This study investigated the effect of cognitive factors on competency to stand trial. Previous researchers have investigated how psychological variables--such as psychosis and intelligence--contribute to incompetency. Although several researchers have established that intelligence contributes to incompetency, very few have investigated the role of specific cognitive abilities within the realm of intelligence. This study investigated the performance of 55 defendants referred for competency restoration on neuropsychological measures. Specifically, competent defendants and incompetent defendants were compared on several measures assessing functioning in seven cognitive domains. Competent defendants performed significantly better than incompetent defendants on measures of verbal comprehension, social judgment, verbal memory, and executive functioning. Competent and incompetent defendants did not differ on attention, visual spatial skills, or nonverbal memory.
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Nicole Rae Grandjean
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CHAPTER 1
INTRODUCTION

The issue of competency to stand trial has been called "the most significant mental health inquiry pursued in the system of criminal law" (Stone, 1975, p. 200). One reason for its importance is the historically large numbers of defendants that are referred annually for competency evaluations. For several decades, the judicial system has referred a large number of defendants to mental health professionals for competency evaluations and subsequent competency restoration.

History of Competency to Stand Trial Evaluations

Historical Basis for Competency Determinations

Historically, the determination of competency has been the most frequent issue leading to the hospitalization of people in the criminal justice system. A study of the admissions of criminal offenders to U.S. mental hospitals in 1967 showed that 52% (as many as 15,000 people) either were committed indefinitely on the basis of incompetency or had been held for a competency evaluation (Watson, 1969). Typically, defendants were referred to mental health professionals at state hospitals in order to be evaluated for competency to stand trial. This process almost invariably involved involuntary commitment that ranged from weeks to months. For many defendants, competency to stand trial evaluations led to indefinite commitments.

Competency evaluations were often used more as a legal strategy, such as delaying trial or introducing mitigating circumstances, than a genuine concern for the defendant's competency (Chernoff & Schaffer, 1972). This idea is supported through prior research that suggests the vast majority of defendant's receiving competency
evaluations from the large inpatient facilities, usually state hospitals, where given recommendations of competency. For example, a study of the North Carolina system in 1977 revealed that only 7% of all defendants referred received recommendations of incompetent to stand trial (Roesch & Golding, 1980). Other studies of incompetency rates ranged from less than 2% (McGarry, 1973) to as high as 38% (Pfeiffer, Eisenstein, & Dobbs, 1967).

Lipsitt, Lelos, and McGarry (1971) suggested that the problem of unnecessary hospitalization was a result of the ambiguity, misunderstanding, and/or distortion that exists regarding the roles of psychiatrists and in the courts. Furthermore, this confusion was probably a direct result of the differences in orientation between the legal and mental health professionals (Lipsitt et al., 1971). Conflicts between mental health professionals and legal professionals have existed since psychology has interfaced with the law (Balcanoff & McGarry, 1969). Psychiatrists and Psychologists consistently have participated in the assessment of competency to stand trial, although the role of mental health professionals in such evaluations has been previously disputed by the legal community as well as other professionals. Specifically, these conflicts include disagreements as to how competency evaluations should be conducted and by whom (Rosenberg & McGarry, 1972).

Confusion of Competency with Criminal Responsibility

In past decades, competency to stand trial was often confused by legal and mental health professionals with determination of criminal responsibility. Hess and Thomas (1963) examined the records of individuals at Ionia State Hospital with respect to competency to stand trial under Michigan law. Specifically, they considered cases of
77 inpatients deemed incompetent, 21 individuals returned to court and 31 individuals deemed incompetent who had been paroled. According to Hess and Thomas, "The vast majority of the records studied indicated that the psychiatrist confused the legal standards for incompetency with those of responsibility" (p. 715). Although it is the responsibility of the psychiatrist to "offer a scientific description of the individual to the court in a meaningful and serviceable fashion with clear-cut substantiation of his conclusions, [they found that] the majority of the psychiatrists' reports were empty and meaningless" (Hess & Thomas, 1963, pp. 715-716). Hess and Thomas concluded that without a drastic change in the standard approach towards competency evaluations, it should be the law's responsibility to see that the process and results of competency evaluations are consistent with the legal principles of competency to stand trial. Furthermore, Hess and Thomas advocated separating legal and psychiatric responsibilities.

A drastic change in the standard approach to competency evaluations evolved with the development of psycholegal constructs (e.g., factual understanding, ability to consult with counsel). Later studies advocated utilizing psycholegal constructs with more specific referral questions pertaining to the law. In this regard, Pfeiffer et al. (1967) found that although psychiatrists were rarely asked by the courts to judge criminal responsibility, they frequently made such judgments while assessing competency to stand trial. This study helped to clarify the distinction between evaluations of competency to stand trial and determinations of criminal responsibility (Pfeiffer et al., 1967).
Prior to the 1970s, reports to the courts typically focused solely on mental health issues such as the need for hospitalization as opposed to focusing on the legal standards. That is, mental health professionals typically focused on treatment and failed to answer the question posed by the courts (Robey, 1965). This treatment-oriented focus was also the standard approach for assessing competency in lieu of clearly establishing competency based on the *Dusky* standard. In calling for a more forensic perspective, Bukatman, Foy, and Degrazia (1971) recommended that the evaluation criteria in competency to stand trial assessments should be relevant to the defendant's situation and to the legal definition of competency. Specifically, they suggested that to be competent, the defendant must possess the following abilities: (a) the understanding of his/her current predicament and (b) the ability to participate in the subsequent proceedings. Furthermore, they asserted that a careful evaluation of the relationship between the defendant and his/her attorney should be the focus of a thorough competency examination.

Rosenberg and McGarry (1972) conducted a four-year study of competency to stand trial issues in Massachusetts. One aspect of the study examined 48 psychiatric reports that had been sent to the courts from the Bridgewater State Hospital following pretrial competency observations at the hospital. In general, the reports lacked substantive content. Specifically, the reports often did not state the purpose of the examination nor a clear basis in the body of the report for the subsequent conclusions. Half of the reports did not refer to the legal criteria as the basis for the ultimate conclusion of competency.
Rosenberg and McGarry (1972) concluded that neither the psychiatric nor the legal professions in Massachusetts were able to deal adequately with the issue of competency. They iterated a need for specialized forensic training and experience if psychiatrists were to consult to the courts on competency to stand trial. Furthermore, they specified four basic requirements for a competency expert: (a) an adequate knowledge of the criminal justice system; (b) adequate interpersonal skills in interviewing and eliciting relevant, legally oriented data from defendants who are mentally ill or mentally retarded; (c) knowledge and application of the criteria for competency; and (d) professional status to assure credibility.

Psychologists Role in Competency Evaluations

Historically, psychiatrists have been more involved in the evaluation of competency than other mental health professionals, including clinical psychologists. Prior to the 1960s in America, only medical psychiatrists, not Ph.D. psychologists or any other kind of mental health professionals, had the exclusive right to provide expert "medical" testimony in a criminal trial (Hagen, 1997). However, this changed in 1962 when the landmark case of Jenkins v. United States was successfully appealed. The court had ruled, "a psychologist is not competent to give a medical opinion as to mental disease or defect. Therefore [the jury] will not consider any evidence to the effect that the defendant was suffering from a mental disease or a mental defect … according to the testimony given by the psychologist" (Jenkins v. United States, 1962). On appeal, the United States Court of Appeals ruled that the trial judge was to make decisions relevant to competence and stated that it was "not a straightforward matter of medical training" (Jenkins v. United States Court of Appeals, as cited by Hagen, 1997, p.59).
Regardless of the successful appeal of *Jenkins v. United States*, clinical psychologists continued to play a secondary role to psychiatrists when it came to testifying in criminal courts. Bartholomew, Badger, Milte (1977) described psychologists as the handmaidens to psychiatrists in court. That is, they provided psychological test results to support the psychiatrist's clinical opinion. However, clinical psychologists began to gain credibility with respect to forensic issues during the 1970s with the integrated law and psychology training model that began at the University of Nebraska - Lincoln.

Prior to the development of this integrated model, the majority of competency evaluations were completed by male psychiatrists. The effectiveness of psychiatrist's examinations was contingent on his familiarity with individual members of the court (e.g. the prosecutor, defense attorney, and/or judge). Balcanoff and McGarry (1969) discussed the importance of being accepted as a member of the court "family." They observed that a respected status within the court community was established after several years of frequent informal "corridor" consultations. Furthermore, they found that a psychiatrist's experience, maturity, and most importantly his familiarity with the adversarial process were essential for him to play an effective role. Without this familiarity with the adversary process, the expert could become "inappropriately manipulated." In conclusion, Balcanoff and McGarry claimed:

> Traditionally … we make the welfare of the patient our primary concern, with society's demands being secondary. But when we are dealing with a patient who is also a defendant, there is a dual role for the psychiatrist who consults for the court, and maintaining an objective but at times exquisitely sensitive balance between the two is a delicate process that requires specialized training and professional maturity. (p. 95)
It was during the 1970s at the University of Nebraska - Lincoln, that the integrated law and psychology training model began (Melton, 1997). Interestingly, the state of Nebraska did not allow psychologists to testify as an expert witness until the 1980s. From the 1970s to present, psychology's role in the assessment of competency to stand trial has evolved rapidly.

**Evolution of Competency Evaluations**

The number of competency referrals has increased steadily over the past few decades. Although defense attorneys question their client's competency in only 8%-15% of felony cases (Hoge, Bonnie, Poythress, & Monahan, 1992), the rise in criminal cases in the United States has led to an increase in competency referrals. In 1978, a total of 20,143 mentally disordered offenders were admitted to state and federal forensic institutions in the United States. More than 6,000 of these mentally disordered defendants were deemed incompetent to stand trial with the census indicating that 3,400 incompetent offenders were incarcerated on an average day (Steadman, Monahan, Hartstone, Davis, & Robbins, 1982). In 1982, there was an estimated 25,000 annual referrals for competency evaluations (Steadman et al., 1982). By 1998, this number had doubled with an estimated 50,000 annual referrals for competency evaluations in the United States (Skeem, Golding, Cohn, & Berge, 1998).

Competency evaluations have profound significance because of their influence on court decisions and the far-ranging consequences for the defendant. Approximately 25% to 30% of competency referrals result in adjudication of "incompetent to proceed" and commitment to psychiatric hospitals for treatment to restore competence (Roesch & Golding, 1980). The influence of competency evaluations is magnified because criminal
courts rarely disagree with the competency recommendations of mental health professionals (Reich & Tookey, 1986). Research has indicated that judges typically defer to the opinions of the examiner with concordance rates often exceeding 90% (Hart & Hare, 1992; Reich & Tookey, 1986; Williams & Miller, 1981).

The field of forensic psychology has grown exponentially in recent decades and has had a profound effect on both the practice of clinical psychology and the evaluations of mentally disordered defendants (Skeem & Golding, 1998). As the number of competency referrals has increased, so has the need for clinical psychologists who specialize in forensic assessment and are knowledgeable of the pertinent issues involved. This includes: (a) knowledge of the legal standard for competency to stand trial, (b) familiarity with forensic measures used to assess competency, and (c) individual characteristics that are related to competency. Grisso (1996) has expressed concern that psychologists lacking specialized training in forensic psychology may depreciate the quality of court-ordered evaluations in criminal cases. To that end, the legal standard for competency will be discussed in the next section.

The Legal Framework

The lack of a substantive standard for competency to stand trial prior to 1960 made competency to stand trial evaluations difficult for mental health professionals. However, *Dusky v. United States* (1960) led to the development of an important change in the standard approach towards competency evaluations by providing mental health professionals with a substantive standard on which to base their decisions. The *Dusky* standard articulated the following:

Test of defendant's competency to stand trial is whether he has sufficient present ability to consult with his lawyer with a reasonable degree of rational
understanding and whether he has rational as well as factual understanding of the proceedings against him and it is not enough that he is oriented to time and place and has some recollection of events (*Dusky v. United States*, 1960, p. 788).

Two cases subsequent to *Dusky v. United States* (1960) added procedural safeguards to the standard for competency to stand trial. In *Pate v. Robinson* (1966), the Supreme Court ruled that failure to provide the defendant with a hearing to determine competency, when sufficient evidence suggested the need, is a violation of the defendant's 6th amendment right to a fair trial. In 1974, the Court ruled in *Drope v. Missouri* that competence at the beginning of a hearing is not necessarily indicative of competence throughout the legal proceedings. Furthermore, the Court specified what evidence was relevant to whether a hearing of competency is warranted; this evidence included a defendant's irrational behavior, demeanor at trial, and expert's prior medical opinion (*Drope v. Missouri*, 1974).

*Pate* and *Drope* upheld the criteria first established in *Dusky* as the legal standard for evaluating competency to stand trial (Bonnie, 1993). Subsequent cases regarding procedural protections have continued to support this legal standard as the basis for competency evaluation. In *Godinez v. Moran* (1993), the Supreme Court specified further the legal proceedings as they applied to competency to stand trial. The additional safeguards were twofold: (a) the defendant's decision-making abilities are encompassed within the construct of competency to stand trial, and (b) a defendant's trial competence and competence to plead guilty should be assessed under a single standard. With reference to pro se representation, Justice Thomas noted:

> The focus of the competency inquiry is the defendant's mental capacity; the question is whether he has the ability to understand the proceeding. By contrast, the purpose of the "knowing and voluntary" inquiry is to
determine whether the defendant actually does understand the significance and consequences of a particular decision and whether the decision is uncoerced (p. 2687).

This is an important safeguard for the legal system given that in the vast majority (e.g., at least 85%) of criminal cases the defendant pleads guilty (Wrightsman, Nietzwel, & Fortune, 1998).

In summary, the bar against trying an incompetent defendant was first established in *Dusky v. United States* (1960). Subsequent cases have continued to support and refine the legal proceedings concerning the *Dusky* standard. Having stood the test of time, the *Dusky* standard is the basis for determining competency in the United States and should be conceptualized as specific elements that represent discrete abilities (Grisso, 1986).

Clinical researchers (Otto et al., 1998; Rogers & Grandjean, 2000) envision the *Dusky* standard as having three distinct prongs representing discrete abilities: (a) factual understanding of the proceedings, (b) rational understanding of the defendant’s role in those proceedings and (c) the ability to consult with counsel. The determination of competency depends on the conjunctive nature of the standard. That is, all dimensions must be utilized together because no prong is solely sufficient to make a determination of competence (Shuman, 1994).

*Rationale for Competency to Stand Trial*

Both practical and theoretical rationales have been given for establishing competency to stand trial. On a practical basis, Weiner (1985) presented four justifications for determining competency: (a) to safeguard the accuracy of the proceedings, (b) to ensure procedural fairness, (c) to preserve the dignity of the legal
system, and (d) to achieve the objectives of sentencing. Weiner’s reasons for establishing competency facilitate one’s understanding of the need for competency evaluations on a case level.

In an attempt to offer a more theoretical perspective on the necessity for establishing competency, Bonnie (1992) identified a three-part rationale: (a) dignity, (b) reliability, and (c) autonomy. According to Bonnie, trying a defendant who lacks a moral understanding of wrongdoing and subsequently punishing that defendant would offend the moral dignity of the legal proceedings. Bonnie’s term reliability addresses the issue that the construct of competency must be operationalized within the attorney-client relationship. That is, in order to present an adequate defense, the defendant must have the capacity to appreciate the utility of certain facts and the wherewithal to provide counsel with that information. If a defendant is not able to provide counsel with such information, then the reliability of the criminal process is jeopardized. Lastly, Bonnie’s rationale of autonomy is based on the legal rules that certain decisions regarding the defense must be made by the defendant. One example of such legal decisions is the defendant’s ability to waive counsel. A defendant’s competency to waive counsel is incorporated in competency to stand trial abilities. As articulated in Godinez v. Moran (1993), the defendant's competency to waive counsel does not require a higher level of mental functioning than his/her ability to waive other constitutional rights.

Bonnie (1992) addressed the reasons for establishing competency to stand trial from a more theoretical perspective than Weiner (1985). However, both Bonnie and Weiner put forward rationales that address individual and social issues. Individual issues, as they pertain to the defendant, include the necessity that the defendant is
treated fairly and that he/she is accurately classified with respect to competency.

Reasons for establishing competency to stand trial from a broader perspective of the
criminal justice system involve social issues, such as having a fair and respected
judicial system. These issues were both addressed by Weiner and Bonnie and continue
to be the basis of the need for accurate competency to stand trial evaluations.

In sum, the legal framework of the *Dusky* standard was designed to assure a fair
trial and to preserve the finality of legal decisions by resolving all doubts regarding the
defendant’s mental capabilities early in the proceedings (Bonnie, 1992). The *Dusky*
standard requires a functional analysis of the defendant's current capacities in his/her
current legal context (Grisso, 1986). Although a comprehensive evaluation of
competency includes an assessment of mental disorders, the diagnosis of a mental
disorder does not imply incompetency. Likewise, a determination of incompetency does
not require the diagnosis of a mental disorder (Cruise & Rogers, 1998).

*Operationally Defining Dusky*

The accurate assessment of any psychological construct is dependent on a good
operational definition of the construct’s components. In particular, an accurate
classification of competency to stand trial hinges on the clear identification of criteria.
As a result, several attempts to identify and clarify the specific psycholegal abilities
involved in determining competency have been made since the establishment of the
*Dusky* standard.

Bonnie (1992) divided competence into two theoretical constructs that provide a
framework for defining the "psycholegal abilities" required for competency to stand trial.
They include (a) a foundational competence to assist counsel and (b) a contextualized
concept of decisional competence. Bonnie defines competence to assist counsel as specific criteria that constitute the minimum conditions required for a defendant to participate in his/her own defense. These criteria include (a) the capacity to understand the charges, (b) understanding of the purpose of the legal proceedings and the adversarial system (especially the role of his/her attorney), (c) appreciation of one's situation as the defendant, and (d) the ability to recognize and relate pertinent information regarding the case to his/her attorney. According to Bonnie, these criteria serve both the dignity and reliability rationales for establishing competency.

Bonnie (1992) defined decisional competence as the defendant's ability to understand and choose among alternative courses of action. For example, a defendant must be able to make decisions regarding the plea, the trial (e.g., whether the defendant will be present, and whether the defendant will testify) and the basic theory of defense. Bonnie claims that these abilities should be established with respect to the defendant's normative level of autonomy in the legal proceedings. In other words, the defendant's decisional competence must be examined within the context of the criminal proceedings. Any legal system, such as the system in the United States, that requires some level of autonomy on behalf of the defendant will have an inherent need for decisional competence.

While Bonnie (1992) attempted to clarify pertinent psycholegal abilities by dividing them into two theoretical domains, some researchers have attempted to further clarify the pertinent psycholegal abilities by presenting them within a specific legal context. Rogers and Mitchell (1991) illustrated four levels of complexity for criminal proceedings: (a) competency to plead, (b) competency in a brief trial, (c) competency in
a complicated case, and (d) competency in a complicated trial that includes testimony.

For specific psycholegal criteria within each level of complexity, see Table 1.

Table 1
Progression of Competency Criteria by the Complexity of the Proceedings

<table>
<thead>
<tr>
<th>Complexity of Proceedings</th>
<th>Competency Criteria</th>
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<tr>
<td>Plea</td>
<td>1. Ability to understand the charges against him/her</td>
</tr>
<tr>
<td></td>
<td>2. Acknowledgment of guilt and agreement with plea bargaining as an alternative</td>
</tr>
<tr>
<td></td>
<td>3. Capacity to trust his/her lawyer</td>
</tr>
<tr>
<td>Brief trial</td>
<td>1. Criteria for fitness to plead</td>
</tr>
<tr>
<td></td>
<td>2. Ability to maintain courtroom demeanor</td>
</tr>
<tr>
<td></td>
<td>3. Ability to follow the courtroom proceedings with minimal assistance</td>
</tr>
<tr>
<td>Complicated case</td>
<td>1. All the above criteria</td>
</tr>
<tr>
<td></td>
<td>2. Capacity to actively assess counsel during the trial</td>
</tr>
<tr>
<td></td>
<td>3. Greater capacity for concentration and ability to follow courtroom proceedings</td>
</tr>
<tr>
<td></td>
<td>4. Ability to maintain appropriate demeanor consistently during several days of trial</td>
</tr>
<tr>
<td>Complicated trial which includes testimony</td>
<td>1. All the above criteria</td>
</tr>
<tr>
<td></td>
<td>2. Capacity to present his/her own case clearly</td>
</tr>
<tr>
<td></td>
<td>3. Cognitively intact to the extent of being able to respond clearly to cross- examination</td>
</tr>
<tr>
<td></td>
<td>4. Ability to work closely with defense counsel in preparation for testimony</td>
</tr>
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</table>


As previously mentioned, the psycholegal criteria needed to establish competency to stand trial are dependent on the individual and the complexity of the trial. In an attempt to better operationalize the pertinent criteria, Skeem and Golding (1998) identified 31 psycholegal abilities from modern competency to stand trial assessment
manuals and instruments. They divided these abilities into 11 global domains of competency that can be found in Table 2.

Table 2

**Domains and Subdomains of Competency to Stand Trial**

<table>
<thead>
<tr>
<th>Domains</th>
<th>Subdomains</th>
</tr>
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<tbody>
<tr>
<td>Capacity to comprehend and appreciate the charges or allegations</td>
<td>a. Factual knowledge of the charges (ability to report charge label)</td>
</tr>
<tr>
<td></td>
<td>b. Understanding of the behaviors to which the charges refer</td>
</tr>
<tr>
<td></td>
<td>c. Comprehension of the police version of events</td>
</tr>
<tr>
<td>Capacity to disclose to counsel pertinent facts, events, and states of mind</td>
<td>a. Ability to provide a reasonable account about one’s behavior around the time of the alleged offense</td>
</tr>
<tr>
<td></td>
<td>b. Ability to provide information about one’s state of mind around the time of the alleged offense</td>
</tr>
<tr>
<td></td>
<td>c. Ability to provide and account of the behavior of relevant others around the time of the alleged offense</td>
</tr>
<tr>
<td></td>
<td>d. Ability to provide an account of police behavior</td>
</tr>
<tr>
<td></td>
<td>e. Comprehension of the <em>Miranda</em> warning</td>
</tr>
<tr>
<td></td>
<td>f. Confession behavior (influence of mental disorder, suggestibility, and so forth on confession)</td>
</tr>
<tr>
<td>Capacity to comprehend and appreciate the range and nature of potential penalties that may be imposed in the proceedings</td>
<td>a. Knowledge of penalties that could be imposed (e.g., knowledge of the relevant sentence label associated with the charge, such as 25 to life)</td>
</tr>
<tr>
<td></td>
<td>b. Comprehension of the seriousness of charges and potential sentences</td>
</tr>
<tr>
<td>Basic knowledge of legal strategies and options</td>
<td>a. Understanding of the meaning of alternative pleas (e.g., guilty and mentally ill)</td>
</tr>
<tr>
<td></td>
<td>b. Knowledge of the plea bargaining process</td>
</tr>
<tr>
<td>Capacity to engage in reasoned choice of legal strategies and options</td>
<td>a. Capacity to comprehend legal advice</td>
</tr>
<tr>
<td></td>
<td>b. Capacity to participate in planning a defense strategy</td>
</tr>
<tr>
<td></td>
<td>c. Plausible appraisal of likely outcome (e.g., likely disposition for one’s own case)</td>
</tr>
<tr>
<td></td>
<td>d. Comprehension of the implications of a guilty plea or plea bargain (i.e., the rights waived on entering a plea of guilty)</td>
</tr>
<tr>
<td></td>
<td>e. Comprehension of the proceeding pro se (e.g., the rights waived and the ramification of waiver)</td>
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<td>f. Capacity to make a reasoned choice about defense options (e.g., trial strategy, guilty plea, proceeding pro se, pleading insanity) without distortion attributable to mental illness (an ability to rationally apply knowledge to one’s own case)</td>
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Table 2 (continued)

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<th>Domains</th>
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Capacity to understand the adversary nature of the proceedings

a. Understanding of the roles of courtroom personnel (i.e., judge, jury, prosecutor)
b. Understanding of courtroom procedure (the basic sequence of trial events)

Capacity to manifest appropriate courtroom behavior

a. Appreciation of appropriate courtroom behavior
b. Capacity to manage one’s emotions and behavior in the courtroom

capacity to participate in trial

a. Capacity to track events as they unfold (not attributable to the effects of medication)
b. Capacity to challenge witnesses (i.e., recognize distortions in witness testimony)

capacity to testify relevantly

n/a

Relationship with counsel

a. Recognition that counsel is an ally
b. Appreciation of the attorney-client privilege
c. Confidence in and trust in one’s counsel
d. Confidence in attorneys in general
e. Particular relationship variables that may interfere with the specific attorney-client relationship (i.e., attorney skill in working with the client; problematic socioeconomic or demographic differences between counsel and client)

Medication effects on competency to stand trial

a. Capacity to track proceedings given sedation level on current medication
b. Potentially detrimental effects of medication on the defendant’s courtroom demeanor


Assessment of Competency

Traditional methods of assessing competency were typically unstructured interview-based evaluations that focused on the individual defendant and his/her mental disorder. However, competency evaluations increased in standardization as they focused more on the effects that mental disorders have on a defendant (i.e., impairment of legal understanding) and less on the disorder itself. Prior to this evolution, the vast
majority of psychiatrists evaluating defendants for competency were unaware of the legal criteria for competency and many clinicians applied the wrong standard (Hess & Thomas, 1963; Pfeiffer et al., 1967). In addition, clinicians often felt that the accused must be free from any symptoms of a mental disorder in order to be deemed competent to stand trial.

As observed by Robey (1965), "All too often in his report to the court, the psychiatrist will omit any mention of competency and refer only to the presence of mental illness and the need for hospitalization" (p. 617). In 1965, Robey created a checklist of legal criteria to be used in competency to stand trial evaluations. This checklist was intended to provide mental health professionals with a convenient review of criteria that should be investigated in assessing a defendant's competency. Based on the *Dusky* standard, Robey's checklist stipulated that the defendant must show a capacity to (a) listen to the testimony of witnesses and inform his lawyer of any distortions or misstatements, (b) maintain a consistent defense (e.g., not insist on a change in strategy without adequate reason), (c) testify in his or her own defense, and (d) make decisions in response to well-explained alternatives (e.g., should the defendant waive his or her rights).

Robey (1965) also examined capacity to consult as a key component of competency to stand trial. He articulated the following:

the patient must be able to divulge to his lawyer without paranoid distrust the facts of the case as he understands them, even if those "facts" involve delusional distortion. He must decide with his lawyer upon a plea and approve the legal strategy to be used during the trial. He must also show a capacity to maintain the relationship with his lawyer. For example, he cannot discharge his lawyer solely on the basis of paranoid suspicions or delusions and still be considered competent (Robey, 1965, p. 619).
Although Robey provided an assessment framework, a more standardized method of eliciting this information was needed. Robey's (1965) checklist signified the initial development of forensic measures. Forensic measures were designed to assess explicit psycholegal constructs and to respond to specific referral questions asked by the justice system.

First-generation competency measures tended to be interview-based instruments that were developed in order to gather pertinent information regarding competency to stand trial in a standardized manner. However, early measures were typically self-report instruments that sacrificed eliciting case-specific information in lieu of standardization. As the development of competency to stand trial measures evolved, instruments improved in their ability to elicit case-specific information relevant to *Dusky*.

One example of a first generation measure that does elicit case-specific information is the Georgia Court Competency Test (GCCT; Wildman et al., 1980). However, first generation competency measures fell short in their measurement of the three prongs of the *Dusky* standard: (a) factual understanding, (b) rational understanding, and (c) ability to consult with counsel. That is, most of the first-generation competency measures failed to establish good construct validity in relation to these prongs. For example, although the GCCT adequately assesses for factual understanding, it falls short in its assessment of the other two prongs of *Dusky*.

Although the questionable relevance of first-generation competency measures to the prongs of the *Dusky* standard is one problem with first-generation measures, they also fail to educate the defendant about courtroom proceedings. Thus, there are actually two reasons for the questionable relevance of first-generation competency
measures: (a) the lack of research supporting their construct validity, and (b) the lack of opportunity to educate misinformed defendants. Regarding the latter, defendant’s competency is not solely determined by his or her current knowledge of the legal process. For example, when assessing for factual understanding, the defendant would not automatically be deemed incompetent for not knowing the role of the prosecutor. The question of competency lies in the defendant’s ability to learn factual information about court proceedings.

In addressing this issue, second-generation measures, such as the MacArthur Competence Assessment Tool - Criminal Adjudication™ (MacCAT-CA, Psychological Assessment Resources, Inc., Lutz, Florida, www3.parinc.com) and the Evaluation of Competency to Stand Trial™ – Revised (ECST™ – R, Psychological Assessment Resources, Inc., Lutz, Florida, www3.parinc.com), were designed to determine competency based not only on the defendant's current knowledge, but also on his/her ability to assimilate new information. The Evaluation of Competency to Stand Trial (ECST; Rogers, 1995) was developed in order to better address the psycholegal abilities put forth in *Dusky v. United States* and to provide clinicians with a standardized method of assessing feigned incompetence.

*Evaluation of Competency to Stand Trial (ECST)*

*Development and Administration*

The Evaluation of Competency to Stand Trial (ECST) was developed by Rogers in 1995 and later revised (ECST-R; Rogers, Tillbrook, & Sewell, 2004). The ECST-R goes beyond other second generation measures (i.e., the MacArthur Competency Assessment Tests) in that it emphasizes the defendant's relationship with his or her
attorney and includes a screen for feigning. The ECST-R is a semi-structured interview with items that are rated on levels of impairment due to psychotic symptoms and self defeating motivation. The ECST-R includes a few brief questions establishing the basis of the attorney-client relationship, followed by four sections: (a) nature of the attorney-client relationship, (b) factual understanding of courtroom proceedings, (c) rational understanding of courtroom proceedings, and (d) atypical presentation.

Reliability

With respect to inter-rater reliability, Tillbrook (1998) analyzed the ratings of three raters and produced moderate results (phi coefficients ranged from .69 to .83). Furthermore, Tillbrook (2000) established a moderately high level of internal consistency (alpha = .75) for the ECST-R.

Criterion-Related Validity

Tillbrook (1997) established the criterion-related validity of the ECST through correlations between three individual clinicians using the ECST and (a) forensic examiners decisions of competency and (b) circuit court judges decisions of competency. When compared to forensic examiners, the correlations between different raters varied. Moderate correlations were found consistently with circuit court judges.

Construct Validity

The development of the ECST-R emphasized clinically relevant constructs associated with the three major components of the Dusky standard. This objective was accomplished through a prototypical analysis on a preliminary set of psycholegal criteria and subcriteria. First, the Dusky standard was operationalized through the use of psycholegal constructs relevant to most criminal cases and able to be assessed within
the confines of forensic evaluations. Then, a panel of forensic and legal experts rendered prototypical ratings of the psycholegal criteria and subcriteria established. Results indicated that items on the ECST-R ranged from moderately representative to very representative of the *Dusky* standard. Although the importance and centrality of factual understanding was more variable than either rational understanding or ability to consult with counsel, the criteria were generally judged to be very representative of *Dusky*.

*Use of Forensic Measures in Competency Evaluations*

As reviewed, specification of psycholegal abilities that should be assessed in competency evaluations led to the development of standardized forensic psychometric measures used by forensic psychologists to assess psycholegal constructs. However, the appropriate manner and extent to which individual psychological tests are needed in forensic evaluations has been disputed extensively among professionals.

Borum and Grisso (1995) found that only one-half of forensic experts surveyed considered psychological testing to be an essential or recommended component of a competency evaluation. The sample included psychologists and psychiatrists who were either (a) board-certified in their respective specialty, or (b) had at least five years of experience with forensic assessment. Although no significant group difference was reported in the perceived need for psychological measures (i.e. approximately one-half in each group recommended psychological tests), forensic psychiatrists reported using psychological measures less frequently than forensic psychologists.

With respect to the use of specific forensic instruments, there was a significant difference between forensic psychologists and forensic psychiatrists. Among forensic
psychologists, the use of forensic instruments produced a bimodal distribution: 36% nearly always using them and 36% never using them. In contrast, 80% of forensic psychiatrists never or rarely use forensic instruments and only 11% almost always use them (Borum & Grisso, 1995). When utilizing forensic instruments, forensic psychologists frequently used the Competency Assessment Instrument (CAI, www.qualitymeasures.ahrq.gov), the Competency Screening Test (CST), and the Structured Interview of Reported Symptoms (SIRS, Copyright © 2005 Psychological Assessment Resources, Inc., Lutz, Florida. Specifically, they reported utilizing the CAI in approximately 39% of cases, the CST in 23% of cases and the SIRS in 1%. For forensic psychiatrists, the CAI was most frequently utilized (19%) as well; however, the CST was utilized by only 3% of forensic psychiatrists as was the SIRS. Borum and Grisso did not investigate the use of neuropsychological measures by forensic psychologists.

Assessment of Feigned Incompetence

Defendants may be tempted to feign incompetency, either to delay the proceedings or to possibly mitigate the eventual sentence, due to the gravity of their legal situation. To that end, “Criminals may seek to . . . avoid punishment by feigning incompetency to stand trial” (Resnick, 1997. p. 48). Gothard, Rogers, and Sewell (1995) estimated 12.7% of competency-to-stand-trial defendants attempt to feign incompetency. In another competency research study, Grandjean and Rogers (2002) found that approximately 20% of the defendants from their sample were classified as feigning on the SIRS. In summary, research supports the notion that a significant minority of defendants will attempt to malinger. Therefore, a screen for feigned
incompetence should be included in any comprehensive competency to stand trial evaluation.

Traditionally, forensic measures have neglected to systematically screen for feigned incompetency. However, modern competency measures have been designed to include a standardized screen for feigned incompetency. Specifically, one first-generation measure that includes an atypical presentation scale is the GCCT. A second-generation measure, the ECST, also includes a feigning screen. As focus is now primarily on second generation measures, the atypical presentation screen of the ECST will be reviewed briefly.

**ECST Atypical Presentation Scale (E-APS)**

One primary reason for the development of the ECST was to provide clinicians with a standardized method to screen for feigned incompetency. The Atypical Presentation Scale of the Evaluation of Competency to Stand Trial –Revised (E-APS) includes 28 items that measure unusual presentation through several detection strategies. These detection strategies include: (a) rare symptoms, (b) symptom combinations, (c) indiscriminant symptom endorsement, and (d) symptom severity. Each of these strategies is described in detail below.

The E-APS employs two related strategies: rare symptoms and symptom combinations. The rare symptom strategy "involves the overendorsement of symptoms and associated features that occur only occasionally in patients with mental disorders" (Rogers, 1997, p. 303). According to Rogers, rare symptoms is one of the most robust strategies for the detection of feigning. An example of a rare-symptom item from the E-APS is: Do people in the courtroom use telepathic powers to make you say things
against your will? A second and related strategy used to detect feigning is symptom combinations. This detection strategy involves the endorsement of symptom pairs that typically do not occur together in genuine patients. An example of a symptom-combinations item from the E-APS is the following: Do you feel so upset about court, that your memory plays tricks on you?

Unlike the rare symptoms and symptom combination strategies that involve only atypical items, two other strategies involve an analysis of all responses. One such strategy is indiscriminant symptom endorsement (Rogers, 1997). This strategy assesses the overall proportion of symptoms endorsed by the defendant. If an unrealistically high proportion of symptoms are endorsed on the E-APS, feigning should be suspected. A second strategy based on the entire scale is the severity of symptoms (Rogers, 1997). On every item in which the defendant endorses a symptom, he or she is asked about its severity in relationship to competency. Namely, they are asked if that symptom makes it difficult for them to participate in the legal process. A high number of symptoms that allegedly impair competency could suggest feigning. All of these interview-based strategies for detecting feigning have been validated in research with both simulation designs and known groups comparisons (Rogers, 1997).

The E-APS consists of 5 subscales: (a) psychotic, (b) nonpsychotic, (c) selectivity, (d) severity, and (e) total score. Grandjean and Rogers (2002) found excellent inter-rater reliability for all five subscales. In addition, moderate to excellent internal consistency was found for all subscales. The E-APS scale demonstrated excellent promise as a screen for feigned incompetence. Known feigners scored significantly "worse" than honest responders on all five subscales of the E-APS. The E-
APS total score had high accuracy when it classified a defendant as responding honestly (NPP = .92). Furthermore, the total score of the E-APS was generally accurate when identifying feigners (sensitivity = .80). It should be noted that little research has considered how cognitive functioning affects an individual’s ability to feign.

Factors Associated with Incompetency

Incompetency rarely occurs without the presence of either a diagnosis of psychosis or evidence of severe impairment due to an organic mental disorder or mental retardation (Golding, 1992). Thus, comprehensive competency evaluations must include an assessment of psychopathology and cognitive functioning given that the criteria for competency to stand trial imply these factors. It is necessary for clinicians to understand the contributing factors to incompetency in order to make qualified determinations of competency.

Prediction of Competency using Sociodemographic Variables

Ustad et al. (1996) established that socio-demographic variables, such as age and race, were not correlated with competency decisions as determined by the GCCT-MSH. Furthermore, Hart and Hare (1992) found no evidence of a race or age bias in decisions of competency. It has also been established that legal variables such as type of crime are not related to competency (Grandjean, 2002).

On the other hand, in a review of 30 studies, Nicholson and Kugler (1991) found that older defendants were more likely to be found incompetent than younger defendants. Furthermore, women and ethnic minorities were more likely to be found incompetent. However, these variables accounted for less than 1% of the variance. The only demographic variable that was predictive of competency status was marital
resources with individuals with fewer resources more likely to be found incompetent. Nonetheless, the correlation was small (.08).

**Prediction of Competency using Clinical Variables**

The Nicholson and Kugler (1991) review on competency to stand trial also highlighted two clinical categories that consistently predict competency: (a) a diagnosis of psychosis and (b) psychiatric symptoms reflective of severe psychopathology. Grandjean (2001) found that approximately 75% of defendants could be accurately classified as competent or incompetent based on clinical variables alone. In considering clinical variables, psychotic symptoms were the best predictor of competency with an overall classification rate of 70.9%. This finding is consistent with past research (Hart & Hare, 1992; Nicholson & Kugler, 1991; Ustad et al., 1996).

Another key factor in predicting incompetency is overall impairment due to psychopathology. Several studies suggest that functional impairment is the key in differentiating between competent and incompetent defendants. Grandjean (2001) found that functional impairment (as measured by the Global Assessment Scale (GAS) of the SADS-C) was the strongest single predictor of competency. Significant group differences were established for GAS, but not for any other clinical scale. That is, although psychosis and depression also contributed to the prediction of competency, group differences for these variables was not established. However, as GAS was significantly correlated with both psychosis and depression, this finding suggests that it is the impairment rather than the specific disorder that is important in determining competency.
Consistent with importance of functional impairment, Ustad et al. (1996) concluded that the combination of a defendant’s low IQ and the presence of a severe mental disorder best predicts incompetency. These factors would undoubtedly have an adverse effect on a defendant’s level of functioning and thus, impair their competency to stand trial. In summary, assessment of psychotic and severe symptoms is essential despite the fact that psychosis or other severe psychopathology does necessarily equate with incompetency (Golding, 1992).

Another clinical variable related to psychosis that can affect a person’s functional impairment is their level of insight or awareness of mental illness. Neumann, Walker, Weinstein, and Cutshaw (1996) found that patients who were classified as insightful were more likely to pass competency to stand trial evaluations than patients who were not insightful. Interestingly, in a related study, Walker and Rossiter (1989) reported that poor insight was associated with impairment in attentional functioning. In addition to the effects of psychopathology and insight on competency status, the presence of cognitive impairments may also affect a defendant’s competency. The next section will outline literature that suggests certain aspects of cognitive functioning are related to competency status.

**Prediction of Competency using Neuropsychological Variables**

Compared to other areas of competency (e.g., civil competencies), relatively few studies have considered the effects of cognitive functioning on competency to stand trial (CST). Most studies that investigated the effects of cognitive functioning on CST have focused on intelligence. The results are consistent: low IQ is associated with incompetency. Specifically, incompetent individuals have lower verbal intelligence than
competent individuals (Rogers, Ustad, Sewell, & Reinhart, 1996; Steadman et al., 1982). However, intelligence is a broad cognitive construct and it may be useful to see how specific cognitive abilities (e.g., attention, memory) align with particular CST criteria.

The Nicholson and Kugler (1991) review compared competent and incompetent defendants. They did not find a significant relationship between a diagnosis of mental retardation and competency status. That is, the defendants who were diagnosed as mentally retarded were only slightly more likely to be found incompetent than other defendants. However, they determined that incompetent defendants scored lower on standardized IQ tests than competent defendants. In a study of defendants with IQs below 75, defendants who were deemed competent were found to have higher IQs than incompetent defendants, though range restriction of IQ may have limited the findings from this study.

Nestor, Daggett, Haycock, and Price (1999) compared competent and incompetent defendants on several cognitive variables. They found that competent defendants scored significantly higher on summary indexes of psychometric intelligence and memory. Competent defendants scored higher than incompetent defendants on all tests of psychometric intelligence (i.e. Verbal IQ, Performance IQ, and Full Scale IQ). With respect to memory, competent defendants scored higher than incompetent defendants on indexes of Verbal Memory, Visual Memory, and General Memory. On specific tasks, competent defendants performed better on tests of episodic memory and some, but not all, visual memory tasks. Competent defendants also demonstrated more
social intelligence than incompetent defendants as assessed by Comprehension and Picture Arrangement.

Although Nestor et al. (1999) found that competent defendants scored significantly higher than incompetent defendants on Similarities, there was no significant difference on other tests of semantic knowledge such as Information and Vocabulary. Furthermore, there was no significant difference between competent and incompetent defendants on tests of academic achievement or executive functioning. Results were mixed with respect to attention and concentration. Although competent defendants scored significantly better than incompetent defendants on the Trail Making Test, Part A, no significant difference was found on the attention and concentration Index of the Wechsler Memory Scale – Revised (WMS-R, Copyright © 1987 The Psychological Corporation, San Antonio, Texas).

In reference to neuropsychological functioning, competency criteria imply adequate cognitive abilities. In general, defendants must possess social and cognitive skills that enable them to have appropriate courtroom behavior. In addition to trusting their attorney, they must have verbal learning abilities that allow them to assimilate legal knowledge. A history of drug and alcohol use would adversely affect cognitive functioning, which may contribute to a determination of incompetency. The effects of drug use on neuropsychological functioning will be addressed in the next section.

Neuropsychological Effects of Illicit Drug Use

The abuse of drugs and alcohol has reached epidemic proportions in the United States and other countries. In 1994, a survey by the National Institute on Alcohol Abuse and Alcoholism revealed that approximately half of adults in America consume alcohol
Research indicates that a subset of these individuals abuse marijuana and a subset of marijuana smokers abuse illicit drugs (e.g., cocaine; Rochford, Grann, & LaVigne, 1977). The majority of incarcerated individuals have an extensive history of drug and alcohol abuse. Furthermore, some inmates continue to abuse substances while they are incarcerated.

It is commonly assumed that psychoactive substances (e.g., alcohol, methamphetamines) result in neuropsychological deficits. This assumption has been supported by neuropsychological studies assessing for brain dysfunction. With respect to alcohol, research has consistently demonstrated that chronic alcoholism can result in mild to severe brain damage. Although the results concerning specific deficits that stem from illicit drug use are mixed, studies involving neuropsychological testing, as well as brain imaging suggest cerebral dysfunction as a result of drug use. Furthermore, the cerebral dysfunction remains with cessation of the substance. That is, when detoxified alcoholics and clean drug abusers are compared to demographically equivalent controls, they often exhibit deficits in memory and other cognitive functions (Carlin & O’Malley, 1996; Rourke & Loberg, 1996).

Several areas of cognitive dysfunction have been identified in alcoholics. Approximately 50% of people who meet criteria for alcohol dependency exhibit mild to moderate impairment on neuropsychological testing (Rourke & Loberg, 1996). Parsons (1998) found that alcoholics had mild to moderate deficiencies in intellectual functioning. Furthermore, most alcoholics demonstrate some impairment in memory. They have difficulty learning, storing, retrieving, and using information (Evert & Oscar-Berman, 1995).
Like alcohol consumption, marijuana is also known to affect people’s memory. This is not surprising due to the large amount of teterahydrocannabinol (THC; the main active chemical in marijuana) receptors in the hippocampus. In addition, Fletcher et al. (1996) found that Cannabis users were impaired on several measures of cognitive abilities. One test that was particularly sensitive to long-term Cannabis use was the ability to perform two different tasks simultaneously (tapping a finger rapidly while trying to think of words that fit into a particular category). On a follow up study, Page, Fletcher, and True (1988) found that marijuana users were slower and had greater difficulty with self paced measures that required sustained attention than nonusers.

Other studies using tests sensitive to cerebral impairment have found cognitive deficits in marijuana users. Acutely, marijuana has been associated with disruptions in paired associate learning (Block, Farinpour, & Brauerman, 1992) and difficulties with concentration (Heishman, Huestis, Henningfield, & Cone, 1990). Carlin and Trupin (1977) found that marijuana smokers did significantly worse than control subjects on the Trail Making Test, part B. As suggested by Carlin and O’Malley (1996), these “findings suggest that more sensitive measures may be required to detect the negative consequences of marijuana use” (p. 491).

With respect to cocaine, Gillen et al. (1998) stated that several studies have found impaired memory in cocaine users (e.g., Berry et al., 1993). In addition, verbal memory deficits were found by O’Malley, Adams, Heaton, and Gawin (1992) as well as by Mittenberg & Motta (1993) who indicated that the specific deficit involved impaired storage of verbal material. Lower Verbal IQ has also been associated with cocaine use (Easton & Bauer, 1996) as well as lower Full Scale IQ scores (Rosselli & Ardila, 1996).
In addition to verbal deficits, cocaine users have deficits in complex attention and concentration (e.g., set shifting). They also exhibit visual spatial deficits, problems with arithmetic, and impaired concept formation (Berry et al., 1993; O’Malley et al., 1992). With respect to neuropsychological measures, individuals that had a positive urine toxicology result for cocaine (but not for any other substances) scored significantly below individuals with a negative toxicology report on Trails B (a measure of complex attention), Picture Completion, Information, Vocabulary, Comprehension, and Verbal IQ.

Gillen et al. (1998) looked at nine cognitive factors in cocaine abusers who scored in the moderate range of dependency on the SCID. Specifically, they considered: 1) visual-motor integration, 2) verbal learning, 3) visual learning, 4) auditory attention and concentration, 5) language, 6) visual-spatial skills, 7) verbal intelligence, 8) visual intelligence, and 9) cognitive flexibility. There was not a significant difference on 2, 3, 4, 6, and 9. However, as expected, cocaine patients performed worse on language (i.e., decreased verbal fluency), verbal intelligence (i.e. lower scores on Information and Vocabulary), and visual intelligence (i.e., lower scores on Picture Arrangement). There was an unexpected finding with respect to visual motor integration (1), as cocaine patients completed Trails A faster than controls.

In addition to this unexpected finding, researchers did not expect to find decreased performance on Information and Vocabulary as these measures are not particularly sensitive to disruption following substance abuse (or traumatic brain injury for that matter). This could indicate a premorbid difference between groups. Further confounding the results, the cocaine dependent group reported more daily alcohol use
(though less than one standard drink per day), more years of regular alcohol use, and a higher proportion of relatives with alcohol and drug-related problems.

As a result of the diversity of substances abused by most drug users, most research on groups of drug users are confounded. In an attempt to avoid this confound, some studies do not include “polysubstance” abusers. Other researchers will investigate two or more drugs simultaneously in an attempt to preserve ecological validity. This is an important consideration given that the majority of incarcerated individuals have a positive history for “polysubstance” abuse.

Current Study

Purpose of the Study

Competency to stand trial evaluations constitute the largest number of criminal referrals for forensic psychologists, with estimates reaching approximately 50,000 per year (Skeem et al., 1998). Research generally supports the use of psychological measures in facilitating decisions regarding competency to stand trial. Specifically, measures of personality, general intelligence, and competency have been investigated. Although a relationship between low intelligence and incompetency has been established (Hare & Hart, 1992; Ustad et al., 1996), little research has focused on the discrete cognitive abilities that account for this relationship. As a result, neuropsychological measures are not regularly included in competency evaluations by forensic psychologists though neuropsychological assessments have been able to differentiate competent and incompetent defendants. Given the limited amount of research regarding the relationship between competency to stand trial and neuropsychological functioning, further investigation is warranted. Low intelligence is
disproportionately high for incarcerated individuals (Nicholson & Johnson, 1991). This undoubtedly impacts a person's capacity to participate in the legal system and how this relates specifically to *Dusky*, needs to be investigated.

To that end, the primary purpose of this study was to further investigate the relationship between specific cognitive abilities and competency to stand trial. Since in nearly all jurisdictions in the United States, guilty pleas to avoid trial occur in approximately 90% of cases, competency to stand trial may be conceptualized as "adjudicative competence." "Adjudicative competence" is dependent on the "level of the defendant's cognitive functioning and its impact on his or her ability… to understand and to participate meaningfully in the criminal process." This study investigated which discrete cognitive abilities are necessary for a defendant to be able to participate meaningfully in the adjudicative process and make knowledgeable decisions.

A secondary purpose of the current study was to replicate some of the neuropsychological findings regarding substance abuse. As the majority of incarcerated individuals have a history of substance abuse, the effects of such abuse on cognitive functioning cannot be ignored. Steadman (1979) found that substance abuse problems were common in defendants determined to be incompetent. Thus, an additional purpose of this study was to help facilitate clinicians understanding of the relationship between prior substance use, present cognitive functioning, and CST status. A final purpose of this study was to investigate the relationship between clinical variables and competency to stand trial. In addition to cognitive functioning and substance abuse, the defendant's insight into his or her level of impairment was evaluated.
In summary, the clinical utility of this study is threefold. First, the effect of neuropsychological impairment on competency restoration was investigated. Secondly, the neuropsychological effects of prior substance abuse was investigated in individuals referred for competency evaluations. Finally, the relationship between competency to stand trial and clinical variables including psychosis and insight was investigated.

Research Questions and Corresponding Hypotheses

The primary research question addressed which neuropsychological variables distinguish defendants that are deemed competent from defendants that are deemed incompetent. Specific hypotheses involving neuropsychological variables and competency to stand trial are as follows:

Hypothesis 1. Patients who were deemed incompetent to stand trial would have lower Verbal IQ (H1a), Performance IQ (H1b), and Full Scale IQ (H1c) than patients deemed competent and returned to the court system to stand trial.

Hypothesis 2. Patients who were deemed incompetent to stand trial would have worse performance on memory tasks than competent patients. Memory tasks included subtests from the WMS-III (i.e., Logical Memory I & II, Verbal Paired Associates I & II, and Visual Reproductions I & II). Thus, hypothesis 2a stated that competent defendants would score better than incompetent defendants on verbal memory measures (i.e., Logical Memory, Verbal Paired Associates). Hypothesis 2b stated that competent defendants would score better than incompetent defendants on nonverbal memory tests (i.e., Visual Reproduction).

Hypothesis 3. Patients who were deemed incompetent to stand trial would perform worse on tests of attention such as Part A of the Trail Making Test and the
Continuous Performance Test – Identical Pairs (CPT-IP). Hypothesis 3a was that incompetent defendants would score lower on part A of the Trail Making Test and Hypothesis 3b was that incompetent defendants would score lower on the CPT-IP.

The second research question addressed the neuropsychological effects of substance abuse. Specific hypotheses are listed below.

Hypothesis 4. Patients that reported a history of abusing alcohol would perform worse on verbal paired associates from the WMS-III than patients who have not abused alcohol.

Hypothesis 5. Patients that reported a history of abusing alcohol would have a lower Full Scale IQ than patients who have not abused alcohol.

Hypothesis 6. Individuals who have a history of abusing alcohol would be more impaired on tasks of executive functioning than patients that have not abused alcohol. This would be evident from a lower performance on (a) part B of the Trail Making Test, (b) the Wisconsin Card Sorting Task, (c) the COWAT and (d) verbal learning than patients who do not abuse alcohol.

Hypothesis 7. Patients with a history of cannabis use would perform worse on Part B of the Trail Making Test and worse on the CPT-IP than participants without a history of cannabis abuse.

Hypothesis 8. Participants who have abused cocaine in the past would do worse on verbal tasks including Verbal IQ, Logical Memory on the WMS-III, and the Controlled Oral Word Association Test (COWAT) than participants who have not abused cocaine.

The third research question addresses the effects of insight on competency to stand trial. Thus, hypothesis 9 is as follows:
Hypothesis 9. Patients who were classified as having insight on The Insight Scale would be more likely to be classified as competent to stand trial than those patients classified as not having insight.
CHAPTER 2

METHOD

Participants

All participants were approached by one of three researchers and asked to participate in the study. Participation was completely voluntary and no reimbursements were offered to volunteers. All testing was incorporated into their treatment plan and a brief report was provided to the hospital for the patient’s hospital chart. Although 62 patients were asked to participate in the study, complete data sets were obtained on only 55 participants.

Thus, the sample consisted of approximately 55 mentally disordered offenders recruited from the North Texas State Hospital in Wichita Falls, Texas. The North Texas State Hospital is the only maximum-security state psychiatric forensic hospital in the state. All participants needed psychiatric care and had been charged with a crime that involved bodily injury. The majority of defendants were referred to the hospital for competency restoration and had been prescribed psychotropic medications. These medications included (a) antidepressants and mood stabilizers, (b) anxiolytics, and (c) antipsychotic medications.

The participants included both males and females with a mean age of 37.70 (SD = 12.87) and average education of 9.01 years (SD = 5.41). Of the 55 participants, seven were determined to be malingering and excluded from the majority of the analysis. The remaining participants were determined by the hospital to be either competent (n = 18) or incompetent (n = 30).
Malingerers

Each participant was administered the Structured Interview of Reported Symptoms (SIRS) as a screen for feigning. Based on the results of the screening measure, eight participants were determined to be malingering and excluded from the majority of the analyses. These participants were racially diverse with three Caucasian-Americans, two African-Americans, and three Hispanic Americans. There was one female and seven males determined to be malingering. These participants had a mean age of 38.0 years ($SD = 10.51$) and a mean of 10.38 years of education ($SD = 4.955$).

Measures

Wechsler Abbreviated Scale of Intelligence (WASI)

The Wechsler Abbreviated Scale of Intelligence™ (WASI, The Psychological Corporation, San Antonio, Texas, www.psychcorp.com) is comprised of four subtests: (a) vocabulary, (b) matrix reasoning, (c) similarities, (d) and block design. The WASI provides a brief measure of intelligence and can be administered in approximately 30 minutes. The WASI was used to obtain a Verbal IQ, Performance IQ, and Full Scale IQ. The WASI assessed for both fluid and crystallized intelligence and allowed for analysis between verbal and nonverbal intelligence.

Wechsler Adult Intelligence Scale - Third Edition (WAIS-III)

Only Picture Arrangement and Comprehension from the Wechsler Adult Intelligence Scale™ (WAIS-III, The Psychological Corporation, San Antonio, Texas, www.psychcorp.com) were administered. Comprehension was administered as a measure of remote memory, common-sense judgment, and both practical and abstract
reasoning. Picture Arrangement was administered to assess the defendant’s ability to utilize environmental cues in sequential processing.

*Wechsler Memory Scale - Third Edition (WMS-III)*

Logical Memory, Verbal Paired Associates, and Visual Reproduction from the WMS-III (Wechsler, 1997) were administered to measure verbal and visual memory ability. Logical Memory is a test of memory for verbal information presented in paragraph form. Visual Reproduction is a test of figural memory that requires subjects to reproduce each of four designs following a 10 second exposure. Both tests involve an immediate and a 30-minute delayed recall trial. In addition, Verbal Paired Associates was administered as a global measure of learning and memory. Verbal Paired Associates required the defendant to learn pairs of unrelated words and has both an immediate recall component and a long-term recall component.

*Trail Making Test*

The Trail Making Test (Reitan & Wolfson, 1985) is part of the Halstead-Reitan Battery and involves two components. Part A of the Trail Making Test is a measure of attention that involves sequencing, visual scanning ability, and psychomotor speed. Part B of the Trail Making Test assesses executive functioning as it requires mental flexibility; shifting attention between two alternative stimuli while sequencing and scanning visual stimuli. The Trail Making Test can be administered in less than 10 minutes.

*FAS - Test (COWAT)*

The FAS - Test (Spreen & Benton, 1969, 1977), is also referred to as the Controlled Oral Word Association Test (COWAT). The COWAT is a test of verbal
fluency that consists of three trials. Each trial requires the participant to generate as many words as he or she can that begin with a specific letter (i.e., F, A, S) during a one-minute time period. This measure localizes to the left frontal lobe and was administered as an additional measure of executive functioning.

*Stroop Color and Word Test*

The Stroop Color and Word Test (SCWP, Copyright © 2001, Jopie van Rooyen & Partners, www.vanrooyen.co.za) was administered as a test of attention, inhibition, and executive functioning. Scores on the word trial, color trial, and color-word trial were used to measure the defendant’s attention, concentration and processing speed. The resulting interference score was used to assess the defendant’s ability to inhibit response, which is a measure of frontal lobe functioning.

*Continuous Performance Test-Identical Pairs*

The Continuous Performance Test-Identical Pairs (CPT-IP; Cornblatt, Risch, Faris, Friedman, & Erlenmeyer-Kimling, 1988) is a computer task employed to assess attentional sensitivity. The task takes approximately 10 minutes to complete during which both numbers and figures flashed on the computer screen for one hundred milliseconds. The participant was asked to respond when the same number or figure appears twice in a row. Omission errors, commission errors and d-prime were computed and analyzed with respect to the other data.

*COGLAB, Version 3.5 revision*

The COGLAB (Spaulding, Garbin, & Dras, 1989) is a computerized battery for assessing complex cognitive functioning.

*Wisconsin Card Sorting Test (WCST)*
The Wisconsin Card Sorting Test (WCST) was administered via computer, as part of the COGLAB. It is a measure of mental flexibility: it requires the participant to form abstract concepts, utilize feedback, and shift and maintain a response set. As a test of executive functioning, the WCST localizes to the frontal lobe. Although studies on the reliability of the WCST are mixed, the use of computer software will undoubtedly increase reliability. It should be noted that good performance on the WCST is indicated by successfully completing the task in as few of trials as possible. Thus, a low number of total trials on the test is correlated with good executive functioning skills.

**Asarnow Continuous Performance**

This test is also referred to as the Span of Apprehension Test (SPAN). The SPAN was used to measure the participant’s inhibitory capacity and alertness to visual stimuli.

**Social Knowledge Questionnaire (SKQ)**

The Social Knowledge Questionnaire (McEvoy et al., 1996, adapted from Cutting and Murphy, 1988, 1990) was used to assess how individuals tend to act in society. It is a nine item questionnaire with each item being scored either correct or incorrect. Thus, scores on the SKQ have a possible range of 0 to 9.

**Insight Scale for Psychosis**

The Insight Scale (Birchwood et al., 1994) was used to assess a defendant’s level of insight. It is an eight item self-report instrument that measures awareness of their mental illness. The measure can be administered in less than five minutes. See Appendix A for the items included on The Insight Scale.
**Rey Fifteen Item Memory Test (FIT)**

The Rey Fifteen Item memory Test (Rey, 1964) consists of 15 items that are arranged on a card in five rows and three columns. Defendants were shown the card for 10 seconds and then asked to draw the items from memory. The test instructions emphasize that there are “15” figures to recall, so that the test appears difficult. The FIT is traditionally used to assess effort on memory tests and measure exaggeration or feigning of cognitive deficits. However, there is some dispute as to its utility in individuals with low IQ. Thus, analysis of the FIT was primarily exploratory.

**Evaluation of Competency to Stand Trial - Revised (ECST-R)**

The ECST-R (Rogers, Tillbrook, & Sewell, 2004) consists of two components. Part 1 of the measure consists of 30 items that assess the following aspects of competency to stand trial: (a) the basis of the attorney-client relationship, (b) the nature of the attorney-client relationship, (c) factual understanding of the courtroom proceedings, and (d) a rational understanding of the courtroom proceedings. The second part of the ECST-R consists of 28 items that screen defendants for feigned incompetency. Both sections of the ECST-R can be administered in 30 minutes.

Two studies have established moderately high levels of inter-rater reliability for the ECST with agreement between raters of 89.3% (Tillbrook, 1997) and 85.5% (Tillbrook, 2000). Tillbrook (1998) produced highly reliable results with the ECST that were convergent with legal outcomes in a study of 26 male pretrial defendants. The validity of the ECST was established through correlations between three individual raters and (a) forensic examiners and (b) circuit court judges. When compared to forensic examiners, the correlations of the different raters varied (phi coefficients of .75, .70, and .65, respectively).
.48, and .78). Moderate correlations were found when the individual rater’s decisions were compared to that of circuit court judges (phi coefficients of .66, .79, and .66). The ECST-R is not easily or usually quantified, but is more used as a clinical interview to determine competency.

Structured Interview of Reported Symptoms (SIRS)

The SIRS (Rogers, 1992) is a structured interview consisting of 172 items that focuses on response styles and was used to classify participants as feigning or not feigning. The SIRS can be administered in 20 to 30 minutes, has excellent reliability and discriminant validity (Rogers, 1995; Rogers, 2001), and has high inter-rater reliability (median \( r = .95 \)), even when used by nonprofessionals (Linblad, 1993). Gothard, Viglione, Meloy, and Sherman’s (1995) test of the SIRS in detecting malingering of competency to stand trial, found that simulators and suspected malingerers scored significantly higher on all of the SIRS primary scales. Furthermore, the SIRS had an overall hit rate of 97.8% using three or more primary scales as the criterion for malingering.

Procedure

Order of Administration of Measures

A brief introduction was used to build rapport with each participant. During that time, each participant was informed that he/she was allowed to take necessary breaks for medication, bathroom, and personal needs. Because administration of the tests had to facilitate each defendant’s clinical program and meet the needs of the hospital, no set order of administration was pre-established. However, several guidelines for test administration were implemented.
In order to increase rapport, computerized tasks were administered at the end of the testing session, so that tasks involving interaction between the researcher and the participant could be administered first. Thus, the CPT-IP, WCST, and the SPAN were administered last. In an attempt to minimize participants’ fatigue and maximize attention, concentration, and motivation, longer measures were intermixed with shorter measures such as COWAT, Stroop, and Trail Making Test. Also, since these measures can be administered in a short amount of time, they were also given when time did not allow for the administration of longer measures.

The subtests from the WMS-III involve delayed portions in order to assess memory functioning. During the delay on any visual spatial task, the researcher only administered verbal tasks to limit the chance of a participant recalling visual stimuli from alternative measures. Likewise, during the 30-minute time delay for verbal tasks, verbal items from other measures were not administered.

Classification of Criterion Groups

Determinations of competency were made by hospital psychologists, psychiatrists, and doctoral level students. Competency determinations were based primarily on information gathered during administration of the ECST-R, SADS-C, SIRS, and clinical interview.

With respect to the semi-structured interviews, the SADS-C, ECST-R, and SIRS were administered as part of a different study by one of two other Ph.D. graduate students. The order of administration of those measures was as follows: The SADS-C was administered first as an independent measure of the defendant’s current level of psychopathology. The SADS-C was administered first so that the results of the other
measures would not bias the clinician while rating the participant’s level of psychopathology. Thus, administration of the ECST-R followed administration of the SADS-C. The SIRS was administered last because as a structured interview (as opposed to semi-structured), it is the least likely interview to be affected by the rater’s bias.

Duration of Administration

Cognitive testing took place in a private room in the medical building at the North Texas State Hospital. For most defendants, only the clinician and the defendant were present during the administration of all cognitive measures. However, for a few defendants who were agitated during test administration, a guard that was always present on the outside of the room was asked to sit in for some amount of time. This seemed to have a relaxing effect on the defendant, and thus, did not seem to disrupt the goal of cognitive testing, which is to get the defendants best performance.

The guard outside the door was occasionally viewable through a small glass window and for some participants, this seemed to be somewhat of a distraction resulting in slightly longer administration times. Typically, the measures took three hours to administer, however, some participants were assessed in approximately two hours. Furthermore, a few administration sessions lasted as long as five hours due to excessive verbalization, severe psychopathology, and necessary breaks. Defendants were allowed to take breaks during the administration of measures and several breaks were required to accommodate the procedures of the correctional system. Breaks from the test administration were needed for (a) eating, (b) bathroom needs, (c) medication, and (d) fatigue.
Statistical Analysis

Psychologists used the SIRS and the Atypical Presentation Screen from the ECST-R to determine whether or not defendants were malingering. All participants that were classified as malingering were excluded from the analyses. The remaining participants were classified as incompetent or competent by hospital staff on the basis of clinical interview, the SADS-C, and the ECST-R. Statistical analysis involved primarily a comparison of competent defendants and incompetent defendants on several neuropsychological measures. Based on previous research (Tomaszewski, Harrell, & Neumann, 2003) in neuropsychology, individual tests were combined to form seven cognitive domains. The seven cognitive domains and measures included in the respective indexes can be seen in Table 3.

Table 3
Neuropsychological Tests used to Assess Cognitive Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal comprehension</td>
<td>Vocabulary</td>
</tr>
<tr>
<td></td>
<td>Similarities</td>
</tr>
<tr>
<td>Social judgment</td>
<td>Comprehension</td>
</tr>
<tr>
<td></td>
<td>Picture Arrangement</td>
</tr>
<tr>
<td></td>
<td>Social Knowledge Questionnaire</td>
</tr>
<tr>
<td>Executive functioning</td>
<td>Wisconsin Card Sorting Test</td>
</tr>
<tr>
<td></td>
<td>Controlled Oral Word Association Test</td>
</tr>
<tr>
<td>Verbal (auditory) memory</td>
<td>Logical Memory (I &amp; II)</td>
</tr>
<tr>
<td></td>
<td>Verbal Paired Associates (I &amp; II)</td>
</tr>
<tr>
<td>Visual memory</td>
<td>Visual Reproduction (I &amp; II)</td>
</tr>
</tbody>
</table>

(table continues)
Multiple regression was used to determine whether or not performance on neuropsychological measures could predict components of the defendant’s scores on the ECST-R. The prongs of *Dusky* were examined with an analysis of defendant’s responses to key items. Although the ECST-R has three primary scales: one for each prong of the *Dusky* standard, only the total score was used in the multiple regression because there was limited variability in scores on the three scales of the ECST-R.

The relationship between substance abuse and neuropsychological functioning was also examined via analysis of variance (ANOVA) and correlational analysis. In addition, correlations were computed to examine the relationship between neuropsychological functioning and insight. The relationship between insight and competency was evaluated with ANOVA.
CHAPTER 3

RESULTS

Relationship between Education and Neuropsychological Variables

Correlational analysis was used to explore the relationship between neuropsychological functioning and education. Significant positive correlations were found between a defendant’s years of education and half of the subtests that were administered from the Wechsler Adult Intelligence Scale - Third Edition (WAIS-III). In addition, years of education were significantly correlated with VIQ, PIQ, and FSIQ. The correlation coefficients between education and WAIS-III subtests and IQ scores can be found in Table 4.

Table 4
Correlation Coefficients for Years of Education and WAIS - III Scores

<table>
<thead>
<tr>
<th>WAIS - III Subscale</th>
<th>Pearson’s r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary</td>
<td>.292</td>
</tr>
<tr>
<td>Block Design*</td>
<td>.305</td>
</tr>
<tr>
<td>Similarities</td>
<td>.275</td>
</tr>
<tr>
<td>Matrix Reasoning*</td>
<td>.312</td>
</tr>
<tr>
<td>Comprehension**</td>
<td>.400</td>
</tr>
<tr>
<td>Picture Arrangement</td>
<td>.033</td>
</tr>
<tr>
<td>Verbal IQ*</td>
<td>.321</td>
</tr>
<tr>
<td>Performance IQ*</td>
<td>.358</td>
</tr>
<tr>
<td>Full Scale IQ*</td>
<td>.367</td>
</tr>
</tbody>
</table>

Note. *p < .05; **p < .01.
The relationship between education and memory was also investigated via correlations with index scores from the Wechsler Memory Scale - Third Edition (WMS-III). Although several different components of memory were considered (e.g., single-trial learning, learning slope, retrieval), only retention had a significant linear relationship with reported years of education. There was a significant positive correlation between years of education and retention ($r = .527, p = .000$). Years of education did not correlate with Visual Reproduction from the WMS-III. Furthermore, there was not a significant correlation between years of education and the Trail Making Test, Continuous Performance Test-Identical Pairs (CPT), Wisconsin Card Sorting Test (WCST), FAS - Test (COWAT), or the Insight Scale. However, there was a significant positive correlation between years of education and the Social Knowledge Questionnaire (SKQ) ($r = .376, p = .014$).

Based on their self-report, defendants were rated on their history of head injury (see Appendix A). Statistical analysis revealed a significant positive correlation between head injury and years of education ($r = .323, p = .027$). This finding suggests that defendants with more education reported a worse history of head injury, than defendants with a lower level of education. It should be noted that overall, participants had a low level of education ($x = 9.287, SD = 5.286$) and most participants showed significant impairment on multiple neuropsychological measures. That is, impaired performance on cognitive measures and a low level of education was noted for each participant regardless of competency classification.
Sociodemographic Comparison of Competent and Incompetent Groups

*Competent Group*

Females comprised 28.57% of the competent group. That is, of the 18 participants deemed competent, four were female and 14 were male. The competent group included nine Caucasian-Americans, eight African-Americans, and one Hispanic American. Thus, the competent group was 50.0% Caucasian, 44.44% African-American, and 5.0% Hispanic. The competent group had a mean age of 37.78 (SD = 13.04) and mean years of education of 8.316 (SD = 5.77).

*Incompetent Group*

Females comprised 17.24% of the incompetent group. Of the 30 incompetent defendants, five were females and 25 were males. The incompetent group was comprised of 26.67% Caucasian-Americans (n = 8), 46.67% African-Americans (n = 14), and 26.67% Hispanic-Americans (n = 8). The incompetent participants had a mean age of 37.38 (SD = 13.95) and a mean of 9.90 (SD = 4.97) years of education.

Competent defendants did not differ from incompetent defendants with respect to gender ($\chi^2 = .228, p = .711$) or race ($\chi^2 = 4.416, p = .110$). In addition, competent defendants did not differ from incompetent defendants in age ($F (1, 45) = .010, p = .923$) or education ($F (1, 45) = 1.006, p = .321$).

Intellectual Functioning and Competency

Group difference statistics were used to test the hypotheses that defendants who were deemed incompetent to stand trial would have lower Verbal IQ, Performance IQ, and Full Scale IQ than patients deemed competent (H1a, H1b, H1c). However, only H1a and H1c were supported. Incompetent defendants had significantly lower Verbal
IQ ($F (1, 42) = 7.010, p = .011$) and Full Scale IQ ($F = 4.484, p = .040$) than competent defendants. Although the groups differed significantly on Verbal IQ and Full Scale IQ, the groups did not differ significantly with respect to Performance IQ ($F = 1.303, p = .260$). Table 5 presents the IQ scores for both competent and incompetent defendants.

Table 5

<table>
<thead>
<tr>
<th>Intellectual Functioning of Competent and Incompetent Defendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent</td>
</tr>
<tr>
<td>Verbal IQ*</td>
</tr>
<tr>
<td>Performance IQ</td>
</tr>
<tr>
<td>Full Scale IQ*</td>
</tr>
</tbody>
</table>

Note. Scores are mean IQ scores. *$p < .05$

Cognitive Domains and Competency

**Group Difference Analyses**

Competent defendants differed from incompetent defendants in four of the seven cognitive domains. They scored significantly better on tests of verbal memory, verbal comprehension, social judgment, and executive functioning. No significant difference existed between the two groups on the remaining three domains: visual memory, visual spatial skills, and attention.

The verbal memory index was comprised of four subtests from the WMS-III: a) Logical Memory I, b) Logical Memory II, c) Verbal Paired Associates I, and d) Verbal Paired Associates II. These four subtests were used to obtain three index scores (i.e., auditory immediate, auditory delayed, auditory recognition delayed), which were averaged to obtain the verbal memory index. Competent defendants scored significantly better on verbal memory than incompetent defendants ($F (1, 42) = 4.957, p$
Competent defendants did not score significantly different from incompetent defendants on visual memory ($F(1, 41) = .787, p = .380$). The visual memory index was comprised of Visual Reproduction I and Visual Reproduction II from the WMS-III. Scaled scores and index scores from the WMS-III can be found in Table 6.

Thus, the hypothesis that incompetent defendants would score worse on memory tasks than competent patients was supported for H2a but not for H2b. Competent defendants scored significantly better than incompetent defendants on tests of verbal memory (i.e., Logical Memory, Verbal Paired Associates), but did not score significantly different from incompetent defendants on tests of nonverbal memory (i.e., Visual Reproduction).

The verbal comprehension index was comprised of two measures from the WASI: Vocabulary and Similarities. Competent defendants had significantly better verbal comprehension than incompetent defendants ($F(1, 41) = 6.944, p = .012$). They had significantly higher scores on both Vocabulary ($F(1, 42) = 4.382, p = .042$) and Similarities ($F(1, 42) = 8.063, p = .007$). On Vocabulary, the mean scaled score for competent defendants ($\bar{x} = 7.50, SD = 3.95$) was significantly higher than the mean scaled score for incompetent defendants ($\bar{x} = 5.00, SD = 3.73$).

The social judgment index was comprised of three measures: two Wechsler subtests (i.e., Picture Arrangement, Comprehension) and the Social Knowledge Questionnaire. Competent defendants had significantly better social judgment than incompetent defendants ($F(1, 40) = 10.914, p = .002$). Competent defendants scored significantly higher than incompetent defendants on Comprehension ($F(1, 42) = 10.710, p = .002$) and the Social Knowledge Questionnaire ($F(1, 40) = 7.941, p = .007$). There
was not a significant difference between the groups on Picture Arrangement ($F (1, 42) = 1.488, p = .229$).

Competent defendants had significantly higher executive functioning index scores than incompetent defendants ($F (1, 42) = 9.924, p = .003$). Although two measures comprised the executive functioning index (i.e., Wisconsin Card Sorting Test, Controlled Oral Word Association Test), competent defendants performed significantly better on only one. Competent defendants scored significantly higher on the COWAT ($F (1, 42) = 8.708, p = .005$) than incompetent defendants.

Although the groups did not significantly differ on the Wisconsin Card Sorting Test ($F (1, 42) = 3.475, p = .069$), there was a trend in the direction of competent defendants performing better than incompetent defendants. The Wisconsin Card Sorting Test was administered on the computer as part of the COGLAB and fewer trials are indicative of better performance. Thus, competent defendants demonstrated better performance as they completed the task with an average of 77.75 ($SD = 27.51$) total trials while incompetent defendants took an average of 93.75 ($SD = 27.32$) total trials to complete the task. Competent defendants also made significantly less perseverative errors than incompetent defendants ($F (1, 42) = 4.126, p = .049$). Competent defendants made an average of 20.50 ($SD = 11.31$) perseverative errors while incompetent defendants made an average of 31.18 ($SD = 19.15$) perseverative errors. Competent defendants did not differ from incompetent defendants in the number of categories completed on the WCST ($F (1, 42) = .094, p = .76$).

As shown in Table 6, competent defendants did not differ from incompetent defendants on visuospatial skills ($F (1, 41) = 1.151, p = .290$). This index was
comprised of two Wechsler subtests: Block Design and Matrix Reasoning. In addition, attention and concentration did not differ significantly between competent defendants and incompetent defendants \( F (1, 42) = 2.412, p = .128 \). That index was comprised of three tests: a) CPT - four numbers, b) CPT - four shapes, and c) part A of the Trail Making Test. Scores from each neuropsychological test that comprised the cognitive domains for both competent and incompetent defendants can be found in Table 6.

Table 6
Means and Standard Deviations on Neuropsychological Tests for Competent and Incompetent Defendants

<table>
<thead>
<tr>
<th>Index</th>
<th>Subtest</th>
<th>Competent</th>
<th>Incompetent</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Comprehension*</td>
<td>1. Vocabulary* (^{a})</td>
<td>7.50 (3.95)</td>
<td>5.00 (3.73)</td>
<td>.633</td>
</tr>
<tr>
<td></td>
<td>2. Similarities* (^{a})</td>
<td>7.31 (3.89)</td>
<td>4.39 (2.88)</td>
<td>.751</td>
</tr>
<tr>
<td>Social Judgment*</td>
<td>1. Comprehension* (^{a})</td>
<td>8.38 (4.16)</td>
<td>4.64 (3.31)</td>
<td>.899</td>
</tr>
<tr>
<td></td>
<td>2. Picture Arrangement* (^{a})</td>
<td>7.19 (1.83)</td>
<td>6.18 (2.99)</td>
<td>.552</td>
</tr>
<tr>
<td></td>
<td>3. Social Knowledge Ques* (^{a})</td>
<td>7.20 (1.47)</td>
<td>5.29 (2.37)</td>
<td>1.299</td>
</tr>
<tr>
<td>Executive Functioning*</td>
<td>1. Wisconsin Card Sorting Test(^{b})</td>
<td>77.75 (27.51)</td>
<td>93.75 (27.32)</td>
<td>.582</td>
</tr>
<tr>
<td></td>
<td>2. COWAT(^{d})</td>
<td>33.0 (10.16)</td>
<td>24.21 (9.11)</td>
<td>.865</td>
</tr>
<tr>
<td>Verbal (auditory) Memory*</td>
<td>1. Auditory Immediate*(^{c})</td>
<td>84.88 (17.88)</td>
<td>73.00 (15.74)</td>
<td>.664</td>
</tr>
<tr>
<td></td>
<td>2. Auditory Delayed*(^{c})</td>
<td>85.88 (18.05)</td>
<td>76.29 (18.58)</td>
<td>.531</td>
</tr>
<tr>
<td></td>
<td>3. Aud. Recognition Delayed*(^{c})</td>
<td>90.00 (17.61)</td>
<td>78.04 (16.29)</td>
<td>.679</td>
</tr>
<tr>
<td>Nonverbal (visual) Memory</td>
<td>1. Visual Recall I*(^{a})</td>
<td>6.50 (2.94)</td>
<td>5.14 (2.52)</td>
<td>.463</td>
</tr>
<tr>
<td></td>
<td>2. Visual Recall II*(^{a})</td>
<td>6.56 (2.16)</td>
<td>6.63 (2.53)</td>
<td>.032</td>
</tr>
<tr>
<td>Visual Spatial Skills</td>
<td>1. Block Design* (^{a})</td>
<td>7.50 (3.37)</td>
<td>6.18 (2.91)</td>
<td>.392</td>
</tr>
<tr>
<td></td>
<td>2. Matrix Reasoning* (^{a})</td>
<td>8.06 (4.65)</td>
<td>7.14 (3.45)</td>
<td>.198</td>
</tr>
<tr>
<td>Attention</td>
<td>1. Trail Making Test (part A)</td>
<td>48.38 (20.87)</td>
<td>48.14 (8.08)</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>2. CPT numbers (^{e})</td>
<td>.788 (.810)</td>
<td>.603 (.527)</td>
<td>.228</td>
</tr>
<tr>
<td></td>
<td>3. CPT shapes (^{e})</td>
<td>1.077 (.607)</td>
<td>.790 (.614)</td>
<td>.473</td>
</tr>
</tbody>
</table>

Note. \(^{a}\) p<.05; \(^{a}\) Scaled Score; \(^{b}\) Number of trials needed to complete task; \(^{c}\) Index Scores; \(^{d}\) Total number of words; \(^{e}\) d-prime.
Multiple Regression

Multiple regression was conducted to see whether cognitive domains could be used to predict a defendant’s competency. Criterion variables included all seven index scores (i.e., visuospatial, verbal comprehension, social judgment, verbal memory, visual memory, executive functioning, and attention). The multiple regression analysis conducted on the full sample for defendant’s total competency scale from the ECST-R revealed a main effect for the composite index scores ($F (1, 38) = 9.093, p = .005$). This effect revealed that individuals that scored lower on the competency scale had worse attention: the correlation of competency with one’s ability to attend was ($r = -.439, p = .005$). According to the regression analysis, attention accounted for 19.3% of the variance and was the only criterion variable that entered the analysis. It should be noted that higher ECST-R scores are indicative of more incompetency, thus it follows that there is a negative correlation between attention and ECST-R scores.

Cognitive Abilities associated with Prongs of Dusky

Factual Understanding

Correlational analysis was used to examine the relationship between performance on neuropsychological tests and scores on the factual understanding scale of the ECST-R. Performance on Factual Understanding was significantly correlated with learning and comprehension. There was a significant negative correlation between the learning slope index from the WMS-III and Factual Understanding on the ECST-R ($r = -.313, p = .041$). Given that higher scores on Factual Understanding are indicative of incompetency, this finding suggests that defendants with higher learning slope scores tend to be more competent with respect to Factual Understanding.
There was also a significant negative correlation ($r = -.396, p = .009$) between the factual understanding scale and the comprehension subtest from the WAIS-III. Again, this suggests that defendants with lower scores on Comprehension tend to be more incompetent, with respect to Factual Understanding, than defendants that scored higher on Comprehension. Since scores were almost normally distributed on Factual Understanding, item analysis was not necessary; however, for the other prongs of Dusky, this strategy was utilized.

**Rational Understanding**

There was less variability in scores on the other two other scales from the ECST-R (i.e., Rational Understanding, Ability to Consult with Council) than there was on Factual Understanding. Thus, examination of the relationship between cognition and Rational Understanding as well as cognition and Ability to Consult with Counsel were investigated via an exploratory analysis of key items from the ECST-R. Items were selected based on their representativeness of the prongs of Dusky. Participants were divided into two groups: those that answered the question correctly and those that answered incorrectly.

A defendant’s ability to gauge the seriousness of the charges was considered with respect to Rational Understanding. Performance on neuropsychological tests was compared between defendants who were able to gauge the seriousness of their charges and defendants that were not able to gauge the seriousness of their charges. Defendants only differed significantly on performance on the WCST ($F (1, 40) = 6.048, p = .018$). Defendants that were able to gauge the seriousness of their charges had an average number of total trials of 78.64 ($SD = 23.87$), while defendants that were not
able to gauge the seriousness of their charges completed the test with an average of 98.61 trials ($SD = 29.32$). Given that fewer trials on this version of the WCST is indicative of better performance, this finding suggests that defendants with cognitive abilities that aid their performance on WCST, are typically more competent with respect to Rational Understanding.

**Ability to Consult with Attorney**

When examining a defendant’s ability to consult with his/her attorney, one key item that was analyzed was from the “Nature of the Attorney-Client Relationship” section of the ECST-R. Defendants were asked, “If you had some disagreements with your attorney, how would you settle them?” A “correct” response was coded if the defendant indicated that he/she should have some kind of a discussion with his attorney. Participants that responded correctly were compared to participants that responded incorrectly on tests of intelligence, memory, attention, and executive functioning.

Defendants that answered correctly did not differ from those that answered incorrectly on all measures of memory, attention, and executive functioning. With respect to intelligence, all six subtests from the Wechsler Scales of Intelligence that were administered (i.e., Vocabulary, Similarities, Comprehension, Block Design, Picture Arrangement, Matrix Reasoning) were examined for group differences. Defendants that acknowledged they should talk to their attorney differed from those who did not have that understanding on Comprehension only ($F (1, 40) = 4.991, p = .031$). On Comprehension, defendants that would discuss a disagreement with their attorney (as opposed to firing them immediately) had an average scaled score of 6.93 ($SD = 4.51$).
Defendants that did not acknowledge a need to discuss the issue with their attorney had an average scaled score of 4.20 (SD = 1.78).

Insight and Competency

The hypothesis that insight would be correlated to competency was investigated via a correlational analysis. However, the hypothesis was not supported because there was not a significant linear relationship between a defendants performance on The Insight Scale and his/her total score on the ECST-R ($r = -.097$, $p = .536$). The relationship between insight and competency was investigated with respect to all three prongs of Dusky (i.e., Factual Understanding, Rational Understanding, and Ability to Consult with Counsel) as well as a defendant’s total competency score.

Substance Use and Neuropsychological Functioning

Information regarding the entire sample’s drug history was assessed with the Substance Use History Screen (see Appendix C). Some defendants were poor historians given their severe mental illness and cognitive impairment. Thus, drug history data was not available for all participants and information presented in Table 7 is based on the number of participants that seemed capable of providing an accurate history of use and abuse. Table 7 lists the percentage of participants that acknowledged ever using that type of drug as well as the percentage of users that admitted to abuse of that substance.
Table 7
Number of Participants that Admitted to Use in each Drug Category

<table>
<thead>
<tr>
<th>Drug Category</th>
<th>Admitted Use</th>
<th>Substance Abuse</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>92.0%</td>
<td>60.0%</td>
<td>50</td>
</tr>
<tr>
<td>Cannabis (marijuana)</td>
<td>75.5%</td>
<td>57.1%</td>
<td>53</td>
</tr>
<tr>
<td>Nicotine</td>
<td>67.4%</td>
<td>n/a</td>
<td>46</td>
</tr>
<tr>
<td>Cocaine/Crack</td>
<td>47.2%</td>
<td>26.0%</td>
<td>53</td>
</tr>
<tr>
<td>Psychedelic drugs (LSD, mescaline, PCP)</td>
<td>30.8%</td>
<td>9.8%</td>
<td>52</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>29.4%</td>
<td>16.3%</td>
<td>51</td>
</tr>
<tr>
<td>Solvents</td>
<td>23.1%</td>
<td>12.2%</td>
<td>52</td>
</tr>
<tr>
<td>Heroin</td>
<td>18.9%</td>
<td>6.0%</td>
<td>53</td>
</tr>
<tr>
<td>Tranquilizer</td>
<td>17.3%</td>
<td>8.0%</td>
<td>52</td>
</tr>
<tr>
<td>Opiates other than heroin (Demerol, morphine, methadone)</td>
<td>11.5%</td>
<td>2.0%</td>
<td>52</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>18.4%</td>
<td>13.2%</td>
<td>38</td>
</tr>
<tr>
<td>Barbituates (sedatives, Seconal)</td>
<td>11.8%</td>
<td>4.1%</td>
<td>51</td>
</tr>
</tbody>
</table>

Patients that reported a history of abusing alcohol did not differ from defendants that did not report a history of alcohol abuse on tests of intelligence or memory. This was true of all Wechsler subtests from the WAIS-III, WASI, and WMS-III. It follows that hypothesis 5 was not supported. It was hypothesized that defendants who reported a history of abusing alcohol would have lower Full Scale IQs than defendants who did not report a history of alcohol abuse. However, this was not supported by the data. In addition, the hypothesis that defendants with a history of alcohol abuse would perform worse on Verbal Paired Associates than defendants without a history of alcohol abuse was not supported by the data. Defendants who reported a history of alcohol abuse did not score any lower on Verbal Paired Associates than defendants without a reported history of alcohol abuse.
Correlational analysis was used to test the hypothesis that defendants who had a history of abusing alcohol would be more impaired on tasks of executive functioning. Several measures of executive functioning were analyzed (i.e., WCST, COWAT, part B of the Trail Making Test, verbal learning). However, the hypothesis was only partially supported as defendants who reported a history of abusing alcohol scored significantly better than individuals without a history of alcohol abuse on only one measure of executive functioning. On the WCST, defendants that admitted to alcohol abuse made significantly more random errors on the WCST than defendants that did not report a history of alcohol abuse ($F(1, 38) = 6.809, p = .013$). Defendants with a history of alcohol abuse made an average of 42.33 random errors while defendants without a history of alcohol abuse made an average of 26.11 random errors. Defendants with a history of alcohol abuse did not differ from defendants with a history of alcohol abuse on verbal learning, the COWAT, or part B of the Trail Making Test.

Correlational analysis was used to analysis the relationship between years of chronic cannabis use and tests of attention. There were not a significant correlation between the Trail Making Test and years of cannabis use. With respect to attention as measured by the Continuous Performance Test – Identical Pairs, there was not a significant linear relationship between years of cannabis use and performance on the CPT-IP - four number trials ($r = .27, p = .097$). However, there was a significant relationship between years of chronic cannabis use and performance on the CPT-IP trials that involved four shapes. Specifically, there was a significant positive correlation between years of chronic cannabis use and number of hits on the four-shape-trial of the CPT-IP ($r = .329, p = .041$).
Analysis of variance (ANOVA) was used to test the hypothesis that defendants with a history of cannabis abuse would perform worse on Part B of the Trail Making Test and worse on the CPT-IP than defendants without a history of cannabis abuse. This hypothesis was not supported by the data. Defendants with and without a history of cannabis abuse did not significantly differ on part B of the Trail Making Test or the CPT-IP.

ANOVA was used to analyze the hypothesis that participants who have abused cocaine in the past would do worse on verbal tasks including Verbal IQ subtests, Verbal Paired Associates, Logical Memory from the WMS-III, and the COWAT, than participants who have not abused cocaine. This hypothesis was not supported by the data. Defendants with a history of cocaine abuse scored similarly to defendants without a history of cocaine abuse on all verbal measures. That is, defendants who reported a history of cocaine use did not score differently than defendants without a history of using cocaine on measures of verbal intelligence (i.e., Comprehension, Similarities, Vocabulary, Verbal IQ). Furthermore, they did not differ from non-cocaine users on tests of verbal memory (i.e., Verbal Paired Associates, Logical Memory) or tests of verbal fluency (i.e., COWAT).

Rey Fifteen Item Test

Competent defendants scored significantly higher on the Rey Fifteen Item Test (FIT) than incompetent defendants ($F = 7.421$, $p = .010$). Competent defendants had an average score of 11.07 ($SD = 2.64$) while incompetent defendants had an average total score of 8.46 ($SD = 3.01$). Interestingly, defendants that were determined to be
malingering by the staff psychologists and psychiatrists did not differ from defendants that were not found to be malingering on the FIT \( (F(1, 45) = .848, p = .362) \).

However, there was a significant correlation between performance on the FIT and several neuropsychological measures. Significant positive correlations were found between performance on the FIT and performance on all of the subtests from the WAIS-III that were administered. It follows that there was also a significant positive correlation between a defendant’s FIT score and his/her VIQ, PIQ, and FSIQ. The FIT also significantly correlated with the majority of index scores from the WMS-III. Correlation coefficients between scores on the Wechsler subtests and scores on the FIT can be found in Table 8.

Table 8

*Correlation Coefficients for the FIT and Weschler Scores*

<table>
<thead>
<tr>
<th>Index</th>
<th>Pearson’s r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary**</td>
<td>.441</td>
</tr>
<tr>
<td>Block Design*</td>
<td>.369</td>
</tr>
<tr>
<td>Similarities**</td>
<td>.467</td>
</tr>
<tr>
<td>Matrix Reasoning**</td>
<td>.458</td>
</tr>
<tr>
<td>Comprehension**</td>
<td>.435</td>
</tr>
<tr>
<td>Picture Arrangement**</td>
<td>.446</td>
</tr>
<tr>
<td>Verbal IQ**</td>
<td>.509</td>
</tr>
<tr>
<td>Performance IQ**</td>
<td>.454</td>
</tr>
<tr>
<td>Full Scale IQ**</td>
<td>.534</td>
</tr>
<tr>
<td>Visual Reproduction I - Total Score**</td>
<td>.469</td>
</tr>
<tr>
<td>Single-Trial Learning**</td>
<td>.517</td>
</tr>
</tbody>
</table>

*(table continues)*
Correlational analysis revealed a significant relationship between the FIT and several other neuropsychological measures. There was a significant positive correlation between the FIT total correct and d-prime on the CPT-IP, both with four numbers as stimuli ($r = .387, p = .014$) and with four shapes as stimuli ($r = .377, p = .017$). Performance on the FIT was also positively correlated with a defendant’s total words on the COWAT ($r = .502, p = .001$).

The FIT positively correlated with measures of executive functioning. Analysis of the relationship between the Stroop and the FIT revealed a significant positive correlation between performance on the FIT and performance on the word trial of the Stroop ($r = .344, p = .030$). There was also a significant correlation between the color-word score and the FIT ($r = .439, p = .005$), although there was not a significant linear relationship between performance on the FIT and performance on the color trial of the Stroop ($r = .191, p = .237$). In addition, there was a negative correlation between completion time on part B of the Trail Making Test ($r = -.371, p = .020$) and the FIT.
CHAPTER 4

DISCUSSION

This study applied neuropsychological methods to investigate the cognitive factors that underlie competency to stand trial. Male and female defendants, all of whom had committed serious felonies and were remanded to a state psychiatric facility were compared on measures of intelligence, memory, attention, visio-spatial skills, and executive functioning. Based on neuropsychological theory, the measures selected provide a comprehensive quantitative measure of cognitive functioning. Defendants that were deemed by the psychiatric staff as competent scored significantly better on summary indexes of verbal memory, verbal comprehension, social judgment, and executive functioning. Competent defendants did not differ significantly from incompetent defendants on summary indexes of visual memory, attention, or visio-spatial functioning. The strongest effect sizes were on tests of social judgment and executive functioning, specifically verbal fluency.

Although the current findings are similar to the findings by Nestor et al. (1999), there were some differences. Nestor et al. also examined the relationship between competency and performance on neuropsychological measures (i.e., intelligence, memory, attention and concentration, executive functioning). Similar to the present study, Nestor et al. found significant differences between competent and incompetent defendants on social intelligence measures.

However, unlike the current findings, they did not find a significant difference between the two groups on any executive functioning measures. The present study found a significant difference between competent defendants and incompetent
defendants on the executive functioning index. Although this contradicts the overall conclusions of Nestor et al. (1999), the studies differed with respect to what measures were used to assess executive functioning. In the Nestor study, the executive functioning index was comprised solely of the Wisconsin Card Sorting Test (WCST). Like Nestor et al. (1999), the present study did not find a statistically significant difference between competent and incompetent defendants on the WCST. However, group differences were established for other measures of executive functioning.

Given that executive functioning skills are the basis of decision making and reasoning, it is not surprising that performance on tests of executive functioning helped differentiate competent defendants from incompetent defendants in this study. However, when individual measures of executive functioning were considered, verbal fluency (as measured by the Controlled Oral Word Association Test; COWAT) was the only executive functioning measure, or frontal lobe measure, that factored into the executive functioning differences between competent and incompetent defendants. This finding is consistent with research that suggests there is not a single measure that adequately assessed frontal lobe functioning. In addition, the COWAT does not correlate very well with the WCST.

To account for the difference in this study and the Nestor et al. (1999) study, the discrepancy in measures used to assess frontal lobe functioning needs to be considered. Nestor et al. used solely the WCST as their measure of executive functioning and did not find a significant difference between competent and incompetent defendants. If the WCST had been the sole measure of executive functioning in the current study, results regarding the executive functioning index would have paralleled
the findings of Nestor et al. That is, there was not a significant difference between competent defendants and incompetent defendants on the WCST, although there was a trend in that direction. In contrast to Nestor et al., there was a significant group difference in executive functioning in the current study. However, in this study, executive functioning was assessed with both the WCST and the COWAT. Given that the groups did not differ significantly on the WCST, the difference in performance on executive functioning must be attributable to the COWAT, a measure of verbal fluency.

Although the WCST and the COWAT both measure frontal lobe functioning, there are several differences between the two measures. First of all, the COWAT measures speed of verbal response. In contrast, the WCST is not timed and assesses more nonverbal, trial and error learning. If competency requires verbal abstraction skills, as opposed to nonverbal learning, then it follows that there would be a significant difference on the COWAT and not on the WCST. Furthermore, cognitive impairment due to mental illness could have adversely affected performance on the COWAT. The test administrator noted during administration of the COWAT that several patients failed to inhibit nonsense words or neologisms. Thus, many of their responses did not meet the test requirements, which adversely affected their performance. Thus one possibility is that the same factors that cause schizophrenia symptoms, may also adversely affect competency via impairment of cognition in the area of verbal fluency. The COWAT is also a left hemisphere measure, which is strongly implicated in schizophrenia research as most findings suggest that the left hemisphere is more affected than the right hemisphere in people with schizophrenia.
The results of the current study suggest that the relationship between executive functioning and competency should not be ruled out, but perhaps refined. There are several components of executive functioning and results of the current study suggest that verbal fluency, and more broadly verbal reasoning and memory, as opposed to nonverbal reasoning, may be more related to competency. These findings reiterate the idea that executive functioning skills encompass more cognitive abilities than can be assessed by one measure (e.g., verbal fluency, reasoning). Furthermore, the statistical trend regarding with the WCST and competency, suggests that reasoning may indeed play a part in competency.

This also calls to question current methods of competency assessment regarding measures that assess decisional capacity. Although decisional competence is discussed theoretically in the literature, mental health professionals may fail to consider this cognitive ability when assessing for competency. This is evident from questions that simply require acquired knowledge (e.g., what does the judge do? What are the charges against you?) versus questions that require verbal reasoning. Perhaps, if decisions of competency were made more with respect to decisional competence and less with respect to factual understanding, the relationship between competency and executive functioning would be clearer.

Similar to the study by Nestor et al. (1999), the current study found a significant difference between competent and incompetent defendants on measures of intellectual functioning and memory. However, where Nestor et al. found significant differences on tests of nonverbal functioning, the current study did not. Specifically, the studies
differed on analyses involving: a) competency and visual memory and b) competency and Performance IQ.

On measures of intelligence, Nestor et al. (1999) found that competent defendants had significantly higher Verbal IQs, Performance IQs, and Full Scale IQs than incompetent defendants. In the current study, significant differences were found on Verbal IQ and Full Scale IQ; however, there was not a significant difference between competent defendants and incompetent defendants on Performance IQ.

Given that there was a trend in that direction, it is possible that there is a clinically significant relationship between performance IQ and competency that doesn’t reach statistical significance. Another possible explanation for the difference in findings could be accounted for by the method in which each study assessed Performance IQ. Nestor et al. (1999) used the Wechsler Adult Intelligence Scale – Revised (WAIS-R) to obtain Performance IQ, while the Wechsler Abbreviated Scale of Intelligence (WASI) was used to obtain Performance IQ scores in this sample.

With respect to Performance IQ, the WAIS-R includes five subtests while the WASI, only includes two subtests. The WAIS-R incorporates Block Design like the WASI, but also includes Picture Completion, Digit Symbol, and Picture Arrangement, and Object Assembly. The current study differed significantly from the findings of Nestor et al. (1999) with respect to Picture Arrangement. This difference in results between the two studies, may account for the different findings with respect to PIQ. Nestor et al. found a highly significant difference between competent defendants and incompetent defendants on Picture Arrangement, whereas the current study did not. Although the difference in findings warrants an interpretation, the significance of the
difference is debatable given that Picture Arrangement for the current study was a different version than Picture Arrangement from the Nestor et al. study.

Picture Arrangement is a nonverbal measure of social judgment. Nestor et al. (1999) claimed that Picture Arrangement is related to competency to stand trial given that the subtest includes items relevant to criminal justice matters such as crime and punishment. The authors point to the “escape” and “robbery” test items as examples: “Picture Arrangement may very well represent an index of the type of social intelligence that presumably underlies the more interpersonal aspects of competence” (p.409). Although this makes intuitive sense, the nonverbal nature of the subtest calls to question its relevance to competency. That is, if competency is dependent primarily on verbal reasoning and abstraction skills, then it follows that there would not be a significant relationship between competency and performance on Picture Arrangement. Although verbal reasoning undoubtedly contributes to one’s performance on Picture Arrangement, the test does not require as high of a level of verbal ability as the verbal subtests. It could also be argued that Picture Arrangement does not require the level of verbal reasoning that is required to participate in the legal system.

The finding that performance on Picture Arrangement did not distinguish between competent and incompetent defendants, does not underrate the importance of social judgment in competent defendants. The importance of verbal abilities within the cognitive domain of social judgment was evident from the significant difference between competent and incompetent defendants on the social judgment index. Although the two groups did not differ on Picture Arrangement, they did differ significantly on Comprehension and the Social Knowledge Questionnaire. Like Nestor et al. (1999), the
current study found that competent defendants scored significantly higher than incompetent defendants on Comprehension.

Given that Comprehension is a measure of social judgment and abstract reasoning, it follows that it relates to competency to stand trial, which requires the defendant to have the ability to follow social conventions and rules. Comprehension measures acquired knowledge, practical reasoning, and the meaning of proverbs. However, because of the discontinue rules of administration, only a third of the participants were administered the later items regarding proverbs. Thus, for the majority of the defendants, performance on this subtest reflected adherence and understanding of social rules. It follows then that Comprehension was related to both Factual Understanding and the Ability to Consult with Counsel given that both of those competency skills involve rules or guidelines as to what “should” occur. With respect to Factual Understanding, the defendant is expected to understand the rules of the courtroom. With respect to cognitive abilities associated with a defendant’s Ability to Consult with Counsel, the defendant must understand “rules” that govern social interactions. Another measure of social judgment, or adhesion to social rules was the Social Knowledge Questionnaire (SKQ). Competent defendant’s scored significantly higher than incompetent defendants on the SKQ, which provides further evidence of the relationship between a defendant’s verbal abilities related to social judgment and competency.

Verbal abilities related to memory also clearly distinguished competent defendants from incompetent defendants in the current study. Although competent defendants differed from incompetent defendants on tests of verbal memory, the two
groups did not differ on tests of nonverbal, or visual, memory. In the current study, only Visual Reproduction was used as a measure of nonverbal/visual memory. However, in the Nestor study, visual memory was assessed with both Faces and Family Pictures from the Wechsler Memory Scale - Third Edition (WMS-III). Visual Reproduction was not included in their measure of visual memory.

Visual Reproduction from the WMS-III requires the defendant to draw geometric shapes that he/she was exposed to for 10 seconds. Thus it requires the defendant to encode, retrieve, and reproduce spatial designs. These cognitive abilities place less emphasis on verbal abilities, and thus are primarily dependent on right hemisphere processing. This is in contrast to Family Pictures, in which the defendant is exposed to pictures of social settings and then questioned, verbally, about the pictures. Thus, this measure differs from Visual Reproduction in that it requires cognitive abilities related both to the left and right hemisphere. As competency is more related to verbal abilities, or left hemisphere abilities, it follows that competent defendants may differ from incompetent defendants on Family Pictures. This is not the case with Visual Reproduction, which is primarily a measure of right hemisphere functioning.

Like Visual Reproduction on the WMS-III, Faces from the WMS-III is also a right hemisphere measure. However, the two subtests differ considerably in the stimuli used to assess visual memory and its relatedness to competency. One could argue that a defendant’s ability to recall geometric figures is not related to a defendant’s competency to stand trial. Thus, the lack of significant group differences on Visual Reproduction is not surprising. In contrast to geometric figures, Faces requires the defendant to recognize people’s faces. One could argue that this ability is conceptually related to
competency more than the ability to recall geometric figures. Furthermore, it should be noted that Visual Reproduction is a measure of visual recall, whereas, Faces is a test of visual recognition. It may be that a defendant’s ability to recognize information is more related to competency than his/her ability to freely recall information.

It was hypothesized that defendants who were deemed incompetent to stand trial would perform worse than competent defendants on tests of attention, such as Part A of the Trail Making Test and the Continuous Performance Test-Identical Pairs (CPT-IP). However, this hypothesis was not supported by the data. Although the pattern of means went in the expected direction, the difference did not reach statistical significance. Defendants that were determined by the hospital to be competent did not differ from defendants that were incompetent on any tests of attention and concentration. Initial inspection of the results is counterintuitive given the importance of attention in cognitive functioning. However, further analysis suggests that the level of severe impairment in simple attention may have masked the relationship between attention and competency.

For this analysis, each defendant’s performance on Trails A was considered with respect to the cutoff score given by Reitan & Wolfson (1985). According to Reitan and Wolfson, there is a “significant dividing point” between 39 and 40 for total time on part A of the Trail Making Test. According to the authors of the measure, “normal” performance is indicated by a total time below 39 and “impaired” performance is any score higher than 40. Using this cut-off, two-thirds of the sample scored in the impaired range. Furthermore, the average time for both competent and incompetent defendants
fell below the 10th percentile, according to the normative data provided by Tombaugh (2003).

Thus, the lack of a significant group difference could be due to the significant level of cognitive impairment, specifically with regards to simple attention, in the entire sample. Given the possible floor effect, a relationship between attention and competency cannot be ruled out. That is, if both competent defendants and incompetent defendants scored significantly below average, then the lack of variance in scores may have made statistical significance difficult to achieve when considering group differences.

The relationship between competency to stand trial and attention is further supported by the results of the multiple regression analysis, which suggests that attention and concentration accounted for 19.3% of the variance in predicting competency on the ECST-R. The importance of attention with respect to competency is further substantiated by the fact that attention was the only cognitive domain that entered into the regression analysis.

The significance of attention in predicting a defendant’s competency is not surprising given that performance on any cognitive task requires attention and concentration. Nestor et al. (1999) found a significant difference between competent and incompetent defendants on Part A of the Trail Making Test. This finding further substantiates the relationship between simple attention and competency to stand trial. Although, as previously discussed, the significant group difference on Trails A was not established in this study.
There are multiple factors that could have contributed to the different results between the study by Nestor et al. (1999) and the current study. Primarily, the two studies differed significantly in research design. Whereas the current study involved original data collection, Nestor et al. investigated the relationship of neuropsychological variables to competency decisions retrospectively. Nestor et al. examined 309 patients admitted to a maximum-security psychiatric hospital who were referred for neuropsychological testing between 1987 and 1995. From this database, they identified 181 patients that had a competency evaluation. Thus, although competency data and neuropsychological data were available on all participants, the time between the two evaluations was not controlled for in the study by Nestor et al. In the current study, the competency evaluation and neuropsychological evaluation took place within 24 to 72 hours of one another. Time between assessments was controlled for in order to minimize the effects of confounding variables such as organic changes that occur in the brain over time, the effects of medication, or other psychosocial variables that could affect performance during an evaluation.

In addition, differences in sample sizes need to be considered. In the current study, there were a total of 48 participants that were included in the analyses. In contrast, Nestor et al. had a total of 181 participants. The samples also differed significantly in the percentage of defendants found to be competent as compared to the percentage of defendants found to be incompetent. In the current study, 62.5% of the total sample was recommended as incompetent. In the Nestor et al. study, only 29.3% of the total sample was recommended as incompetent. Furthermore, Nestor et al.
limited their study to only male defendants, whereas the current study included both males and females.

Nestor et al. (1999) included part B of the Trail Making Test as part of their attention index. However, Heilbronner, Henry, Buck, Adams, and Fogle (1991) suggested that part A and part B of the Trail Making Test measure somewhat different functions given that they only correlate at .49. Therefore, part B of the Trail Making Test was not included in the attention index with part A of the Trial Making Test in this study. Part B of the Trail Making Test was initially conceptualized as a test of executive functioning. However, given the significant correlation with part A of the Trail Making Test and its dependence on psychomotor speed, it was not included in the executive functioning index.

Although part B of the Trail Making Test was not included in the seven cognitive domains, it was still considered for an exploratory analysis. Like Nestor et al. (1999), no significant difference was found between competent defendants and incompetent defendants on part B of the Trail Making Test.

Rey Fifteen Item Test: Malingering Measure or Measure of Cognitive Abilities?

Although the Rey Fifteen Item Test was initially developed to detect feigning of cognitive dysfunction, there is some question in the literature as to whether or not this purpose is applicable to individuals with low IQ. Given that the average Full Scale IQ for the current sample was 80.23 (SD = 16.06), an investigation into the utility of the FIT as a measure of malingering is warranted. When defendants that were determined by the hospital to be malingering were compared to the non-malingerers, there was no significant difference on the FIT. However, the FIT was significantly correlated with all
aspect of memory assessed by the WMS-III. Performance on the FIT was correlated
with the auditory immediate, auditory delayed, and auditory recognition delayed Indices.
Furthermore, the FIT was significantly correlated with single-trial learning and retention.
These findings suggest that the FIT may be more a measure of memory than
malingering in individuals with lower IQs.

In addition to being correlated with several other neuropsychological measures,
FIT scores also significantly differed for competent and incompetent defendants. Given
that this analysis only involved defendants who were deemed by the defendant to be
not malingering, it probably does not indicate malingering as much as it indicates
cognitive impairment. Furthermore, most psychiatric disorders can be associated with
memory deficits because it is a higher order skill that is dependent on attention. Thus, it
is not surprising that competent defendants scored better on the FIT than incompetent
defendants given they had higher IQ and verbal memory functioning.

Prediction of Competency using Sociodemographic Variables

Although Nicholson and Kugler (1991) found that older defendants were more
likely to be found incompetent than younger defendants, other studies have established
that age is not significantly related to competency to stand trial (Hart & Hare, 1992;
Ustad et al., 1996). Consistent with the results of Hart & Hare (1992) and Ustad et al.
(1996), socio-demographic variables, such as age and race did not differ between
competent and incompetent defendants in this study. Furthermore, competent
defendants did not have significantly more education than incompetent defendants.

With respect to gender and ethnicity, previous studies have found that women
and ethnic minorities were more likely to be found incompetent (Nicholson & Kugler,
However, there were no significant patterns of relationships in the current study with respect to competency and either gender or race. Although, there was not a statistically significant difference, it should be noted that there were a higher percentage of Hispanic Americans and a lower percentage of Caucasian Americans in the incompetent group.

Insight, Competency, and Cognition

Insight, or awareness of psychopathology, had previously been studied with respect to competency to stand trial. Neumann et al. (1996) found that patients who were classified as insightful were not any more likely to pass competency to stand trial evaluations than patients who were not insightful. This is consistent with the current study, which also failed to establish a significant relationship between a defendant’s competency and his/her level of insight as assessed with the Insight Scale.

Previous studies have also established a significant relationship between insight and cognitive abilities, such as social judgment and attention. With respect to social judgment, McEvoy et al. (1996) found that insight was related to performance on the Social Knowledge Questionnaire. This finding was not replicated in the current study. Insight was not significantly related to the Social Knowledge Questionnaire, nor to Comprehension from the WAIS-III. Insight was significantly related to Picture Arrangement, which is a nonverbal measure of social intelligence.

Social judgment has not been the only cognitive ability found to be related to insight. Walker and Rossiter (1989) reported that poor insight was associated with impaired attention. This finding was not replicated in the current study. Insight was not
significantly correlated with performance on any attention measures including the Asarnow task, Trails A, or the CPT-IP.

The Relationship between Drugs, Alcohol, and Cognitive Functioning

It has been previously established in the literature that a history of alcohol and drug use is common in the incarcerated population. As indicated by Table 7, the current sample of defendants also reported a substantial drug and alcohol history. In addition, the pattern established by Rochford et al. (1977) that suggests it is a subset of alcoholics who abuse marijuana and a subset of marijuana smokers who abuse illicit drugs (e.g., cocaine) was also established in the current sample. This is evident in the number of defendants that admitted to the use and abuse of different substances. For example, 92% of the sample admitted to using alcohol, 75% admitted to using marijuana, and 47% admitted to using cocaine. When abuse was established through the defendants’ self-report estimates of the quantity consumed, 60% reported abusing alcohol, 57% reported marijuana abuse, and 26% abused cocaine. Although it is possible that the percentage of defendants abusing alcohol is similar to the percentage of those abusing marijuana, it may also be that alcoholics underestimate their abuse of alcohol. Given that it is a legal substance, defendants may tend to rationalize their use of alcohol as opposed to admit to abuse. In summary, as alcoholics tend to deny chronic alcohol use, their self-report of past use may not be accurate. It may be that drug abusers are more willing to admit to abuse either for sympathy, to explain past or present charges, or to establish his/her reputation as an experienced drug-user.

The tendency of alcoholics to under-report alcohol consumption may explain the lack of significant findings regarding cognitive functioning and alcohol abuse. In the
current study, defendants with a history of alcohol abuse did not differ from defendants without a history of alcohol abuse on tests of intelligence or memory. This is not consistent with Parsons (1998) who established that alcoholics had mild to moderate deficits in intellectual functioning. Furthermore, it is not consistent with the finding of Evert and Oscar-Berman (1995) who demonstrated that alcoholics had impaired memory, specifically with respect to learning, storing, retrieving, and using information. Carlin and Trupin (1977) found that marijuana smokers did significantly worse than control subjects on part B of the Trail Making Test. Although this study attempted to replicate the findings of Carlin and Trupin, results did not reveal a significant difference between marijuana users and non-marijuana users on part B of the Trail Making Test. With respect to attention, results of the current study found that marijuana users had significantly less hits on the four shape trial of the CPT-IP. This finding suggests that marijuana users have worse nonverbal sustained attention than individuals who do not use marijuana. This is consistent with the findings of Heishman et al. (1990) who found that marijuana users had difficulty with concentration. Block et al. (1992) found marijuana use to be associated with disruptions in paired associate learning. However, in the current study, marijuana users did not differ from non-users on Verbal Paired Associates.

As a result of the diversity of substances abused by most drug users, especially in an incarcerated population, study investigations of groups of drug users are confounded. In an attempt to avoid this confound, the current study, like other studies, tried to consider “polysubstance” abusers. However, exploratory analysis with this
group did not add to the findings previously established by analyses with groups of drug users in this study.

Limitations of the Study

Approximately half of the defendants indicated (either verbally or with behaviors) that they could not see very clearly. Given that the North Texas State Hospital is a maximum-security facility, the defendants were not allowed to have either glass or metal. For most defendants, this meant that the rules of the institution forbade them from wearing their corrective eyewear. This could have adversely affected their performance on many neuropsychological measures. Attempts were made by the examiner to assess each defendant’s vision and obtain corrective eyewear of some sort when it seemed appropriate. Regardless, this method was crude and vision still could have had an adverse affect on defendant’s performance on some neuropsychological tests. Perhaps, visual difficulties adversely affected performance on visual tests such as Picture Arrangement, the Trail Making Test, or Visual Reproduction. This could account for the difference in findings between the current study and the study by Nestor et al. (1999).

Another limitation of the current study may be the lack of a “control group.” All of the participants in this study had been remanded to the North Texas State Hospital for competency restoration. Hence, in considering the entire spectrum of competency related abilities, this sample falls on the lower end of the range. This may have limited the ability of predictive statistics to reach significance, given that there were not any participants that had not had their competency questioned by the legal system.
Finally, the vast majority of participants in the current study were taking prescription medications. However, medication effects were not considered. As medication is the primary method of restoring competency, and hence an important factor with this population, failure to investigate the relationship between medication, competency, and cognition is limitation of the current study.

Future Research

Although several studies have addressed the relationship between global intelligence and competency to stand trial (Nestor et al., 1999; Nicholson & Johnson, 1991; Nicholson et al., 1988; Poythress et al., 1998; Steadman et al., 1982), few studies have investigated the relationship between competency to stand trial and specific cognitive abilities. Additionally, studies have found conflicting findings. More research is needed to verify the relationship between specific cognitive impairment and incompetency to stand trial.

With more research, the predictive power of specific cognitive domains with regards to competency to stand trial could be established. Furthermore, the cognitive abilities that underlie the different prongs of the Dusky standard could be more clearly established. At this time, there is limited amount of research regarding this issue. That is, very few studies have been published on how cognition relates to Factual Understanding, Rational Understanding, and the Ability to Consult with Counsel. It is reasonable to assume that a defendant with strong Factual Understanding would possess cognitive strengths that are also related to his/her ability to consult with counsel. After all, if a defendant truly understands the legal procedures, than he/she
would be inclined to work with his/her attorney given the defense attorney’s obligation to serve his/her client. However, this has not been formally investigated.

There are several potential benefits of further investigation in the area of competency to stand trial and cognitive functioning. Primarily, it would increase our understanding of defendants who struggle to participate in legal proceedings. Furthermore, it would better our understanding of the legal standard for competency to stand trial and facilitate the operational definition of the standard. Finally, probably the largest benefit of clarifying this relationship is that a better understanding of the specific cognitive abilities related to competency, would allow us to establish more efficient and effective competency restoration programs.
APPENDIX A

DEMOGRAPHICS AND HISTORY SCREEN
Age: __________

Ethnic Background: _____________________________________________

What Grade did you reach in school? ________________________________

Age at First Crime: _____________________________________________

Neurologic History:

Have you ever had or suffered from any of the following?

Head Injury  Y   N   Seizures  Y   N   Encephalitis  Y   N

(0) no history of head injury

(1) reported history of concussion symptoms such as dizziness, confusion, numbness, or nausea due to a head injury subsequent to a fall, sports-related injury, motor vehicle accident, or assault

(2) reported history of two or more incidents resulting in concussion symptoms

(3) history of head injury incident with questionable loss of consciousness such as the report of a memory loss for the event but the lack of hospitalization or treatment for altered consciousness

(4) history of definite loss of consciousness due to head injury as confirmed by participant or noted hospital treatment which confirmed loss of consciousness

(5) history of two or more head injuries with loss of consciousness

Any other neurological disorders: __________ __________

Have you ever been diagnosed with a major psychiatric or psychological disorder?  Y   N

Any current medications?  ________________________________

Are you currently suffering from any medical problems or disabilities?  Y   N

Do you suffer from any vision or hearing problems?  Y   N
APPENDIX B

SUBSTANCE USE HISTORY SCREEN
Are you a smoker?  

Have you ever used any of the following drugs?  

If yes, how old were you when you started using?  

How often were you using it, when at its worse?  

How much of the substance did you consume?  

Were you still using the substance when you were incarcerated?  

<table>
<thead>
<tr>
<th>Drug</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Methamphetamines (stimulants, speed)?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Barbiturates (sedatives, Seconal)</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Cocaine (crack)</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Marijuana</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Heroin</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Opiates (Demoral, Morphine, Methadone)</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Psychedelics (LSD, Mescaline, PCP)</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Solvents (Glue, Toulene, Turpentine, Paints)</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
APPENDIX C

SELECTED ITEMS FROM

THE INSIGHT SCALE
1. Some of my symptoms are made by my mind
2. I am mentally well.
3. I do not need medication
4. My stay in the hospital is necessary
5. The doctor is right in prescribing medication for me.
6. I do not need to be seen by a doctor or psychiatrists.
7. If someone said I have nervous or mental illness then they would be right.
8. None of the unusual things I experience are due to an illness

Note. The patient rates each item as: (a) agree, (b) disagree, or (c) unsure.
REFERENCES


Wildman, R., Batchelor E., Thompson, L., Nelson, F., Moore J., Patterson, M., & DeLaosa, M. (1980). *The Georgia Court Competency Test: An attempt to develop a rapid, quantitative measure for fitness for trial*. Unpublished manuscript, Forensic Services Division, Central State Hospital, Milledgeville, GA.
