2.48) than participants who heard prosecution actuarial testimony (*M* = 11.75, *SD* = 3.45). However, prime did not have a significant effect on ratings (see Table 7), with no significant differences between mean ratings for experientially primed participants (*M* = 12.55, *SD* = 3.10) and rationally primed participants, (*M* = 12.23, *SD* = 3.23). Further, the interaction between testimony and prime on PCL-R Factor 1 ratings was non-significant (Table 7) suggesting testimony type and prime did not interact to significantly impact PCL-R Factor 1 ratings.

An ANOVA examined the influence of testimony type and prime on participant Factor 2 ratings. No significant difference was found between prosecution clinical opinion ratings (*M* = 14.04, *SD* = 3.45) and actuarial ratings (*M* = 14.58, *SD* = 3.49) of PCL-R Factor 2 ratings (see Table 7). In addition, no significant difference was found between ratings for experientially primed participants (*M* = 14.28, *SD* = 3.47) and rationally primed participants, (*M* = 14.32, *SD* = 3.61; see Table 7). Finally, for the interaction between testimony type and prime on PCL-R Factor 2 ratings, results were non-significant (see Table 7) suggesting testimony type and prime did not interact to significantly influence PCL-R Factor 2 ratings.

Table 7.

Effect of Priming and Testimony on Decision Making Outcome Variables.

Dependent Variable	Independent Variable	*F*	*p*	Cohen's *d*
Likelihood of future violent act	Prime	.003	.95	.01
	Testimony	3.54	.06	.23
	Prime*Testimony	1.62	.20	
Likelihood of future murder	Prime	0.01	.91	.01
	Testimony	0.99	.32	.13
	Prime*Testimony	0.18	.68	
Global psychopathy ratings	Prime	0.56	.48	.09
	Testimony	5.49	.02*	.29
	Prime*Testimony	.002	.97	
PCL-R Total Ratings	Prime	0.05	.82	.04
	Testimony	0.89	.35	.12
	Prime*Testimony	1.35	.25	
PCL-R Factor 1 Ratings	Prime	0.56	.46	.09
	Testimony	12.99	.001**	.45
	Prime*Testimony	0.17	.68	
PCL-R Factor 2 Ratings	Prime	0.02	.90	.01
	Testimony	1.40	.24	.16
	Prime*Testimony	0.88	.35	.01

*$p < .05$; **$p < .01$.

Taken together, the above results suggest a modest trend for testimony type to impact dependent variables, specifically variables concerning psychopathy ratings. However, the independent variable of prime did not have a significant impact on any of the dependent variables. Further, the null findings for the interactions between testimony

type and prime suggest these variables did not interact to significantly affect verdict, dangerousness ratings, or perceptions of psychopathy[8].

Relationship between REI-S Scores and Dependent Variables. Given the possibility that participant preferred processing mode may act as a confounding variable in the previous analyses (Krauss, McCabe & Lieberman, 2011), the correlational relationships between REI-S scores and dependent variables were examined. As demonstrated in Table 8, REI-S FI and NFC were significantly correlated with various dependent variables[9]. For this reason, primary analyses were rerun including REI-S FI and NFC scores in analyses as covariates. This was done to better understand the effect of testimony on each dependent variable while controlling for the effect of preferred processing. Although the independent variable of prime did not have a significant impact on any of the dependent variables, in theory this variable could have a significant impact after controlling for REI-S scores. For this reason, this variable remained in analyses.

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[8] An analysis of dependent variables post-deliberations found similar significant effects. Specifically, multiple ANOVAs indicate participants in the clinical opinion testimony rated the defendant as globally more psychopathic (M = 74.58, SD = 18.97) than participants in the actuarial condition (M = 60.13, SD = 23.59), $F(1, 132) = 14.95$, $p = .001$. In addition, participants in the clinical opinion condition rated the defendant higher on the PCL-R Total score (M = 32.36, SD = 5.29) than participants in the actuarial condition (M = 29.76, SD = 6.80), $F(1, 131) = 5.88$, $p = .017$. Finally, participants who were exposed to clinical opinion testimony rated the defendant higher on PCL-R Factor 1 traits (M = 14.08, SD = 2.08) than participants in the actuarial condition (M = 11.54, SD = 3.54), $F(1, 131) = 24.33$, $p = .001$.

[9] Given the effect of testimony type on various dependent variables, data was split between testimony groups and correlations between REI-S FI and NFC scores and dependent variables were also examined. Both subsamples, clinical opinion testimony and actuarial testimony, demonstrated significant effects for the same dependent various. Specifically, in both clinical opinion and actuarial subgroups REI-S FI was significantly correlated with global psychopathy ratings, PCL-R Total ratings, and PCL-R Factors 1 and 2 ratings. In addition, in both subgroups REI-S NFC was significantly associated with global psychopathy ratings and PCL-R Factor 1 ratings.

Table 8.

Pearson Correlation Matrix.

Variable	1	2	3	4	5	6	7	8
1 Faith in Intuition (FI)	--							
2 Need for Cognition (NFC)	.10	--						
3 Likelihood of future violence	.03	.10	--					
4 Likelihood of future murder	.05	.05	.81**	--				
5 Global psychopathy ratings	.15*	.17**	.53**	.53**	--			
6 PCL-R Total Scale	.30**	.09	.23**	.22**	.37**	--		
7 PCL-R Factor 1	.23**	.16**	.29**	.28**	.45**	.81**	--	
8 PCL-R Factor 2	.28**	.02	.12	.12	.22**	.89**	.48	--

*$p < .05$; ** $p < .01$.

4.2 Analyses Controlling for REI-S Experientiality and Rationality

Verdict. To understand the effect of testimony type (actuarial vs. clinical opinion) and prime (experiential vs. rational) on participant sentencing decisions while statistically controlling for participant REI-S scores, a binomial logistic regression was utilized. Results suggest neither testimony (β = -.10, SE = .40) nor prime (β = -.02, SE = .40) independently significantly predicted juror verdict ratings after entering REI-S

scores on a preceding block. In addition, these variables did not interact to significantly predict juror verdict ratings (β = -.05, SE = .56; R^2= .02[10]; $\chi^2(3)$ = .26, p = .97).

Future Dangerousness & Psychopathy Ratings. As demonstrated in Table 9, after statistically controlling for REI-S FI and NFC scores, multiple two-way analyses of covariance (ANCOVA) suggest testimony type demonstrated a significant effect on participants' global psychopathy ratings and PCL-R Factor 1 ratings. No other significant effects were found. These analyses suggest testimony type significantly influenced participants' perceptions of the defendant's level of psychopathy and affective/interpersonal psychopathy traits even after holding participant preferred processing mode constant.

[10] Cox & Snell measure (Field, 2005)

Table 9.

Effect of Priming and Testimony on Decision Making Outcome Variables Controlling for REI-S FI and NFC scores.

Dependent Variable	Independent Variable	*F*	*p*	Cohen's *d*
Likelihood of future violent act	Prime	0.04	.85	.01
	Testimony	3.53	.06	.23
	Prime*Testimony	1.93	.16	
Likelihood of future murder	Prime	.001	.99	.01
	Testimony	1.00	.32	.13
	Prime*Testimony	.138	.71	
Global psychopathy ratings	Prime	0.13	.72	.09
	Testimony	5.81	.02*	.29
	Prime*Testimony	0.02	.89	
PCL-R Total Ratings	Prime	.001	.99	.04
	Testimony	0.29	.29	.12
	Prime*Testimony	1.68	.20	
PCL-R Factor 1 Ratings	Prime	0.18	.67	.09
	Testimony	14.38	.001**	.45
	Prime*Testimony	0.33	.57	
PCL-R Factor 2 Ratings	Prime	0.04	.84	.01
	Testimony	1.50	.22	.16
	Prime*Testimony	1.05	.31	

*$p < .05$; **$p < .01$.

4.3 Effect of Prime

Participant Preferred Processing. Outlined above, initial analyses indicated the independent variable of prime did not have a significant effect on any of the dependent variables, even after controlling for participant preferred processing. This is surprising given the previous studies that have demonstrated this variable can significantly

influence juror decision making (Lieberman et al., 2007). For this reason, subsequent analyses investigated possible explanations for this variable's non-significant effects.

Prior to investigating the (in)effectiveness of the prime variable, it is first necessary to understand participant preferred processing measured pre-procedures by the REI-S. Participants obtained significantly higher NFC scores compared to FI scores, $t(258) = -4.92$, $p = .001$, $d = .41$ (see Table 10). Previous studies have reported mean NFC item ratings lower than the 3.78 obtained in this sample. For example, Pacini and Epstein (1999) reported an average rating of 3.39 ($SD = 0.61$) for NFC items with a sample of undergraduate participants and Fletcher, Marks, and Hine (2012) reported an average rating of 3.67 ($SD = 0.60$) with adult community members. In addition, on the FI scale this sample made an average rating of 3.52, which is similar to ratings reported in previous samples ($M = 3.52$, $SD = 0.47$; Pacini & Epstein, 1999; $M = 3.44$, $SD = .58$; Fletcher, Marks & Hine, 2012). Notably, the correlation between the scales with this sample was non-significant: .10 ($p = .107$).

Table 10.

Total REI-S Scores.

	Mean(*SD*) (*N* = 259)
NFC	45.36(6.99)
Rational Ability	23.31(3.53)
Rational Favorability	22.05(4.49)
FI	42.23(8.08)
Experiential Ability	21.52(4.24)
Experiential Favorability	20.71(4.36)

A one-way ANOVA indicated no significant differences in FI scores between participants who were subsequently experientially primed (M = 42.34, SD = 7.94) versus rationally primed (M = 42.13, SD = 8.38), $F(1, 257) = .04$, $p = .84$. However, a significant difference was found in NFC scores, $F(1, 257) = 5.25$, $p = .02$, with participants subsequently randomly assigned to the experiential priming group obtaining higher pre-prime NFC scores (M = 46.34, SD = 6.53) than participants randomly assigned to the rational priming group (M = 44.36, SD = 7.35). The difference is relatively small, suggesting the large sample size may have contributed to the statistical significance. Despite this, these analyses suggest a failure of random assignment may have occurred; meaning experimental groups differed significantly in levels of FI and NFC prior to exposure to the independent variables. Given these differences, adequate measurement and understanding the effectiveness of the prime is difficult.

Analyses indicate the priming variable had no significant effect on any of the measured dependent variables. This was surprising given that the manipulation procedures utilized in this study were almost identical to those used in previous studies (Lieberman & Krauss, 2009; Lieberman et al., 2007). In both of the earlier studies authors concluded the manipulation instructions were successful in priming participants to employ a specific mindset. To better understand this finding, we attempted to statistically quantify the effectiveness of the priming instructions through measuring participant experiential thinking post-procedures and comparing this to participant experiential thinking pre-procedures (as measured by the REI-S).

Post-procedure experiential thinking was measured through seven likert-type questions (Manipulation Check- Post-procedures Experientiality) completed by participants at the conclusion of study procedures. These questions were summed and compared to the seven original questions on the REI-S FI scale from which they were derived. When participants were primed to process information emotionally it was expected that their experientiality scores would increase. However, when participants were primed to process information rationally it was expected that there would be no change in their experientiality scores due to the independence of the rational and experiential systems. Using the Huynh-Feldt correction (Field, 2005) a repeated measures ANOVA indicated no significant differences between pre- and post-experientiality scores $F(1, 257) = .011$, $p = .917$. These results suggest the priming instructions did not significantly affect participant mode of information processing (see Table 11).

Table 11.

Pre- and Post-Experientiality Score Means.

		Pre-procedures *M(SD)*	Post-procedures *M(SD)*
Prime	Experiential	24.07(5.16)	22.95(2.26)
	Rational	23.99(5.24)	22.95(2.34)
	Total	24.03(5.19)	22.95(2.30)

Given that similar priming instructions were successfully utilized in previous research (Lieberman & Krauss, 2009; Lieberman et al., 2007) the ineffectiveness of the prime in this study is puzzling. Multiple statistical approaches were utilized to better understand what mechanisms may have been at play with these specific data.

Discordant vs. concordant priming. It is possible that participant preferred processing (as measured by their REI-S obtained scores) influenced susceptibility to the priming manipulation. Meaning, participants who experienced priming instructions concordant with the method through which they process information may have been more susceptible to that prime than participants whose preference for processing information was discordant with the priming instructions (e.g., participants high on NFC primed rationally vs. participants high on NFC primed experientially).

To investigate this, participants were placed into categories based on the relationship between their preferred processing mode and priming instructions. The "concordant experiential" group consisted of participants who scored higher than 75% on the REI-S FI scale and were given the experiential priming instructions. The "concordant rational" group consisted of participants who scored higher than 75% on the REI-S NFC scale and were given rational priming instructions. In contrast, the "discordant experiential" group consisted of participants who scored higher than 75% on the REI-S FI scale and were given rational priming instructions while the "discordant rational" group was composed of participants who scored higher than 75% on the REI-S NFC scale and were given experiential priming instructions. For the purpose of these

exploratory analyses, participants who scored 75% or higher on both scales were not included in either group[11].

Interestingly, Concordant Rational participants obtained significantly higher post-procedures experientiality scores, $t(24) = -3.26$, $p = .001$ compared to pre-procedures. Discordant Rational participants also obtained higher post-procedures experientiality scores, $t(43) = -2.17$, $p = .03$. In contrast, both Concordant Experiential participants, $t(19) = 7.34$, $p = .001$, and Discordant Experiential participants, $t(20) = 8.22$, $p = .001$, obtained scored significantly lower post-procedures experientiality scores. Using this approach, each of the groups significantly altered their level of experientiality processing, although the direction was not always as expected. The Discordant Rational group did obtain significantly higher experientiality scores, as was expected. However, the group of participants who obtained high pre-procedure experientiality scores and were primed to process emotionally (Concordant Experiential) obtained significantly lower post-procedure experientiality scores. Interestingly, although initially the groups had almost a ten-point range in pre-procedure scores, the differences between groups post-procedures almost disappeared, with the biggest difference (1.60 points) existing between the two Concordant groups (see Table 12).

[11] No participant scored below 75% on both NFC and FI.

Table 12.

Concordant v. Discordant Processing and REI-S FI Scores.

	N	Pre-procedures experientiality *M(SD)*	Post-procedures experientiality *M(SD)*
Concordant Experiential	20	28.43(1.93)	23.80(2.04)
Concordant Rational	25	19.20(5.21)	22.20(2.87)
Discordant Experiential	21	28.57(2.46)	23.14(2.08)
Discordant Rational	44	20.81(4.19)	22.39(2.19)

Difference scores. An alternative approached was utilized to place participants in concordant and discordant processing groups. Specifically, difference scores were calculated subtracting participant pre-NFC Scores from pre-FI scores (see Gunnell & Ceci, 2010, for a similar approach). Any participant obtaining a positive score was considered to prefer experiential processing and was placed in the "Concordant Experiential" group if they received the experiential prime and "Discordant Experiential" group if they received the rational prime. Any participant obtaining a negative score was placed in the "Concordant Rational" group if they received the rational prime and the "Discordant Rational" if they received the experiential prime. For the purpose of these exploratory analyses, any participant obtaining a score of zero (n = 10) was excluded from further analyses.

Contrary to expectations, participants who preferred experiential processing and were primed to process experientially (Concordant Experiential) obtained significantly lower post-procedures experientiality scores, $t(43) = 5.20$, $p = .001$. However, participants who preferred rational processing and were primed to process experientially (Discordant Rational) obtained almost identical pre- and post-procedures experientiality

scores, $t(80) = -.58$, $p = .56$ (see Table 13). Surprisingly, experientiality scores for the Concordant Rational group increased post-procedures, although this difference was not significant, $t(61) = -1.49$, $p = .14$. In contrast, experientiality scores for the Discordant Experiential group significantly decreased post-procedures, $t(61) = 5.40$, $p = .001$. Again, despite the range in pre-procedure experientiality scores between groups, these differences greatly diminish post-procedures.

Table 13.

Difference Scores and REI-S FI Items.

	N	Pre-procedures experientiality *M(SD)*	Post-procedures experientiality *M(SD)*
Concordant Experiential	44	27.27(4.02)	23.57(1.82)
Concordant Rational	62	21.44(5.24)	22.37(2.35)
Discordant Experiential	62	26.52(3.99)	23.56(2.24)
Discordant Rational	81	22.22(4.71)	22.53(2.37)

4.4 Sample Differences

As previously outlined, data was collected from a sample of undergraduate participants and jury eligible community members. Analyses were conducted to examine the differences between these groups; in terms of preferred processing mode, as measured by the REI-S, no significant differences between samples were found (see Table 14).

Table 14.

Undergraduate and Community Samples REI-S Scores.

	Undergraduate (*N* = 136)	Community (*N* = 123)	Mean Comparisons	
	Mean(SD)	*Mean(SD)*	*t*(df)	*p*
NFC	44.72(6.79)	46.05(7.18)	-1.53(258)	.126
Rational Ability	23.08(3.70)	23.55(3.34)	-1.07(258)	.286
Rational Favorability	21.64(4.08)	22.50(4.87)	-1.55(258)	.123
FI	42.55(6.16)	41.88(9.77)	.67(258)	.503
Experiential Ability	21.51(3.46)	21.54(4.97)	-.06(258)	.956
Experiential Favorability	21.64(4.08)	20.34(5.17)	1.30(258)	.195

Note. NFC = Need for Cognition. FI = Faith in Intuition.

Sample differences in verdict and dangerousness ratings. To understand the difference between samples on participant sentencing decisions a crosstabs chi-square analysis was conducted. Results suggest undergraduate participants were significantly less likely to sentence the defendant to death than their community counterparts $\chi^2(1, N = 258) = 3.95$, $p = .05$.

After statistically controlling for Prime Type and Expert Testimony, a one-way analysis of covariance (ANCOVA) suggests undergraduate participants rated the defendant as significantly less likely to commit a future violent act (M = 50.81, SD = 24.53) than community participants (M = 62.36, SD = 28.43), $F(1, 255) = 11.29$, $p = .001$, $d = .44$. In addition, undergraduate participants also rated the defendant as significantly less likely to commit a future murder (M = 40.74, SD = 23.18) compared to community participants (M = 53.33, SD = 28.74), $F(1, 255) = 14.54$, $p = .001$ $d = .48$.

Sample differences in psychopathy ratings. Participant ratings of global levels of psychopathy and psychopathic traits were also broken down by sample. Interestingly,

community participants rated the defendant significantly higher in terms of level of global psychopathy, however, undergraduate participants scored the defendant higher on PCL-R items. This difference was likely driven by Factor 2 ratings (see Table 15).

Table 15.
Between Group Comparisons of Mean Psychopathy Ratings.

	Undergraduate (*N* = 136)	Community (*N* = 123)	Mean Comparisons	Effect sizes	
	M(SD)	*M(SD)*	*F(df)*	*p*	*d*
Global Psychopathy	67.06(19.89)	75.85(20.88)	10.84(1, 255)	.001**	.43
PCL-R Total	30.76(5.27)	28.38(6.94)	9.28(1, 247)	.003**	.39
Factor 1	12.40(2.80)	12.39(3.41)	.086(1, 247)	.77	.03
Factor 2	15.15(2.95)	13.41(3.78)	15.55(1, 248)	.001**	.51

*$p < .05$; **$p < .01$.

4.5 Exploratory Analyses

A number of exploratory analyses were conducted to better understand the relationship between participant processing, expert testimony, and various variables potentially important in a capital trial.

Evidence Ratings. Following completion of the psychopathy ratings, participants completed likert-scale ratings of eleven different pieces of evidence they may have considered while rendering their decisions. These items were aggregated into three categories: evidence related to defendant characteristics (e.g., Mr. Coble's current age, the abuse Mr. Coble sustained during childhood), evidence concerning the crime (e.g.,

the number of people Mr. Coble killed, the heinousness of the murders), and evidence given by expert witnesses (e.g., actuarial evidence concerning future dangerousness, clinical evidence concerning future dangerousness). These variables were then rescaled to employ a common metric. As demonstrated in Table 16, participants were most likely to consider evidence concerning the crime as influential in their decision making, and least likely to consider evidence concerning the defendant.

Table 16.

Mean Differences Between Ratings of Influence of Evidence Type.

	M(SD)	*t*(*df*)	*P*
Evidence concerning the crime	28.74(5.35)	86.38(258)	.001*
Evidence concerning the defendant	18.21(5.47)	53.24(255)	.001*
Evidence concerning expert testimony	24.89(6.55)	61.07(257)	.001*

*$p < .05$.

Testimony Type and Evidence Ratings. To better understand the differences between testimony type on evidence ratings, three one-way ANCOVAs were conducted, controlling for participant preferred processing. In terms of evidence concerning the crime, no significant differences were found between participants who read actuarial testimony presented by the prosecution ($M = 28.86$, $SD = 5.31$) and participants who

read clinical opinion testimony presented by the prosecution (M = 28.61, SD = 5.429), $F(1, 255) = .121$, $p = .73$. In addition, in terms of evidence concerning expert testimony, there were no significant differences between ratings for participants who read clinical opinion testimony presented by the prosecution (M = 24.90, SD = 6.69) and participants who read actuarial testimony presented by the prosecution (M = 24.89, SD = 6.44), $F(1, 255) = .001$, $p = .98$. However, mean ratings for evidence concerning defendant characteristics approached significance, $F(1, 255) = 3.22$, $p = .07$, with participants reading prosecution actuarial testimony (M = 18.80, SD = 5.82) producing higher ratings than participants reading prosecution clinical opinion testimony (M = 17.57, SD = 5.00).

Processing Mode and Evidence Ratings. A simple linear regression was utilized to predict participant ratings of evidence from their obtained REI-S FI and NFC. The two independent variables were entered into the equation simultaneously as there was no theoretical reason to enter one variable before the other.

In terms of ratings of evidence concerning expert testimony, results suggest REI-S FI and NFC scores were not significantly predictive of participant ratings, $R^2 = .003$ $F(2, 255) = .36$, $p = .70$, and only accounted for .3% of the variance in this dependent variable. Neither NFC ($\beta = .02$, $p = .74$) nor FI ($\beta = .05$, $p = .46$) significantly predicted participant ratings of expert testimony evidence.

In terms of evidence concerning the defendant results suggest 4% of the variance in participant ratings can be attributed to REI-S FI and NFC scores, $R^2 = .04$ $F(2, 255) = 5.25$, $p = .006$. This effect was likely driven by NFC, which was significantly predictive of participant ratings ($\beta = -.19$, $p = .002$), while FI was not ($\beta = .04$, $p = .48$). Finally, 5%

of the variance in evidence concerning the crime was explained by participant processing mode (R^2 = .05 F(1, 256) = 6.94, p = .001) with both NFC (β = .13, p = .04) and FI (β = .17, p = .005) acting as significant predictors.

Effect of deliberations on decision-making. To increase the ecological validity of this study, undergraduate participants participated in a deliberations activity during which they were instructed to discuss the relevant facts of the case and reach a group consensus on the most appropriate verdict. Juror ratings were measured prior to and following the deliberations activity.

A McNemar test was conducted to examine differences in ultimate verdict pre- and post-deliberations. A McNemar's test is a non-parametric test appropriate to compare paired proportions. Analyses indicated no significant difference between pre- and post-deliberations verdicts, p = .66 (see Table 17). However, an item level analysis of the data indicated approximately 14% of participants (n = 21) changed their verdicts following the deliberations activity. An examination of the frequency counts suggest the number of participants choosing a death verdict was higher post-deliberations while the number of participants choosing a life verdict was lower post-deliberations. However, the overall frequency change was quite small, (n = 3), suggesting participants changed their verdicts in both directions.

Table 17.

Participant Sentencing Verdicts Pre- and Post-Deliberations.

		Post-deliberations		
Pre-deliberations		Life	Death	Total
Life				
	Observed	89.0	12.0	101.0
	Expected	74.4	26.6	101.0
Death				
	Observed	9.0	23.0	32.0
	Expected	23.6	8.4	32.0
Total		98.0	35.0	133.0

Considering psychopathy ratings, when controlling for participant preferred processing mode, a number of significant effects were found (see Table 18). Specifically, participants in the prosecution actuarial testimony condition rated the defendant as globally less psychopathic following deliberations while participants in the prosecution clinical opinion condition rated the defendant as significantly more psychopathic. The change in Total PCL-R ratings was likely driven by the change in Factor 1 ratings.

Table 18.

Effect of Deliberations on Juror Decision-Making

	Pre-Deliberations *Mean(SD)*	Post-Deliberations *Mean(SD)*	Mean Comparisons *F*(df)	*p*
Future Dangerousness				
Prosecution Actuarial	48.44(24.77)	50.65(27.21)		
Prosecution Clinical	53.90(24.07)	53.05(26.41)		
			1.05(1, 132)	.31
Future Murder				
Prosecution Actuarial	39.48(23.89)	42.27(28.61)		
Prosecution Clinical	42.37(22.31)	41.36(26.88)		
			1.51(1, 132)	.22
Global Psychopathy Ratings				
Prosecution Actuarial	64.68(21.92)	60.13(23.59)		
Prosecution Clinical	70.17(16.56)	74.58(18.97)		
			9.23(1, 132)	.003*
PCL Total Ratings				
Prosecution Actuarial	30.26(5.86)	29.76(6.80)		
Prosecution Clinical	31.41(4.42)	32.36(5.29)		
			6.13(1, 131)	.015*
PCL Factor 1 Ratings				
Prosecution Actuarial	11.64(3.16)	11.54(3.54)		
Prosecution Clinical	13.38(1.91)	14.08(2.08)		
			5.24(1, 131)	.024*

Table 18 Continued.

	Pre-Deliberations *Mean(SD)*	Post-Deliberations *Mean(SD)*	Mean Comparisons *F*(df)	*p*
PCL Factor 2 Ratings				
Prosecution Actuarial	15.38(2.98)	15.17(3.45)		
Prosecution Clinical	14.86(2.93)	15.12(3.39)		
			1.73(1, 131)	.19

*$p < .05$.

5. DISCUSSION AND CONCLUSIONS

The purpose of this study was to better understand how different forms of expert testimony and juror information processing influence decision making in a capital case. Specifically, this study investigated the effect of clinical opinion and actuarial testimony on juror verdicts, as well as juror ratings of defendant dangerousness, level of psychopathy, and psychopathic traits. In addition, procedures attempted to manipulate the method by which mock jurors process information (i.e., experientially or rationally) to better understand how an individual's information processing system influences juror decision making. These data suggest that juror ultimate verdict (death vs. life in prison without the possibility of parole) was not significantly influenced by the means through which testimony type and priming were manipulated in this study. In addition, testimony type did not significantly influence ratings of future dangerousness, although this finding did approach statistical significance.

These data are contradictory to previous studies that have consistently found clinical opinion testimony is more influential than actuarial testimony (Krauss & Lee, 2003; Krauss, Lieberman & Olson, 2004; Krauss & Sales, 2001). The reasoning for this discrepancy is unclear but may lie in the stimulus materials and methodological design. The stimulus materials, including case summary and expert testimony, were created specifically for this study. A large portion of the previous research in this area has utilized a different set of materials that was identical, or slightly altered, between studies (Krauss & Lee, 2003; Krauss Lieberman & Olson, 2004; Krauss & Sales, 2001). The capital case described in these materials (*Moore v. State,* 1976) included a confession

and a summary of the defendant's crimes based on Marquart, Ekland-Olson, and Sorensen's (1989) study of criminal defendants adjudicated as dangerous by capital sentencing juries in Texas. It is possible that the differences in the description of the defendant's criminal history and/or the instant offense may have resulted in these discrepant findings.

A major difference in this study's methodology from that of previous research concerns the presentation of the expert testimony. Specifically, this study presented one type of expert evidence (e.g., prosecution clinical opinion) which was always counterbalanced with the opposite modality (e.g., defense actuarial). Meaning, participants were always exposed to both clinical opinion and actuarial testimony. This differs somewhat from previous studies (Krauss & Sales, 2001; Krauss & Lee, 2003) which included one form of expert testimony (e.g., prosecution clinical opinion) followed by cross-examination of the witness, and concluding with rebuttal testimony which was either clinical opinion or actuarial. The rebuttal testimony varied between conditions such that initial actuarial testimony was rebutted by both clinical opinion and actuarial testimony. Another approach was utilized by McCabe, Krauss, and Lieberman (2010) and Lieberman, Krauss, Kyger, and Lehoux (2007) and included initial expert testimony (presented as either clinical opinion or actuarial) and cross-examination. A third approach included initial expert testimony (presented as either clinical opinion or actuarial), cross-examination, and opening and closing arguments by the attorneys from the respective sides (Krauss, McCabe, & Lieberman, 2011).

The manipulation of cross-examination of the expert witness was considered but ultimately omitted from this study based on the mostly null findings by Krauss and Sales (2001) of this manipulation on participant decision making. However, Krauss, Lieberman and Olson (2004) concluded cross-examination did have an effect on juror decision making and it is possible that inclusion of this manipulation may have produced different results.

Consistent with the majority of the mock jury research (see Bornstein et al., 1999) the materials in this study were presented as written material and participants were required to read through the instructions, case vignette, expert testimony and measures of the dependent variables. This is consistent with some of the prior studies examining similar questions (Lieberman & Krauss, 2009; Lieberman et al., 2007). However, other studies in this area have presented trial procedures or expert testimony through video recordings (Krauss, McCabe, & Lieberman, 2011; Krauss & Sales, 2001; McCabe, Krauss & Lieberman, 2010). It is possible that differences of presentation modalities could account for the discrepant findings between studies. Bornstein (1999) examined 20 years of jury simulation research to investigate the impact of trial presentation medium including the use of audio and videotaped testimony and confessions. He concluded trial presentation medium did not have a significant effect in the majority of studies. However, the sample size (n = 11) was small and is now somewhat outdated. For this reason, the possibility that differences in case presentations may have impacted these findings is tentative. If aspects of the case (e.g., the presence of a defendant confession), method through which the testimony is described, or presence of adversarial

procedures resulted in a significant influence on participant decision making, the real world implications could be significant.

It should be noted that participants in each condition grossly overestimated the extent to which the defendant represents a continuing threat to society. Specifically, participants estimated the defendant presented a 56.29% (*SD* = 27.03) likelihood to commit a future violent act even if given a sentence of life in prison without the possibility of parole. Further, participants estimated the likelihood that the defendant would commit a future murder (even if given a sentence of life in prison without the possibility of parole) at a staggering 46.71% (*SD* = 26.67). Although consistent with previous literature measuring layperson views of capital defendant future dangerousness (Cox, DeMatteo, & Foster, 2010; Edens et al., 2004) these perceptions are extremely discordant with actual violence base rates of former death row inmates and capital defendants subsequently sentenced to life in prison (Cunningham, Reidy, & Sorensen, 2007, 2008, Cunningham, Sorensen, & Reidy, 2009; Edens et al., 2005; Sorensen & Pilgrim, 2000). Further, the description of this defendant included in the case summary materials did not include any information to suggest he would be a part of the small percentage of capital prison inmates who do commit a violent act while incarcerated. These misperceptions are troubling and indicate a need for juror education concerning prison violence base rates and the (in)accuracy of mental health expert future dangerousness assertions (Edens et al., 2005).

A primary goal of this study was to advance the current literature concerning participant perceptions of defendant psychopathic traits. Participants rated the defendant

as fairly psychopathic both on the global psychopathy ratings as well as the PCL-R Total scores. Hypotheses were somewhat supported, in that participants exposed to prosecution clinical opinion testimony rated the defendant significantly higher on both global psychopathy ratings and PCL-R Factor 1 ratings. This effect remained even after statistically controlling for REI-S FI and NFC scores, suggesting clinical opinion testimony influenced global psychopathy and Factor 1 ratings after holding participants' processing mode constant.

Although testimony type did not have a significant effect on total PCL-R scores, ratings of Factor 1 traits were significantly influenced by this variable. Specifically, participants who read clinical opinion testimony rated the defendant as higher on psychopathy traits such as superficial charm, conning, and lack of empathy. This is perhaps not surprising, considering PCL-R Factor 1 measures fairly subjective personality characteristics and clinical opinion testimony relies on the expert's subjective judgment and professional experience.

The Story Model of persuasion (Hastie, Penrod, & Pennington, 1983) offers a possible explanation for these findings. This theory holds that individuals construct mental stories incorporating preexisting beliefs and the information in front of them. It is possible that the narrative nature of clinical opinion testimony makes this testimony more appealing to individuals. Jurors may find this type of testimony easier to incorporate into the narration of the case presented during the trial. In contrast, the scientific and statistical jargon included within actuarial testimony may be more difficult

for jurors to perceive as relevant to the defendant and case in question (Krauss & Sales, 2001).

Although potentially a factor with these data, the different conditions included similar language so as to decrease the likelihood that participants would have difficulty comprehending actuarial testimony (Lieberman et al., 2007). In practice, actuarial testimony is likely to include complex statistical conclusions and scientific language. In addition, in real world testimony the descriptions of the risk assessment measures are likely to include more in depth item explanations, resulting in a decrease in face validity. For example, on the VRAG an offender's score will decrease if they have any female victim or if they have committed murder. Although this scoring system resulted in the most accurate predictions of future violent behavior (at least in the VRAG derivation sample) at face value it is perplexing. It is possible that including a more in depth explanation of the risk assessment measures and their items may have resulted in differential effects on participant decision making.

5.1 Information Processing Prime

Consistent with previous literature (Lieberman & Krauss, 2009; Lieberman, et al., 2007), it was hypothesized that participants would be more likely to employ an experiential mindset when they were encouraged to think about case information intuitively and using their gut instinct. Additionally, it was hypothesized that participants who were encouraged to think about case information in an analytical and logical manner would be more likely to employ a rational mindset. To test these hypotheses,

participant preferred processing mode was measured prior to the specific prime, and then again following ratings of the dependent variables.

Contrary to hypotheses, participants primed to employ an experiential mindset did not obtain higher post-procedures experientiality scores, suggesting they did not respond to the primes in the expected manner. In fact, when participants were placed into groups based on their preferred processing mode and priming condition (Concordant vs. Discordant), analyses indicated those in the experiential priming condition received significantly lower post-manipulation experientiality scores. Furthermore, despite the wide range in pre-procedures experientiality scores between groups, this difference almost disappeared post-procedures. This suggests some aspect of the study procedures resulted in participants being less likely to process information in an emotional and intuitive manner.

Although previous researchers found significant effects using similar priming instructions (Lieberman & Krauss, 2009; Lieberman, et al., 2007), the method through which these researchers measured the effectiveness of the prime differed. Specifically, Lieberman and Krauss (2009) asked participants to rate the extent to which their decisions were based on their "gut level personal feelings" and "rational and analytic consideration of the evidence" (p. 32). Given that individuals are susceptible to numerous cognitive biases and are not always aware of the methods through which they make decisions (Klein, Orasanu, Calderwood, & Zsambok, 1993), this study sought to measure the effectiveness of the prime in a less overt manner.

Although it is possible that an alternative manipulation check may have suggested participants were effectively primed, this is not likely given there were also no significant effects of the priming condition on decision making. Considering the statistical evidence, the most defensible conclusion is that the priming instructions were not successful in persuading participants to alter the method through which they processed information about the case at hand.

There are a number of potential explanations for the ineffectiveness of the priming instructions. Participants in this sample obtained a higher mean item rating on REI-S NFC items than those reported in other samples (Fletcher, Marks, & Hine, 2012; Pacini & Epstein, 1999). Although there is no evidence that rational thinkers are less likely to be influenced by artificial primes, it is reasonable to suggest that individuals high in rationality may be less likely to alter their processing mode based solely on written priming instructions. In addition, it is possible that the prime was initially effective, meaning participants initially processed information using the respective modalities, however, this effect may have diminished in the length of time between the prime and participant ratings of the dependent variables. Although there is no agreed upon amount of time in which cognitive processing primes are believed to be effective, an expert in the field of cognitive processing opined that any influential effect of a prime decreases soon after the prime is presented (H. Lench, personal communication, August 15, 2013). It is possible that the length of time between priming procedures and ratings of the dependent variables may account for the seeming ineffectiveness of the prime.

Future research should replicate this methodology to attempt to clarify discrepancies between these data and those reported by Lieberman and Krauss (2007). In addition, investigation into alternative methods of priming participants may demonstrate more success in altering participant processing mode. For example, participants in the Krauss, Lieberman, and Olson (2004) study completed activities meant to prime either a rational or experiential mindset; participants in the rational condition completed a sheet of math problems while participants in the experiential condition were asked to draw a picture that described their current emotional state. This type of priming procedure was considered for this study, however, the present approach of instructions from the judge was chosen because it is more ecologically valid than Krauss, Lieberman, and Olson's (2004) approach and demonstrated success in previous research (Lieberman & Krauss, 2009; Lieberman, Krauss, Kyger & Lehoux, 2007). Although there is no evidence that the priming instructions were effective in the present study, given the evidence of priming success demonstrated in previous literature, it would be premature to conclude that it is not possible to prime individuals to alter the method through which they process information in mock jury simulations.

5.2 Sample Differences

Participants in this study obtained high scores on the NFC scale, suggesting they perceive themselves as rational and analytical thinkers. These perceptions held across the two independent samples, with no significant differences found between undergraduate and community participants in terms of their preference for rational or experiential thinking.

This finding is somewhat surprising given what is known about demographic differences between undergraduate and community samples (Bornstein, 1999) as well as McCabe, Krauss, and Lieberman's 2010 study in which undergraduate participants scored significantly higher than a community representative sample on the NFC scale. The lack of a difference in this data may be attributed to the population from which this sample was drawn. Although the MTurk sample was included in this study to obtain greater demographic heterogeneity and increase the study's generalizability, this population has received some criticism for being somewhat younger and more educated than the U.S. population (Ross, Zaldivar, Irani, & Tomlinson, 2010). In fact, over 95% of MTurk participants in this study received a high school diploma or some equivalent, compared to 87.65% of the 2012 United States population over the age of 25 (U.S. Census Bureau, 2012). Meaning, while the MTurk participants were included to increase the likelihood of a more representative sample, and this was likely obtained for specific demographic characteristics (e.g., age, political affiliation), this sample did not differ from undergraduate participants on other important traits (e.g., level of education, processing mode preferences).

Mentioned previously, this sample obtained significantly higher NFC scores compared to FI scores. The REI-S NFC scale is an abbreviated version of Cacioppo's Need for Cognition scale (Cacioppo & Petty, 1982; Cacioppo et al., 1984) and previous research has shown negative but non-significant relationships between age and NFC scores (see Cacioppo, Petty, Feinstein, & Jarvis, 1996). This sample actually demonstrated a non-significant positive correlation between NFC and age, suggesting

older participants had a tendency to perceive themselves as favoring rational processing. Given that roughly half of the current sample included undergraduates aged from 18-22 years of age, it is reasonable to speculate that a more normal age distribution might result in a significant positive correlation between age and NFC. More research is needed to understand how NFC scores change over time.

The two samples were also compared in terms of differences in dependent variables while controlling for testimony type and information processing prime. Undergraduates were less likely to sentence the defendant to death than the community member participants. Undergraduates also perceived the defendant as significantly less likely to commit a future violent act and significantly less likely to commit a murder. These findings are consistent with previous research which has found community representative mock jurors are more punitive to undergraduate samples (McCabe, Krauss & Lieberman, 2009). In contrast, undergraduate participants rated the defendant significantly higher on PCL-R items, driven specifically by higher ratings of Factor 2 items. These findings suggest undergraduates may be less punitive than community representative mock jurors. However, they are more likely to perceive a defendant as higher on specific psychopathic traits, specifically traits related to an antisocial lifestyle. These differences between samples are notable and suggest future research should consider the representativeness of the sample before drawing any general conclusions.

5.3 Perceptions of Evidence

Across conditions, participants rated evidence concerning aspects of the crime as highly influential in their decision making, suggesting mock jurors at least perceive

themselves as weighing facts like the number of murder victims and the heinousness of the crime as highly important in their decision making. In addition, participants rated this evidence as more influential than psychological expert testimony and evidence concerning the defendant's characteristics.

No difference between conditions was found for participant ratings of the importance of expert testimony, suggesting participants who heard prosecution clinical opinion testimony were no more likely to rate it as important in their decision making than participants who heard prosecution actuarial testimony. This finding may be attributed to the fact that participants were exposed to both clinical opinion testimony and actuarial testimony, with the side in which the testimony was presented varying between conditions. Further, as discussed above, both forms of testimony used similar language and could be considered mostly face valid. Little information differed between conditions, with the main difference being an inclusion of risk measures for the actuarial testimony. It is possible that the lack of a difference in participant ratings of evidence importance between conditions can be attributed to the similarities in language and presentation between the two conditions. Perhaps the participants did not differentiate between the two types of testimony in terms of importance because, at least on the surface, the participants did not see a noticeable difference between conditions. Regardless of the underlying reason behind this null finding, the lack of difference between these ratings is troubling given the USSC ruling in *Barefoot v. Estelle* (1983) which asserted jurors are able to distinguish between mental health evidence that is scientifically based from evidence that lacks empirical support.

5.4 Impact of Deliberations

A strength of this study methodology was the measurement of juror decision making prior to and following a deliberations activity. These data suggest the deliberations portion was an important aspect of the decision making process, particularly in regards to psychopathy ratings. Global psychopathy ratings, PCL-R Total ratings, and Factor 1 ratings significantly differed pre- and post-deliberations. This effect was particularly apparent for global psychopathy ratings with participants exposed to prosecution clinical opinion expert testimony rating the defendant as more psychopathic following deliberations and participants exposed to prosecution actuarial testimony rating the defendant less psychopathic following deliberations. This finding implies there is something about the deliberations process that causes jurors to become more influenced by a specific form of testimony, at least to the extent that they view the defendant as more psychopathic following discussion with their peers. Future research including expert testimony concerning psychopathy should consider this finding and include a deliberations activity when possible.

Diamond and Levi (1996) argue the deliberations process allows for jurors to correct misunderstandings held by other jurors and it is possible that participants in this study informed each other during the deliberations activity about misperceptions concerning the case. More likely, prosecution clinical opinion testimony appealed to the more subjective persuasive narrative of the case (Hastie, Penrod, & Pennington, 1983), which jurors were able to further construct and elaborate on during group discussion, resulting in a significant effect of this type of testimony.

These findings have interesting implications for future mock jury research. Consistent with previous research in this area (Diamond & Levi, 1996; Kerwin & Shaffer, 1994; Krauss & Lee, 2003) participants in this study demonstrated differences in decision outcomes following deliberations with their peers. However, these differences were only apparent for certain dependent variables (e.g., psychopathy ratings). Although approximately 14% of participants changed their ultimate verdict post-deliberations, there was no consistent direction, meaning participants were not significantly more likely to opt for a life or death sentence following discussion with their peers. Arguably, considering there was no significant difference in verdict following deliberations, the practical implications for including a deliberations activity are minimal. However, given some change in participants' perceptions of the defendant (specifically in regards to level of psychopathy and psychopathic traits) future research should continue to include a deliberations activity whenever possible.

Admittedly, although the methodology of this study afforded for a deliberations portion, only half of the study participants (which included only undergraduates) participated in deliberations. Furthermore, the deliberation sessions were not monitored by researchers. For this reason, there was no evaluation of the extent to which participants actively engaged in quality discussion regarding the relevant facts of the case. Presumably, some active discussion occurred given that some participant ratings changed. However, the content of the deliberations, including the extent to which participants discussed expert testimony, is unknown.

5.5 Implications

Consistent with previous literature, clinical opinion testimony had a significant effect on decision making. However, the expected effect was not found in terms of juror verdict or ratings of defendant dangerousness. Instead, prosecution clinical opinion testimony had a significant impact on mock juror ratings of the defendant's psychopathic traits. In addition to the previously discussed questionable empirical basis of this testimony type, the considerable impact on perceptions of defendant psychopathy is troubling when considering the lack of an empirical relationship between psychopathic traits and institutional violence, a key element jurors are required to consider in certain jurisdictions. This study lends further support for the argument that this testimony is seemingly effective. However, this is not to suggest that this form of testimony is not questionable and may even be legally objectionable under the current *Daubert* standard.

Another important implication of these data concerns the importance of a deliberations portion of mock juror research. Participants in this study demonstrated interesting differences in decision making following a short deliberation session with their peers. Although including a deliberations session could complicate study design, it may be necessary to increase validity and more adequately answer the research question at hand. Future research should further examine how deliberations impacts decision making with community members.

5.6 Limitations

Community participants were recruited and completed study procedures via an online survey system. As discussed above, review of the mock jury literature (Bornstein,

1999) concluded no tangible differences between study outcomes when the method of trial presentation was manipulated. However, this review was done before the use of the internet for mock jury research became popular. As such, it is difficult to opine about the effect of this presentation modality. Furthermore, in order to increase the amount of variance attributable to the independent variables, the stimulus materials, including the description of the crime, judge's instructions, and expert testimony, were kept fairly basic. Although experimental design and artificial stimulus presentation is common in mock jury research (see Bornstein, 1999) these factors decrease the ecological validity of these data.

The current study design included counterbalancing of expert type of testimony such that clinical opinion testimony was always rebutted by actuarial testimony and actuarial testimony was always rebutted by clinical opinion testimony. It would be interesting to investigate participant responses when exposed to differing expert opinions from the same modality (e.g., clinical opinion rebutted by clinical opinion or actuarial rebutted by actuarial). Similar to the approach utilized by Krauss and Sales (2001), future research should explore the impact of expert opinion of the same modality on juror perceptions of defendant level of psychopathy and psychopathic traits.

Another limitation of the current study design concerns the potentially confounding effect of presenting levels of psychopathy and future dangerousness simultaneously. Meaning, the expert's opinion of a high likelihood for future dangerousness was always presented in conjunction with a finding that the defendant was a psychopath while the converse was true for a low likelihood of future

dangerousness and absence of psychopathy. Previous research (Cox, DeMatteo & Foster, 2010) has found mock juror ratings of future dangerousness are more influenced by the expert's future dangerousness prediction than the label of psychopathy. However, it's possible that varying the level of dangerousness between conditions (e.g., expert opining that the defendant is a high likelihood for future dangerousness but not a psychopath) may allow for better isolation of the impact of future dangerousness testimony and psychopathy testimony separately.

Finally, a major concern of all mock jury research is the lack of cognitive and emotional investment on the part of mock jurors (Diamond, 1997) and it is possible that the results of this study were a result of this limitation. It is impossible to accurately replicate the emotional and cognitive requirements that actual jurors must employ when sitting for a capital trial and contemplating rendering a death sentence. Presumably, real jurors would be more motivated to attend to the facts of the case and render the verdict they perceive as most appropriate given the evidence presented (Devine, Clayton, Dunford, Seying & Pryce, J., 2001; Diamond, 1997).

5.7 Conclusions

This study attempted to understand the relationship between expert testimony, participant information processing, and juror decision making in a capital murder trial. Given the high stakes of a capital case, a comprehensive understanding of the mechanisms underlying juror decision making is important. The current study adds to the existing literature in offering a better understanding of juror perceptions of psychopathic traits. Specifically, these data support the hypothesis that clinical opinion

testimony results in participants perceiving the defendant as more psychopathic, particularly in regards to affective and interpersonal psychopathy traits. Further, these results suggest participant preferred cognitive processing mode is an important factor to consider when measuring decision making. In conclusion, these data enhance our knowledge of the influence of mental health testimony as well as illuminate necessary areas for future research.

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APPENDIX A

Background Information

Age: _____ Gender: Male _____ Female _____ (check one)

What do you identify as your racial background?

White or Caucasian_____ Black or African-American_____ Hispanic _____ Other_____

What is the highest grade you completed in school?_____

What do you identify as your religious affiliation (if any)?
Protestant (non-Evangelical)_____ Protestant (Evangelical)_____ Catholic _____ Jewish ____
Muslim____ Hindu____ Other____

What do you identify as your political affiliation (if any)?
Democrat _____ Republican_____ Independent_____ Libertarian_____ Green Party_____ Other_____

If you served on a jury that found someone guilty of capital murder, do you think you could ever support giving someone a death sentenceK as punishment for the crime?

---1----------2----------3----------4----------5----------6----------7

Disagree a Little *Disagree nor Disagree* *Disagree a Little* *Neither Agree Moderately* *Agree a Little* *Agree Moderately* *Agree Strongly* *Strongly Moderately*

If you were to serve on a jury and you found the defendant guilty of capital murder, would you automatically vote to impose the death penalty, no matter what the facts of the case were?

---1----------2----------3----------4----------5----------6----------7

Disagree a Little *Disagree nor Disagree* *Disagree a Little* *Neither Agree Moderately* *Agree a Little* *Agree Moderately* *Agree Strongly* *Strongly Moderately*

APPENDIX B

REI-S

Rate the following statements about your feelings, beliefs, and behaviors using the scale below. Work rapidly; first impressions are as good as any.

1 = Definitely False
2 = Mostly False
3 = Undecided or Equally True and False
4 = Mostly True
5 = Definitely True

I have a logical mind.
1----------2----------3----------4----------5
Knowing the answer without having to understand the reasoning behind it is good enough for me.
1----------2----------3----------4----------5
When it comes to trusting people, I can usually rely on my gut feelings.
1----------2----------3----------4----------5
I don't think it is a good idea to rely on one's intuition for important decisions.
1----------2----------3----------4----------5
I am not a very analytical thinker.
1----------2----------3----------4----------5
I prefer complex to simple problems.
1----------2----------3----------4----------5
I suspect my hunches are often inaccurate.
1----------2----------3----------4----------5
I often go by my instincts when deciding on a course of action.
1----------2----------3----------4----------5
I am much better at figuring things out logically than most people.
1----------2----------3----------4----------5
I trust my initial feelings about people.
1----------2----------3----------4----------5
I generally don't depend on my feelings to help me make decisions.
1----------2----------3----------4----------5
If I were to rely on my "gut feelings," I would often make mistakes.
1----------2----------3----------4----------5
I am not very good at solving problems that require careful logical analysis.
1----------2----------3----------4----------5
I like to rely on my intuitive impressions.
1----------2----------3----------4----------5
I enjoy problems that require hard thinking.
1----------2----------3----------4----------5
I believe in trusting my hunches.

1----------2----------3----------4----------5

I don't like situations in which I have to rely on intuition.

1----------2----------3----------4----------5

I don't like to have to do a lot of thinking.

1----------2----------3----------4----------5

Using logic usually works well for me in figuring out problems in my life.

1----------2----------3----------4----------5

I don't have a very good sense of intuition.

1----------2----------3----------4----------5

I think there are times when one should rely on one's intuition.

1----------2----------3----------4----------5

I enjoy intellectual challenges.

1----------2----------3----------4----------5

Reasoning things out carefully is not one of my strong points.

1----------2----------3----------4----------5

I try to avoid situations that require thinking in depth about something.

1----------2----------3----------4----------5

APPENDIX C

Case Information

On December 4, 2001Billie Coble was found guilty of two counts of first degree murder, four counts of kidnapping, and one count of attempted murder. Due to a legal error that occurred during the original sentencing phase, Mr. Coble has been granted a new sentencing trial. Please read the following facts concerning the case, background information, and testimony presented by both the prosecution and the defense.

In the Court of Criminal Appeals of Texas
Billie Coble, Appellant
v.
The State of Texas

Mr. Coble married Karen Vince, his third wife, in July 1998. The marriage quickly fell apart and after one year Ms. Vince asked Mr. Coble to move out and filed for divorce. Mr. Coble attempted to talk Ms. Vince out of the decision and would randomly call her and show up at her work place.

On the evening of October 3, 1999 Mr. Coble kidnapped Ms. Vince as an attempt to dissuade her from divorcing him. He hid in her car and attacked her, threatening her with a knife and driving her to a remote location in central Texas. After two hours, Ms. Vince was able to convince Mr. Coble that she had reconsidered and would remove her petition of divorce. At this point Mr. Coble drove Ms. Vince home and returned to his own residence.

Ms. Vince immediately contacted the police. Mr. Coble was arrested, arraigned for kidnapping, and released on bail. Nine days after his release Mr. Coble went to Ms. Vince's house when she was not home. He waited as Ms. Vince's three daughters arrived home from school. Mr. Coble then handcuffed them, tied up their feet, and taped their mouths closed. Ms. Vince's oldest daughter testified that he told them, "I should blow you away." However, Mr. Coble left the girls tied up in Ms. Vince's house and did not harm them further. He then left the residence and walked down the street to the house where Ms. Vince's mother and father resided. He waited for each of them to return home and shot them as they walked through the front door. Both Bob and Bonnie Vince, Ms. Vince's parents, died instantly.

Mr. Coble then returned to Ms. Vince's residence and waited in her garage for her to return home from work. When Ms. Vince arrived Mr. Coble kidnapped her at gunpoint and forced her into her car. As he began to drive outside of town Ms. Vince began to physically fight Mr. Coble in an attempt to free herself. During the altercation Ms. Vince

sustained a number of cuts and bruises, however, she did not have any serious injuries. As a result of the altercation Mr. Coble lost control of the vehicle and crashed into a telephone pole. Mr. Coble sustained severe injuries as a result of this crash and police were summoned to the scene.

Mr. Coble was arrested and charged with two counts of first degree murder, four counts of aggravated kidnapping (one count for Ms. Vince and each of her daughters), and one count of attempted murder. He was found guilty of each of these crimes.

Background information

Mr. Coble was the third of three children born to a sickly, depressed mother and raised by an alcoholic step-father. By all indication, Mr. Coble was neglected and possibly abused as a young child. When he was four years-old his mother was admitted into a long-term psychiatric hospital and Mr. Coble was sent to a State Home for Children. He remained in the Children's home for 13 years. At the age of 15 he was evaluated by a psychiatrist who determined he was paranoid, distant and impulsive.

At the age of 18 Mr. Coble enlisted in the United States Marine Corps. He served in the Marine Corps for four years, one of those years were spent in active combat in Operation Desert Storm. Mr. Coble's sister was interviewed and stated that he has not "been the same" since returning from active duty. He was honorably discharged at the age of 22.

Mr. Coble married his first wife at the age of 23. The marriage lasted for two years and the couple parted amicably. He was remarried approximately one year later. This marriage lasted approximately eight months and the couple did not part on friendly terms. Mr. Coble's second wife told police that he became physically violent towards her multiple times and his abuse is what led to their separation. In addition, she claimed that Mr. Coble sexually assaulted her 18 year-old sister on two separate occasions. Both women declined to press charges at the time.

Since being incarcerated for his crimes Mr. Coble has received no disciplinary infractions. One guard described Mr. Coble as the "model inmate" who was always even tempered and had the ability to talk sense into other, more violent, inmates. Mr. Coble attributes his transformation to finding religion and dedicating his life to Christianity. Since being incarcerated he has organized a series of workshops for other inmates to learn English, led daily prayer and Bible study groups, and held a leadership job in the prison's kitchen.

APPENDIX D

Sentencing Instructions-Rational

The defendant was found guilty of two counts of 1st degree murder approximately 20 years ago. Due to complications with the legal process, his original sentence was appealed and it is now your responsibility to determine his sentence.

When determining this sentence you must consider two things:

1. Will the defendant constitute a continuing threat to society? That is, what is the likelihood that the defendant will commit violent criminal acts in the future?
2. Taking into account the defendant's background, character, and the circumstances of the crime, is there sufficient justification for the crime that would warrant a sentence of life in prison rather than death?

In order for a death penalty to be imposed the answer to the first question must be "yes" and the answer to the second question must be "no." In all other cases, a sentence of life in prison must be imposed.

When determining the sentence, please **logically** consider all of the evidence presented. **Try to be as rational and analytical as possible**.

APPENDIX E

Sentencing Instructions-Experiential

The defendant was found guilty of two counts of 1st degree murder approximately 20 years ago. Due to complications with the legal process, his original sentence was appealed and it is now your responsibility to determine his sentence.

When determining this sentence you must consider two things:

1. Will the defendant constitute a continuing threat to society? That is, what is the likelihood that the defendant will commit violent criminal acts in the future?
2. Taking into account the defendant's background, character, and the circumstances of the crime, is there sufficient justification for the crime that would warrant a sentence of life in prison rather than death?

In order for a death penalty to be imposed the answer to the first question must be "yes" and the answer to the second question must be "no." In all other cases, a sentence of life in prison must be imposed.

When determining the sentence, **please go with your gut feeling**. It's important that you consider your **intuitive response**.

APPENDIX F

Prosecution Expert Testimony: Actuarial & High Psychopathy/Risk

Below is testimony presented by an expert witness for the prosecution, Dr. Patrick Cooney.

Q: Could you please state your name for the record, as well as your title and experience in the field of forensic psychology?

A: My name is Dr. Patrick Cooney. I have a degree in medicine from the University of Nebraska and completed a residency in psychiatry at Syracuse University College of Medicine and a fellowship in psychiatry at the same institution. I am board certified in Forensic Psychiatry and General Psychiatry. Finally, I have been conducting forensic evaluations for approximately 20 years and have conducted over 100 evaluations.

Q: And you conducted a forensic evaluation on this defendant, Billie Coble?

A: Yes.

Q: How much time did you spend with Mr. Coble?

A: Approximately two to three hours.

Q: And what did you do during that time?

A: I conducted an interview with the defendant as well as administered a number of psychological assessments.

Q: Psychological assessments? What kind of psychological assessments?

A: One of these measures was the Violence Risk Appraisal Guide, which we call the VRAG. The VRAG uses specific factors to scientifically predict the likelihood that an individual will commit a violent act in the future. In addition, I administered the Psychopathy Checklist-Revised, or PCL-R, which is an instrument designed to determine if an individual is a psychopath.

Q: Did you complete a report for the court as a result of that evaluation?

A: Yes.

Q: Could you tell the court what is in that report?

A: I learned a number of things about the defendant. First, the PCL-R gave us insight into how psychopathic the defendant is.

Q: What is a "psychopath?"

A: A psychopath is someone who disregards the rights of others, has an inability to empathize, demonstrates superficial emotions, and grandiosity. Psychopaths often engage in impulsive behaviors, are willing to lie and con others for their own gain and may display aggressive behavior.

Q: I see. And you used the PCL-R to measure whether Mr. Coble is a psychopath?

A: Yes. The PCL-R is a psychological instrument that was developed and tested on many people. Research has demonstrated that it is very good at identifying what we in the psychology world consider to be "psychopathy." In order to score the instrument I conducted an interview with the defendant and reviewed his prison records.

Q: I see, and why do you evaluate someone for psychopathic personality?

A: Psychopathy can indicate whether an individual will reoffend.

Q: And what did the PCL-R tell you about Mr. Coble?

A: From this evaluation and based on his scores on the PCL-R I determined that the defendant meets criteria for psychopathy.

Q: So you determined that Mr. Coble is a "psychopath?"

A: Correct. That is what the data indicate.

Q: Thank you, Doctor. You also stated that you administered another psychological instrument, could you tell us about that?

A: Yes. I also administered the VRAG. This instrument was designed to predict that likelihood that an individual would commit future violent acts. The prediction is based on a number of factors that have been scientifically proven to predict violent behavior including past violent behavior, age, alcohol and drug use, and any psychological disorders. It has also been tested on a large group of people and shown to be fairly accurate.

Q: And what did this VRAG tell you about Mr. Coble?

A: Based on the data, it is my opinion that there is a high likelihood that Mr. Coble would commit another violent act in the future.

Q: You believe that Mr. Coble is likely to be a future danger to society?

A: Correct.

Q: Thank you, no further questions.

Defense Expert Testimony: Clinical & Low Psychopathy/Risk

Below is testimony presented by an expert witness for the defense, Dr. Dylan Wesley

Q: Could you please state your name for the record, as well as your title and experience in the field of forensic psychology?

A: My name is Dr. Dylan Wesley. I have a degree in medicine from University of Georgia and completed a residency in psychiatry at the University of Virginia, College of Medicine and a fellowship in psychiatry at the University of Arizona. I am board certified in both General and Forensic Psychiatry. I have conducted approximately 120 evaluations for the courts over the past 18 years.

Q: And you conducted a forensic evaluation on this defendant, Billie Coble?

A: Yes.

Q: How much time did you spend with Mr. Coble?

A: Approximately two to three hours.

Q: And what did you do during that time?

A: I interviewed the defendant. I do kind of a standard interview using methods that I have established over my (18) years of conducting these evaluations. During the interview I look for a set of factors. Specifically, I look for a history of violence, the defendant's attitude towards violence, and personality factors associated with psychopathic personality disorder.

Q: Did you complete a report for the court as a result of that interview?

A: Yes.

Q: Could you tell the court what is in that report?

A: I learned a number of things about the defendant. First, I got insight into how much of a psychopath the defendant is.

Q: What is a "psychopath?"

A: A psychopath is someone who disregards the rights of others, has an inability to empathize, demonstrates superficial emotions, and grandiosity. Psychopaths often engage in impulsive behaviors, are willing to lie and con others for their own gain and may display aggressive behavior.

Q: I see, and why do you evaluate someone for psychopathic personality?

A: Psychopathy, as well as many of the other risk factors I mentioned earlier like a history of violence and the defendant's attitude towards violence, can indicate whether an individual will reoffend.

Q: Interesting. And what did you determine from your interview with Mr. Coble?

A: I determined that Mr. Coble likely committed these crimes under a great deal of stress and frustration. Although I did not know Mr. Coble at the time, it is my hypothesis that these crimes were the acts of a desperate man who was immediately remorseful for his crime. Currently, he seems to function at a much more mature emotional level, meaning he is able to empathize with others, considers the consequences of his actions, and shows remorse for his previous crimes.

Q: So you determined that Mr. Coble is not a psychopath?

A: Correct. In my opinion, Mr. Coble is not a psychopath.

Q: Did you determine if Mr. Coble is a continuing threat to society?

A: I can state that it is my opinion that there is a low likelihood that Mr. Coble will commit another violent crime in the future.

Q: And just to clarify, what do you base this opinion on?

A: I base this opinion on the defendant's good behavior while incarcerated, his age…

Q: Excuse me, his age?

A: Yes. Statistically, criminal behavior decreases with age.

Q: I understand, please, continue.

A: I base this opinion on Mr. Coble's good behavior while incarcerated, his age, his failing health, and the remorse he demonstrated towards his victim and about his crime.

Q: Thank you, no further questions.

APPENDIX G

Prosecution Expert Testimony: Clinical & High Psychopathy/Risk

Below is testimony presented by an expert witness for the prosecution, Dr. Patrick Cooney.

Q: Could you please state your name for the record, as well as your title and experience in the field of forensic psychology?

A: My name is Dr. Patrick Cooney. I have a degree in medicine from the University of Nebraska and completed a residency in psychiatry at Syracuse University College of Medicine and a fellowship in psychiatry at the same institution. I am board certified in Forensic Psychiatry and General Psychiatry. Finally, I have been conducting forensic evaluations for approximately 20 years and have conducted over 100 evaluations.

Q: And you conducted a forensic evaluation on this defendant, Billie Coble?

A: Yes.

Q: How much time did you spend with Mr. Coble?

A: Approximately two to three hours.

Q: And what did you do during that time?

A: I interviewed the defendant. I do kind of a standard interview using methods that I have established over my 20years of conducting these evaluations. During the interview I look for a set of factors. Specifically, I look for a history of violence, the defendant's attitude towards violence, and personality factors associated with psychopathic personality disorder.

Q: Did you complete a report for the court as a result of that interview?

A: Yes.

Q: Could you tell the court what is in that report?

A: I learned a number of things about the defendant. First, I got insight into how much of a psychopath the defendant is.

Q: What is a "psychopath?"

A: A psychopath is someone who disregards the rights of others, has an inability to empathize, demonstrates superficial emotions, and grandiosity. Psychopaths often engage in impulsive behaviors, are willing to lie and con others for their own gain and may display aggressive behavior.

Q: I see, and why do you evaluate someone for psychopathic personality?

A: Psychopathy, as well as many of the other risk factors I mentioned earlier like a history of violence and the defendant's attitude towards violence, can indicate whether an individual will reoffend.

Q: And what did you determine from your interview with Mr. Coble?

A: I determined that Mr. Coble has a cavalier attitude towards his crime. He did not appear to be remorseful for his actions nor did he demonstrate empathy towards his victim. In addition, he has a history of violence towards women.

Q: So you determined that Mr. Coble is a psychopath?

A: Correct. In my opinion, Mr. Coble is a psychopath.

Q: Did you determine if Mr. Coble is a continuing threat to society?

A: I can state that it is my opinion that there is a high likelihood that Mr. Coble will commit another violent crime in the future.

Q: And just to clarify, what do you base this opinion on?

A: I base this belief on the defendant's history of violence... he was accused by a previous wife of being physically violent towards her… the heinousness of the current crime, and his personality disorder which makes it difficult, if not impossible, for him to function within the constraints of societal norms.

Q: Thank you, no further questions.

Defense Expert Testimony: Actuarial & Low Psychopathy/Risk

Below is testimony presented by an expert witness for the defense, Mr. Dylan Wesley.

Q: Could you please state your name for the record, as well as your title and experience in the field of forensic psychology?

A: My name is Dr. Dylan Wesley. I have a degree in medicine from University of Georgia and completed a residency in psychiatry at the University of Virginia, College

of Medicine, and a fellowship in psychiatry at the University of Arizona. I am board certified in both General and Forensic Psychiatry. I have conducted approximately 120 evaluations for the courts over the past 18 years.

Q: And you conducted a forensic evaluation on this defendant, Billie Coble?

A: Yes.

Q: How much time did you spend with Mr. Coble?

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Q: And what did you do during that time?

A: I conducted an interview with the defendant as well as administered a number of psychological assessments.

Q: Psychological assessments? What kind of psychological assessments?

A: One of these measures was the Violence Risk Appraisal Guide, which we call the VRAG. The VRAG uses specific factors to scientifically predict the likelihood that an individual will commit a violent act in the future. In addition, I administered the Psychopathy Checklist-Revised, or PCL-R, which is an instrument designed to determine if an individual is a psychopath.

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A: I learned a number of things about the defendant. First, the PCL-R gave us insight into how psychopathic the defendant is.

Q: What is a "psychopath?"

A: A psychopath is someone who disregards the rights of others, has an inability to empathize, demonstrates superficial emotions, and grandiosity. Psychopaths often engage in impulsive behaviors, are willing to lie and con others for their own gain and may display aggressive behavior.

Q: I see. And you used the PCL-R to measure whether Mr. Coble is a psychopath?

A: Yes. The PCL-R is a psychological instrument that was developed and tested on many people. Research has demonstrated that it is very good at identifying what we in the psychology world consider to be "psychopathy." In order to score the instrument I conducted an interview with the defendant and reviewed his prison records.

Q: I see, and why do you evaluate someone for psychopathic personality?

A: Psychopathy can be indicative of whether an individual will reoffend.

Q: And what did the PCL-R tell you about Mr. Coble?

A: From this evaluation and based on his scores on the PCL-R I determined that the defendant does not meet criteria for psychopathy.

Q: So you determined that Mr. Coble is not a "psychopath?"

A: Correct. That is what the data indicate.

Q: Thank you, Doctor. You also stated that you administered another psychological instrument, could you tell us about that?

A: Yes. I also administered the VRAG. This instrument was designed to predict that likelihood that an individual would commit future violent acts. The prediction is based on a number of factors that have been scientifically proven to predict violent behavior including past violent behavior, age, alcohol and drug use, and any psychological disorders. It has also been tested on a large group of people and shown to be fairly accurate.
Q: And what did this VRAG tell you about Mr. Coble?

A: Based on the data, it is my opinion that there is a low likelihood that Mr. Coble would commit another violent act in the future.

Q: You believe that Mr. Coble is not likely to be a future danger to society?

A: Correct.

Q: Thank you, no further questions.

APPENDIX H

Case Evaluation

Considering the evidence present at this time, which sentence would you be more likely to recommend?

A. A sentence of life in prison without the possibility of parole
B. A sentence of death

How confident are you in making this decision?

0--------10-------20-------30-------40-------50-------60-------70-------80------90-------100
Not very confident *Somewhat confident* *Very Confident*

Considering the evidence present at this time, what is the likelihood that the defendant will commit another violent crime (i.e. against a corrections officer or another inmate) if given a sentence of life in prison without the possibility of parole?

0--------10-------20-------30-------40-------50-------60-------70-------80------90-------100
No likelihood *Definitely will occur*

Considering the evidence present at this time, what is the likelihood that the defendant will commit another murder (i.e. against a corrections officer or another inmate) if given a sentence of life in prison without the possibility of parole?

0--------10-------20-------30-------40-------50-------60-------70-------80------90-------100
No likelihood *Definitely will occur*

Considering the evidence present at this time, how psychopathic would you rate this individual (i.e. how much of a "psychopath" is he)?

0--------10-------20-------30-------40-------50-------60-------70-------80------90-------100
Not at all psychopathic *Definitely a psychopath*

How confident are you in your rating of the defendant's level of psychopathy?

0--------10-------20-------30-------40-------50-------60-------70-------80------90-------100
Not at all confident *Somewhat confident* *Very confident*

Given the facts of this case, please rate whether you would expect someone like this person to have the following personality traits and characteristics. (For these ratings, please circle **0**, **1**, or **2**)

Not at All	Somewhat	Very Much		
0	1	2	1)	Superficially charming or glib
0	1	2	2)	Inflated sense of self-worth/Egotistical
0	1	2	3)	Need for stimulation/easily bored
0	1	2	4)	Pathological lying
0	1	2	5)	Conning/manipulative
0	1	2	6)	Lack of remorse or guilt for past bad acts
0	1	2	7)	Shallow emotions (for example, cold or generally unemotional)
0	1	2	8)	Callous/Lack of empathy for other people
0	1	2	9)	Parasitic lifestyle (such as, living off others even though capable of work)
0	1	2	10)	Poor behavioral controls (for example, prone to fighting and aggressive acts)
0	1	2	11)	Promiscuous sexual behavior
0	1	2	12)	Early childhood behavior problems (such as serious trouble in elementary school)
0	1	2	13)	Lack of realistic long-term life goals (for example, no plans or unrealistic plans)
0	1	2	14)	Impulsive (for example, does things on the "spur of the moment")

0----------1----------2 15) Irresponsible behavior (such as owes money, poor work history, drunk driving)

0----------1----------2 16) Fails to accept responsibility for his bad actions

0----------1----------2 17) Many short-term marital relationships

0----------1----------2 18) History of juvenile delinquency (that is, arrests before age 18)

0----------1----------2 19) Having a history of failure on parole or conditional release

0----------1----------2 20) Criminal versatility (that is, a history of many types of criminal behavior)

APPENDIX I

Evidence Rating Form

For the following items, please rate on a scale from 1-7 how influential each piece of evidence was in helping you make your final decision.

-------1----------2----------3----------4----------5----------6----------7-----	
Not very influential for my decision	*Very influential for my decision*

_____ The abuse Mr. Coble sustained during childhood

_____ Mr. Coble's possible history of sexually assaulting women

_____ Mr. Coble's claim that he became a born-again Christian while incarcerated

_____ The evidence that Mr. Coble kidnapped his ex-wife

_____ Mr. Coble's current age

_____ The evidence that Mr. Coble was not provoked by any of his victims

_____ The heinousness of the murders

_____ Expert testimony presented by the prosecution concerning Mr. Coble's risk of future dangerousness

_____ Expert testimony presented by the defense concerning Mr. Coble's risk of future dangerousness

_____ The number of people Mr. Coble killed

_____ Testimony concerning Mr. Coble's good works while incarcerated (i.e. helping others gain an education, organizing clubs, etc.)

APPENDIX J

Comprehension Questionnaire

Coble was on trial for committing which of the following crimes?

a) Child endangerment
b) Driving while Intoxicated
c) Murder
d) Forgery

Who was Coble accused of killing?

a) His boss
b) His father-in-law
c) His mother
d) Three strangers

The most severe sentence that Coble was facing was…?

a) Death Penalty
b) Probation
c) Five years in county jail
d) Deportation

APPENDIX K

Manipulation Check

Instructions from the judge encouraged you to think about the evidence:

a) In a rational, logical and thoughtful manner
b) Using your gut feelings and intuition

The expert witness for the prosecution based his testimony on:

a) What the attorneys told him to say
b) What the defendant told him to say
c) Psychological tests like the VRAG or PCL-R
d) His clinical experience

According to the expert witness for the prosecution, the defendant:

a) Is a psychopath
b) Is not a psychopath
c) Is depressed
d) Is not depressed

According to the expert witness for the prosecution, if the defendant is given a sentence of life in prison:

a) He will need medical treatment for the rest of his life
b) His victims will require psychotherapy
c) He will continue to be a risk to society
d) He will no longer be a risk to society

APPENDIX L

Manipulation Check – Post-procedures Experientiality

1. I can usually sense when someone is being fake
2. A lot of times I just *know* what to do in my gut
3. My sense of intuition is better than most of my friends'
4. Relying on my first instinct has led me to make mistakes in the past (R)
1. When I'm making an important decision, it's best to trust my instincts
2. Situations that require me to trust my hunches make me uncomfortable (R)
3. I don't think people should rely only on their gut feelings (R)