USE OF THE MMPI-A TO DIFFERENTIATE EMOTIONALLY DISABLED FROM NON-DISABLED INDIVIDUALS AND THOSE CONSIDERED TO BE SOCIALLY MALADJUSTED

By

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ABSTRACT

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Use of the MMPI-A to Differentiate Emotionally Disabled from Non-disabled Individuals and Those Considered to be Socially Maladjusted
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Currently, there is no psychometric tool used to identify potential pathology in adolescents prior to its emergence. Ideally, a tool would be developed with the capabilities to identify which children are "at risk" or are pre-disposed to deviant or pathological behavior in order to implement early intervention strategies prior to its emergence. One potential tool in early identification of psychopathic behavior is the Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A). The purpose of this study was to determine the predictive utility of the MMPI-A in identifying emotional disability in adolescents. The study examined the MMPI-A's ability to differentiate between three levels of educational placement, general education,

emotionally disturbed students in a public education setting, and residentially placed students.

Based on the analysis of the data collected, the MMPI-A is able to correctly identify and discriminate between groups. These results are based on a sample size consisting of forty-six students of varying ethnic and geographical backgrounds as well as varying age and grade levels. A Discriminant Function Stepwise Analysis (ANOVA) was completed and the results indicate that the Psychopathic Deviate Scale and the Schizophrenia Scale are the significant scales in recognizing adolescent placement in relation to educational setting. Furthermore, ANOVA results indicate that the True Response Inconsistency Scale and the Alcohol Drug Problem Proneness Scale are responsible for significant between group variance. Overall, the results illustrate that the MMPI-A has the capability to predict educational placement.

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Chapter One

Introduction

The Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A) is a standardized personality inventory, which is most often used in clinical, residential, and institutional settings to assess personality maladjustment in adolescents. More recently, it is being used in public schools as part of the assessment process for placing students in special education classes based on emotional disability. Emotionally disabled students seem to share particular traits, which are often found in delinquent adolescents that are residentially placed and institutionalized. Currently, very little research exists regarding MMPI-A results of "normal" adolescents and emotionally disabled adolescents still enrolled in public educational settings.

Based on Public Law 94-142, all children, ages 3-21 have the right to a free and appropriate public education (Individuals with Disabilities Education Act, 1997). Education may be provided in the form of public schooling, private schooling, or home schooling. Compulsory attendance provides educational systems the opportunity to come into contact with youth before they become juvenile delinquents. This is an opportunity for those with behavioral difficulties to be identified at the initial onset of their problematic behaviors.

Ideally, if potential delinquents could be identified early, intervention could in-turn be applied early and possibly re-direct the path of budding adult criminals. The desire to identify delinquents early has been long-standing. In a 1951 article published in *The American Journal of Psychiatry*, Drs. Hathaway and Monachesi expressed their observation that "there is [was] a great need for increased knowledge of the earlier

symptoms of criminal and other maladjusted behavior…[early] therapeutic work with children will decrease the likelihood of their later delinquency or mental illness" (Hathaway, 1951, p. 469). Unfortunately, Hathaway and Monachesi experienced the same frustration, which still exists today, there is not a way to predict and treat deviant behavior until it occurs. Currently, there is no psychometric tool used in identifying potential pathology in children prior to its emergence.

In analyzing predictors of delinquency in youth, common characteristics have been identified. These characteristics are broken down into two categories, education and family. Adolescents with low IQ's, learning disabilities, academic skill deficits, and poor educational achievement have higher rates of delinquency. Family factors influencing delinquency include lack of parental supervision, parental rejection, and poor disciplinary practices (Bryant, 1995).

To be diagnosed as emotionally disturbed in a school setting, a person's condition must adversely affect educational performance. Educationally, criteria for emotional disability are similar to the characteristics describing delinquent youth. Some of these criteria include an inability to build or maintain positive interpersonal relationships, inappropriate types of behaviors or feelings under normal circumstances, and depression or pervasive unhappiness (Individuals with Disabilities Education Act, 1997). The behavior of emotionally disabled students is often comparable to that of delinquent or socially maladjusted adolescents. The primary difference between the two groups is that emotional disability is a recognized disorder whereas social maladjustment is not. This difference is based on the belief that the behavior exhibited by emotionally disabled students is involuntary and they "experience internalized distress about their behavior"

(Clarizio, 1992; Kelly, cited in Costenbader & Buntaine, 1999, p. 3). On the other hand, socially maladjusted children are considered to be "…psychologically normal individuals who consciously and intentionally choose to break societal rules" (Slenkovitch, cited in Costenbader & Buntaine, 1999, p. 3).

The Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A) is considered a valid and reliable instrument in identifying personality maladjustment in adolescents. The MMPI-A identifies eight areas which, when adolescents receive high scores, serve as an indicator that particular personality characteristics are present. Some of the personality characteristics identified by the MMPI-A are similar to the criteria for emotional disability and adolescent delinquency. The eight areas identified in the MMPI-A include "general maladjustment, immaturity, disinhibition/excitatory, social discomfort, health concerns, naivete, familial alienation, and psychoticism" (Maruish, 1999, p. 357). These eight areas are identified through a series of scales including "13 standard scales, 4 validity scales, 15 content scales, 6 supplementary scales, 28 Harris-Lingoes scales, and 3 S*i* scales" (Archer, 1997, p. 51).

The literature shows that MMPI-A scores can measure pre-existing psychopathology (Maruish, 1999). Research also shows that the behaviors manifested by psychopathology are also used as criteria for placement of disturbed adolescents in school settings. Therefore, the research hypothesis for this study is that the MMPI-A scores will be a strong predictor of school placement level for disturbed adolescents.

Currently, the MMPI-A is a frequently used tool in residential and correctional settings; it is not as common in public schools (Maruish, 1999). If the MMPI-A were regularly used as an evaluation instrument in schools it might also provide insight into the

severity of disturbance a student possesses. If potential for psychopathic or delinquent behavior can be identified early, preventative measures could perhaps be implemented.

Statement of the Problem and Research Questions

The purpose of this study is to determine the predictive utility of the MMPI-A in identifying emotional disability in adolescents. This study will examine the MMPI-A's ability to differentiate emotionally disabled individuals from non-disabled individuals and those considered to be socially maladjusted. Based on the preceding discussion, the following research questions have been proposed:

R1. Does the MMPI-A differentiate between adolescents categorized as emotionally disabled, those considered socially maladjusted (residentially placed only), and non-disabled individuals?

R2. Does the MMPI-A differentiate educational placement (ranging from regular classroom to residentially placed) of individuals accurately?

This study will test the following null hypothesis: there will be no statistically significant difference between adolescent scores on the MMPI-A for various categories of adolescent placement related to severity of emotional disturbance.

Rationale and Significance of the Study

It is the belief of this researcher that as severity of educational and behavioral placement increases for emotionally disabled students so will their scores on particular scales of the MMPI-A. Placement levels range from the "normal" general education placement to receiving special education services due to emotional disabilities and progressing to residential treatment centers due to outwardly manifested behavior as a result of emotional disability.

It is further the belief of this researcher that as the severity of educational placement of an adolescent increases, the more elevated their scores will be on the Standard Scales of Defensiveness, Psychopathic Deviate, and Hypomania. In addition, higher scores on the Content Scales of Adolescent-Anger, Adolescent-Cynicism, Adolescent-Conduct Problems, Adolescent-Family Problems, and Adolescent-School Problems, will also increase as level of placement increases.

If higher scores in these particular areas can be identified early in a student's educational career, early intervention strategies may also be implemented prior to drastic negative acting-out behaviors. If students in general education populations or in special education populations score higher than the norm on these scales and subscales, preventive programs should be initiated. Early identification and intervention is the key in working with troubled and disturbed youth. However, identification and assessment of the neediest youth is typically reactive rather than proactive. Upon analyzing the results of this study, if it is found that the MMPI-A has the potential to differentiate between emotionally disabled and non-disabled individuals, as well as those considered to be socially maladjusted, it may be considered a valid tool in the assessment process of emotionally disabled adolescents. The use of the MMPI-A may lead to earlier identification and therefore earlier intervention for emotionally disabled and socially maladjusted students in the public education setting. If early intervention strategies prove to be successful, the path of possible juvenile delinquents may be re-directed.

In work by Hathaway and Monachesi in 1963 using the original MMPI they discovered that the majority of adolescents who scored high on Scale 4 (Psychopathic Deviate Scale) in the 9th grade had differing MMPI scores when given the assessment in

the 12th grade. They interpreted this to indicate that "adolescents are flexible and may be helped…it is encouraging to find that so many of them do change" (Williams et al, 1992, p. 9).

Definition of Terms

To assist in clarity and understanding of the research, the following terms are defined.

Emotional Disability: For the purpose of this study the Individuals with Disabilities Education Act's definition will be used. A student may be classified as emotionally disabled if they exhibits one or more of the following characteristics or are diagnosed as Schizophrenic. 1. An inability to learn which cannot be explained by intellectual, sensory, or other health factors; 2. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers; 3. Inappropriate types of behavior or feelings under normal circumstances; 4. A general pervasive mood of unhappiness or depression; 5. A tendency to develop physical symptoms or fears associated with personal or school problems. In addition, the characteristics must, "exist over a long period of time, to a marked degree, and must adversely affect educational performance" (Bower, 1982, p. 55; IDEA, 1997)

Personality Inventory: "Personality inventories, also called objective tests, are standardized and can be administered to a number of people at the same time. Scores are obtained by comparison with norms for each category on the test. A personality inventory may measure one factor, such as anxiety level, or it may measure a number of different personality traits at the same time…Scoring [may be] geared toward personality attributes rather than clinical disorders" (Gale Encyclopedia of Psychology, 2001, p. 1).

Social Maladjustment: Socially maladjusted children are considered to be "…psychologically normal individuals who consciously and intentionally choose to break societal rules. These children are believed to engage in deliberate acts of self-interest to gain attention or to intimidate others, while experiencing no distress or self-devaluation about their own behavior" (Slenkovitch, cited in Costenbader & Buntaine, 1999, p. 3).

*Juvenile Delinquency: "*A violation of the laws of the United States…committed by a juvenile which would have been a crime if committed by an adult; or noncriminal acts committed by a juvenile for which supervision or treatment [is required] by juvenile authorities of the United States…delinquency is a legal term meaning that the person got caught and [was] prosecuted by the courts…as many to 75-80% of adolescents are thought to engage in activities for which they could have been prosecuted if caught" (Lectric Law Library's Lexicon-Dictionary, 2002, p. 2).

Chapter Two

Review of the Literature

Introduction

When examining the connection that exists between the MMPI-A, emotional disability and psychopathology, it is essential to examine the relationship as four separate components. These components include: understanding what emotional disability is and how it is assessed in public school settings; the development of the MMPI-A and how the MMPI-A is used in the assessment of emotional disturbance; how the MMPI-A is used in the assessment of psychopathology; and the relationship that exists between emotional disability and psychopathology. These four categories provide an adequate foundation for the study and understanding of the potential use of the MMPI-A in dealing with emotionally disabled adolescents in a school setting prior to the emergence of psychopathic behavior.

Emotional Disability

Many labels exist to describe emotional disability. Often times the term that is familiar is dependent on the state you live in. Emotional disability may also be referred to as emotionally disturbed, seriously emotionally disturbed, socially and emotionally disturbed, emotionally handicapped, or behavior disordered. For the purpose of this research, the term emotional disability (ED) as it is defined in the Individuals with Disabilities Education Act (IDEA, 1997) will consistently be used throughout this paper. IDEA is the reauthorization of the 1975 Education for All Handicapped Children Act (PL 94-142) which governs special education in the United States. The Individuals with Disabilities Education Act "established the right of all students with disabilities to a free, appropriate public education and describes the educational disabilities for which special

education programming should be provided. Funding from federal sources is made available for children who qualify for services" (Costenbader & Buntaine, 1999, p. 2-3). The legal definition of "emotional disturbance" proposed by the Federal Government under IDEA is a modification of Bowers 1957 definition (Bower, 1982).

Emotional Disability is defined as:

> (i) …A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance: (a) an inability to learn which cannot be explained by intellectual, sensory, or other health factors; (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (c) inappropriate types of behavior or feelings under normal circumstances; (d) a general pervasive mood of unhappiness or depression; or (e) a tendency to develop physical symptoms or fears associated with personal or school problems. (ii) The term includes children who are Schizophrenic. The term does not include children who are socially maladjusted, unless it is determined that they have an emotional disturbance (Bower, 1982, p. 55; IDEA, 1997; Kidder-Ashley, Deni, Azar, & Anderton, 2000).

To be considered emotionally disabled under IDEA a student must exhibit one or more of the five characteristics (a) through (e) or the student must be diagnosed as schizophrenic. Furthermore, the condition(s) must, exist "…over a long period of time, to a marked degree, and must adversely affect educational performance" (Kidder-Ashley et al., 2000, p. 559). The current IDEA classification specifically excludes social

maladjustment by itself as an emotional disability criterion. This exclusion has generated considerable controversy regarding special education eligibility.

The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (American Psychiatric Association, 1994) definition of emotional disability differs from IDEA. The DSM IV diagnosis includes externalizing or disruptive behaviors, such as oppositional defiant disorder (ODD), conduct disorder (CD), and attention deficit hyperactivity disorder (ADHD). The inclusion of these disorders within state definitions under emotional disability varies significantly. According to Frye (1998), statistical information from the United States Department of Education indicates that the prevalence of emotional disability is significantly under-diagnosed in public schools. This under-diagnosis may possibly be attributed to the narrow definition of emotional disability under IDEA. Because the research for this study is academically relevant, the definition of emotional disability will follow the definition stated under IDEA. Almost all human conditions exist to some degree and as a result are interpreted based on different standards, such as those set by the community, legal system, and scientific measures. The variances in interpretation in relation to the MMPI-A is significant for students and their families as well as school systems because of how the results of inventories, such as the MMPI-A, and other evaluation tools might be used in determining whether or not a student may receive services (Bower, 1982).

Exclusionary Clause

Funding to public education institutions to accommodate students with behavioral disorders is limited to those students who have been diagnosed as emotionally disabled. Funding is not available to provide services to students who have been recognized as

socially maladjusted. The supporting argument to this "exclusion" is that emotional disability is a disorder whereas social maladjustment is not. This clause is labeled the "exclusionary clause" because it does not recognize socially maladjusted individuals as having an emotional or mental disability. It is believed that the behavior exhibited by emotionally disabled students is involuntary and they "experience internalized distress about their behavior" (Kelly, cited in Costenbader & Buntaine, 1999, p. 3). Conversely, socially maladjusted children are considered to be "…psychologically normal individuals who consciously and intentionally choose to break societal rules. These children are believed to engage in deliberate acts of self-interest to gain attention or to intimidate others, while experiencing no distress or self-devaluation about their own behavior" (Slenkovitch, cited in Costenbader & Buntaine, 1999, p. 3) There is opposition to the exclusionary clause and the lack of services for socially maladjusted individuals in public education. The federal definition of the social maladjustment exclusionary clause has been criticized for its vague language and unclear definition. Social maladjustment is not defined in IDEA or in any other statute. The term social maladjustment is often used inappropriately and interchangeably with behavior disorder, conduct disorder, delinquency, and antisocial behavior. One of the defining characteristics of emotional disability is "an inability to build and maintain satisfactory interpersonal relationships" (Costenbader & Butaine, 1999, p. 4). This statement can almost be used as the definition of social maladjustment. In reality, social maladjustment is in a sense included while simultaneously being excluded from the definition of emotional disability (Costenbader & Butaine, 1999).

Social maladjustment may be excluded primarily for three reasons. The first reason is funding. If social maladjustment were classified as an emotional disability there would be an additional (enormous) population to serve. To prevent the cost of providing services for these students they are simply not identified as being emotionally disabled. Another possible reason for not serving these students is their behavior typically makes them extremely unpleasant to be around. In general, these socially maladjusted students are individuals whom most would like to punish rather than accommodate. Finally, these students may not be identified as emotionally disabled for discipline reasons. Students with disabilities may not be "suspended or expelled unilaterally from school for periods exceeding 10 day for actions related to their disabilities" (Costenbader & Butaine, 1999, p. 4). For students who have not been identified as emotionally disabled, suspension and expulsion are feasible disciplinary actions. Schools may not be excited to lose this disciplinary option. Whereas, with disabled students the school holds the burden of proving that a student's behavior is not related to their disability (Costenbader & Butaine, 1999).

Assessment for Emotional Disability in Public Schools

Traditionally, assessment within a school setting was limited to measurements of cognitive abilities and academic success. School assessment has evolved to also include evaluation of behavioral adjustment, as well as personality. Public educational institutions are increasingly being mandated to provide more extensive and comprehensive services to students in regard to learning and mental health issues (House, 1999). According to IDEA students must be educated in the least restrictive environment. This means that children with disabilities must be educated alongside their

non-disabled peers as much as possible. Removing those students from the classroom or public education setting is only allowed when the intensity or severity of their disability requires that services be provided in an alternative setting. Under IDEA a full-continuum of services must be provided to meet the needs of students with disabilities (Hasazi, Hohnston, Liggett, & Schattman, cited by Coutinho and Oswald, 1996). As a result of this legislation, the role of the school psychologist has expanded, as they are being asked to perform duties which in the past have been left up to mental health professionals (House, 1999).

When attempting to identify and place students with emotional disabilities it is important to take a comprehensive assessment approach. Assessment should include a structured interview, behavioral observations, academic measures, and a diagnostic measure of personality, such as the MMPI-A (Frye, 1998).

To begin the assessment process, interviews should be conducted with the child in question, teachers, and parents or guardians of the child. Secondly, it is also important to conduct behavioral observations. These observations should occur in multiple settings under varying conditions. Environmental variables are extremely influential to children and adolescents. Their behavior is often "situationally specific." This is why it is essential to observe students in more than one setting (House, 1999). If a particular behavior is only manifested in a school setting, it is necessary to first evaluate possible environmental factors rather than attempting to diagnose or label a student. Thirdly, a student's academic standing should be evaluated. Their progress, or lack of, may be evaluated by analyzing student subject grades, standardized tests, or direct observation of classroom performance. Lastly, diagnostic measures should always be used in

combination with other forms of assessment. The tool in question in this study is the MMPI-A. It is imperative that all assessments are multi-faceted. A label or placement should never be determined by one method of assessment.

MMPI

The MMPI (originally titled the "Medical and Psychiatric Inventory") was developed in 1937 by S. R. Hathaway and J.C McKinley, with the final version published in 1943. At the time Hathaway and McKinley began working on the MMPI, personality inventories were viewed as worthless and were rarely used. Therefore, Hathaway and McKinley had a dual purpose in developing the MMPI. First they were attempting to develop an "efficient and effective" instrument to aid in the identification of patients who where psychoneurotic in nature. They also believed that an efficient instrument would assist researchers in the evaluation and efficacy of treatment intervention (Archer, 1997).

Hathaway and McKinley believed that the "best way to learn what was troubling an individual was to ask him or her" (Butcher & William, 2000, p. 2). As a result of this thinking, Hathaway and McKinley developed a tool of self-referenced statements to which the subject could either agree (true) or disagree (false). They took a self-administered approach that could be completed by individuals with a basic reading level (6^{th} grade) in a relatively short amount of time (usually an hour and a half) (Butcher & Williams, 2000).

The development of the MMPI was a complex and extensive undertaking. Initially, 1,000 self-referenced statements in 25 content categories were developed, from which scales might be constructed. The statements fit into one of the following twenty-five categories:

1. General Health, 2. General Neurologic, 3. Cranial Nerves, 4. Mobility and Coordination, 5. Sensibility, 6. Vasomotor, Trophic, Speech, Secretory, 7. Cardiorespiratory, 8. Gastrointestinal, 9. Genitourinary, 10. Habits, 11. Family and Marital, 12. Occupational, 13. Educational, 14. Sexual Attitudes, 15. Religious Attitudes, 16. Political Attitudes – Law and Order, 17. Social Attitudes, 18. Affect-Depressive, 19. Affect-Manic, 20. Obsessive, Compulsive, 21. Delusions, Hallucinations, Illusions, Ideas of Reference, 22. Phobias, 23. Sadistic, Masochistic, 24. Morale, 25. items to indicate whether the individual is trying to place himself in an improbably acceptable or unacceptable light (Archer, 1992, p. 30).

The self-referenced statements were taken from other inventories of the time, psychiatric textbooks, and experienced test developers. Of the 1,000 original statements many were eliminated because they either duplicated one another or were later determined to be insignificant. As a result of this elimination process, the pool of statements was narrowed down to 504 to be used in the development of the MMPI (Archer, 1992).

Once the self-referenced statements were established, a criterion keying method was used to create the MMPI scales. The criterion approach is characterized by presenting items to two or more groups of subjects. One of the groups the items are given to is labeled as the criterion group and the other group is the comparison group. The criterion group manifests the characteristics or diagnosis the test is meant to measure. The comparison group has not been identified as manifesting the characteristics that are being studied. The answers given by the comparison group and the criterion group are

compared, "items are then selected for inventory membership that empirically demonstrate significant differences in response frequency" (Archer, 1997a, p. 29).

Once the scales were developed, they were generally named after the criterion group. For example, if the criterion group were depressed, those subjects were used to create the Depression Scale (Hathaway & McKinley, cited in Archer, 1992).

The criterion groups in the original MMPI consisted of psychiatric patients receiving treatment for specific disorders. The comparison groups were comprised of three types of individuals. The first group consisted of 724 individuals who were visiting friends or relatives at the University of Minnesota Hospital. The second group consisted of 265 high school graduates who were attending the University of Minnesota Testing Bureau for college counseling and guidance, and the third group consisted of 265 individuals who were contacted through the local Works Progress Administration (WPA), a federally funded employment project (Dahlstrom & Welsh, cited in Archer, 1992). The participants from the WPA were white-collar workers and were used with the purpose of adding an urban background and socioeconomic diversity (Archer, 1992).

All of the subjects who participated were over the age of 16. Overall, the age, gender, and marital status of the University of Minnesota group was comparable to the 1930 United States Census findings (McKinley & Hathaway, cited in Archer, 1992).

Upon publication, the MMPI quickly became "…the most widely used personality instrument in psychological assessment" (Butcher & Williams, 2000, p. 11). However, it was not without faults and criticisms. As use of the MMPI increased, the application of the instrument expanded beyond its original purpose. This was especially true in its use with adolescents. The instrument was not designed to be used with

adolescents, however, it was a common instrument with this population for lack of a better tool. As a result of the MMPI's extensive use and misuse, criticisms arose regarding its accuracy and reliability. In 1982 work began on the MMPI-2, a revision of the original MMPI. The need to revise the MMPI grew out of the belief that items in the inventory were out of date. It was also believed that the normative sample used was appropriate for white, rural subjects from Minnesota but was inappropriate for the diverse populations it was being used with throughout the United States. During the revision process of the MMPI, it was decided to keep the Validity and Clinical Scales intact to preserve the half-century of data that had been accumulated on these scales. In addition to the original scales, new scales were added to address problems that were not addressed in the original MMPI. Although the original scales were kept relatively intact, items in those scales were revised and modernized to be more closely aligned to "…contemporary clinical problems and applications" (Butcher & Williams, 2000, p. 5). The normative sample for the MMPI-2 consisted of 2,600 subjects from seven regions of the United States. Normative subjects were randomly solicited, but the sample was demographically balanced. Research conducted on the MMPI-2 after its publication in 1989 found the revised version to have "…strong internal psychometric properties along with external validity" (Butcher & William, 2000, p. 8).

Once the MMPI-2 was published, the University of Minnesota Press developed a committee consisting of James N. Butcher, Auke Tellegen, Beverly Kaemmer, and Robert P. Archer, to determine if an adolescent version of the MMPI should be created. This committee was responsible for the decision to create an adolescent version as well as

providing recommendations "…concerning normative criteria, item and scale selection, and profile construction…" (Archer, 1999, p. 342).

MMPI-A

Although the original MMPI was designed as a tool to be used by those 16 years of age and older, it has always been used with adolescents. The first recorded use of the instrument with those under the age of 16 occurred in 1941, (two years prior to the formal publication of the tool in 1943) administered by Dora Capwell. Capwell's work indicated that the MMPI had the potential to discriminate between delinquent and nondelinquent girls (Archer, 1999). Although the MMPI was specifically designed to be used with adults, prior to the development of the adolescent version in 1992, it had become the sixth most frequently used instrument in the assessment of adolescents and the most frequently used tool in personality evaluations of adolescents (Archer et al., 1991).

The need for an adolescent version was based on criticisms of applying the MMPI to adolescents. Those criticisms included the following: length and administration time of the test (Archer et al., 1991); outdated norms (adolescent norms were based on data collected on white adolescents between the late 1940's to the mid 1960's); use of outdated terminology; inappropriate items for adolescents, the need for new scales relevant to adolescent needs and concerns (Archer, 1999); the determination that scores indicated that teens were too pathological based on adult norms, and the fact that adolescent results were difficult to interpret, as well as providing low reliability and validity (Archer et al., 1991). The MMPI's completed by adolescents were frequently scored and interpreted using identical procedures used with adults. Rarely were adolescent developmental stages taken into consideration in relation to their MMPI

results, which could cause invalid interpretations (Archer, 1987). For example, by the nature of their age, increased scores on scales relating to social discomfort, family problems, and immaturity are expected. However the original MMPI did not account for these developmental differences.

Work on the adolescent version of the MMPI-A began with the formation of the MMPI Adolescent Project Committee in 1989. The committee developed an experimental test booklet for adolescents, named the MMPI Form TX. The finalized version of the MMPI-A was published in 1992 (Archer, 1999).

The new normative sample for the MMPI-A is diverse and with only a few exceptions is accepted as a representative sample of the United States adolescent population. The sample consisted of 815 girls and 805 boys (Archer, 1997b), collected in eight states from the student roster of junior and senior high schools in selected areas (Archer, 1999). The majority of the subjects were paid for their participation and the inventories were administered in a school setting. Participants who did not complete the MMPI-A or left more than 35 questions blank were eliminated from the sample and were not factored into the study at all. All subjects were between the ages of 14 and 18, with the mean age of males at 15.5 and the mean age of females at 15.6. The subjects represented an ethnically diverse population, approximately 76% were White, 12% were Black, and 12% were a combined Hispanic and Native American sample. The normative sample had an overrepresentation of educated parents in comparison to the 1980 census (Archer, 1999).

The clinical sample of the MMPI-A consisted of 420 boys and 293 girls between the ages of 14 and 18. One weakness of the clinical sample is that all of the subjects were

from the Minneapolis, Minnesota area (Conoley & Impara, 1995). Participants in the clinical sample were recruited from a variety of treatment centers including "…inpatient alcohol and drug treatment units, inpatient mental health facilities, day-treatment program, and a special school program" (Butcher et al., 1992, p. 15). The ethnic diversity of the clinical sample varied somewhat from the normative sample. The percentage of Whites was similar in both samples, 75.2% for males and 76.8% for females. The percentage of Black participants was lower, 7.6% for males and 5.5% for females. The Native American population was increased in the clinical sample and matched the number of Black participants, 7.6% male and 5.5% females. The Hispanic representation in the clinical sample was less than 1%. The increase in the Native American representation and the decrease in the Black representation are attributed to the high Native American population in Minnesota, which is not representative of the rest of the United States. As opposed to the normative sample that had relatively stable home environments, students in the clinical sample tended to come from "…highly disruptive homes…" (Butcher et al. 1992, p. 16).

In addition to new normative and clinical samples on the MMPI-A the inventory itself was changed somewhat to accommodate an adolescent population. Items on the original MMPI or MMPI-2, which were considered inappropriate for an adolescent population, were either stated differently to apply to adolescents or eliminated completely. Seventy items were revised or modified, simplifying the wording of the question or changing the wording to make the question more relevant to an adolescent. For example, the item "I liked school" was changed to "I like school" (Archer, 1997b p. 96). In addition, items that are unique to adolescents were added to the MMPI-A. For

example, "Sometimes I use laxatives so I won't gain weight," "My parents do not really love me," and "I am often upset by things that happen in school" (Archer, 1997b, p. 96). The language used in the MMPI-A is considered to be appropriate for adolescents and the content of the items appropriately reflect adolescent personality and psychopathology (Conoley & Impara, 1995).

The adolescent version was also shortened from the adult version, making it a more practical instrument to use with adolescents (Conoley & Impara, 1995). The item pool was reduced from 556 items in the MMPI-2 to 478 items in the MMPI-A (Archer, 1997b). Looking into the future use and clinical utility of the MMPI-A, additional research on the instrument is essential. Although use of the adolescent version of the MMPI is widespread, the reputation concerning validity and reliability has yet to be determined and relies heavily on a limited amount of systematic and focused research devoted to this relatively new version. Additional research on the scales is essential in understanding and exploring the possible uses of this instrument (Archer, 1997b).

MMPI-A Scales

Like the MMPI-2 the MMPI-A has 38 scales divided into four sets: Validity Scales, Clinical (Basic) Scales, Content Scales, and Supplementary Scales. When possible, many of the scales on the MMPI-A were identical to the MMPI to ensure that past research on the MMPI would be relevant and remain valid. However, in order to sculpt the inventory towards adolescents, some changes and additions were necessary.

Validity Scales

There are six scales built into the MMPI-A that serve as validity indicators. These validity measures include: Cannot Say (? or Cs), Lie (L), F, F1, and F2

(Infrequency), K (Defensiveness), VRIN (Variable Response Inconsistency) and TRIN (True Response Inconsistency). The Cannot Say, Lie, Infrequency and Defensiveness Scales are reflective of the MMPI, whereas the Variable Response Inconsistency and the True Response Inconsistency Scales are unique to the MMPI-A, as are the Infrequency subscales (F1 and F2) (Butcher & Williams, 2000).

Cannot Say

Cannot Say (? or Cs) is not a scale but a tally of items either left unanswered or answered as both "true" and "false." Cannot Say items are not scored but they may skew the results of the MMPI-A. If 30 or more items are counted as Cannot Say throughout the test booklet the test should be considered invalid and other scales should not be interpreted. If the majority of the Cannot Say items occur after item 350 in the test booklet, all scales may be interpreted except VRIN, TRIN, and the Content and Supplementary scales. If possible, test administrators who notice ten or more Cannot Say items unanswered should return the test booklet to the subject and encourage them to complete the booklet or only answer questions once. Items may be omitted or answered twice for a variety of reasons. Some of the reasons may include depression, difficulty reading, a deliberate attempt to skew results or present one's self inaccurately, lack of interest, intentional oppositional behavior, and confusion (Butcher & Williams, 2000; Butcher et al., 1992).

Lie Scale

The Lie (L) Scale is composed of 14 items, one item less than on the MMPI. One item was deleted from the original inventory due to the question's developmental appropriateness. The L Scale is designed to recognize adolescents who are either

consciously or unconsciously attempting to present themselves positively. "The scored direction of all 'L' Scale items is false" (Butcher & Williams, 2000, p. 231). As a result, adolescents who tend to always answer "false" may have elevated scores and those who tend to always answer "true" will have unusually low scores. Skewed scores may also be a result of a very conservative and wholesome upbringing. It is possible to confirm or deny this based on a family and child interview. An elevated L score corresponds to a T-score of 65 or higher (Butcher & Williams, 2000; Butcher et al., 1992).

Infrequency Scale

Elevated F (Infrequency) scores are considered the opposite of L scores. Individuals with high F scores tend to be presenting themselves negatively or to be "faking bad" (Butcher, et al., 1992). Besides answering falsely, additional factors may account for elevated F scores, such as, the "presence of severe maladjustment, or a tendency to be overly candid, to respond carelessly or inconsistently, or to respond falsely by exaggerating symptoms" (Butcher, et al., 1992, p. 36). All of the F1 Scales occur within the first 350 questions, so F1 measures the acceptability of the response pattern for the basic MMPI-A Scales. In the remaining 150 items, the F2 questions evaluate the acceptability of the Content and Supplementary Scales.

Defensiveness Scale

The K (Defensiveness) Scale is used to evaluate the test taker's negative attitude towards taking the inventory. The adolescent K Scale is closely related to the adult version. The MMPI-A K Scale has the same number of items as the adult scale (30) and only two of those items were re-worded to fit an adolescent population. All but one of the items is scored in the False direction. Elevated K scores indicate defensiveness and

an attempt to under-report psychological symptomology. High K scores are linked to negative responses to treatment, due to a defensive attitude and lack of acknowledgement of a problem or need for help (Archer, 1997). An elevated K score should be interpreted cautiously, but an MMPI-A profile should not be considered invalid based exclusively on the K Scale. Utilizing the L, F, and K Scales, it is possible to determine if a subject is attempting to make themselves appear better than they really are or if they are exaggerating to make themselves appear worse than they really are. When adolescents are trying to make themselves appear good or conceal psychological problems, it can be expected that their L and K scores will be elevated and Scale F will have a "T-score" below 50 (this includes F1 and F2). The opposite occurs when an adolescent tries to exaggerate negative behaviors or psychological problems. When this happens, elevated F scores can be expected and L and K T-scores will be below 50 (Archer, 1997).

VRIN and TRIN Scales

The VRIN (Variable Response Inconsistency) and TRIN (True Response Inconsistency) Scales in the MMPI-A are modeled after the scales in the MMPI-2. The VRIN and TRIN are used to identify a "subjects tendency to respond to items in ways that are inconsistent or contradictory" (Butcher, et al., 1992, p. 41). VRIN and TRIN are made up of specifically selected pairs of items. The VRIN Scale is made up of 50 pairs of items that are either similar or opposite in content. Each time a VRIN pair is answered inconsistently, "one raw score point is added to the VRIN scale score" (Archer, 1997, p. 110). A high VRIN score should be used as a warning that a subject responded to questions indiscriminately or randomly. With extremely elevated VRIN scores, the inventory my be invalid due to the inability to interpret the results in an accurate manner

(Butcher et al., 1992). Like the VRIN Scale, the TRIN Scale is also used to evaluate consistent and truthful responding to items. The TRIN is made up of 24 item pairs that are opposite in content. Therefore, one question in a pair should be answered true and the other item in the pair should be answered false. The TRIN Scale measures inconsistency by adding a raw score point every time both items in a pair are answered true or subtracting one raw score point every time both items in a pair are answered false. An elevated TRIN score indicates that a subject answered true to questions regardless of content and a low TRIN score indicates an indiscriminate pattern of responding falsely to items. Either a high TRIN or a low TRIN may suggest the possibility of an invalid profile, but should be used in combination with the L, F, and, K Scales, rather than being used as a single indicator of an invalid profile (Butcher, et al., 1992; Butcher & Williams, 2000).

Clinical (Basic) Scales

The MMPI-A has ten Clinical Scales, also referred to as Basic Scales. The Clinical Scales are made up of Hypochondriasis (HS), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity-Femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), and Social Introversion (Si), Depression. Hysteria, Psychopathic Deviate, Paranoia, Schizophrenia, Hypomania, and Social Introversion have Harris-Lingoes Subscales. Subscales are used to supplement or support the actual scales and are typically only used when score reports are tallied by the computer. Hand scoring of subscales is not recommended due to the time involved in scoring (Butcher, et al., 1992).

Scale 1: Hypochondriasis

Scale 1, the Hs (Hypochondriasis) Scale has 32 items, one item less then the adult version. The Hs Scale is used to identify adolescents who have an unhealthy preoccupation with disease, illnesses, and body functions. Prior to interpreting Scale 1, legitimate physical disorders must be ruled out. In general, adolescents who are suffering from true physical ailments will only produce moderately elevated scores on the Hs Scale. Hypochondriac adolescents will exaggerate physical complaints, but are vague in regards to the actual problem. They may react to stress somatically, which may be manifested in the form of eating disorders. These adolescents are often identified as self-centered, critical, demanding, pessimistic, and cynical. Delinquent behaviors are not usually associated with this population (Archer, 1997; Butcher et al., 1992).

Scale 2: Depression

Scale 2, the D (Depression) Scale retained 57 of the original 60 items on the adult version. The most common symptom of depression is a dissatisfaction with one's life. This dissatisfaction is manifested via a lack of interest in general activities and daily functions, a lack of hope for the future, low morale, physical symptoms, and social withdrawal. Girls with an elevated Depression Scale commonly experience eating problems, low self-esteem and have few friends. Boys are characterized by perfectionism, clingyness, and withdrawal (Archer, 1997; Butcher et al., 1992).

Scale 3: Hysteria

The MMPI and the MMPI-A Hy (Hysteria) Scale is made up of 60 items. This scale identifies adolescents whose response to stress is hysterical. A hysterical reaction is characterized by an emotional or excitable state, which is often overwhelming and

unmanageable. A moderately elevated Hy Scale suggests superficial relationships, self-centeredness, social extroversion, and exhibitionistic behaviors. More significant elevations are regarded as a pathological condition of hysteria. (Merriam-Webster, 1994; Archer, 1997; Butcher et al., 1992).

Scale 4: Psychopathic Deviate

The adult version of the Pd (Psychopathic Deviate) Scale was made up of 50 items and was used to identify antisocial personality disorder as described in the DSM-III-R. The adolescent version of the Pd Scale is comprised of 49 items and covers a diverse range of content areas. Research on the Pd Scale has found that an elevated Pd Scale is correlated to more extreme levels of delinquent behavior. Adolescents with an elevated Pd Scale may be described as rebellious, hostile, aggressive, egocentric, unable to delay gratification, and uncooperative in psychotherapy (Archer, 1997; Butcher et al., 1992).

Scale 5: Masculinity-Femininity

The Mf (Masculinity-Femininity) Scale was reduced substantially in the development of the MMPI-A in comparison to the adult version. The number of items was reduced from 60 to 44. Forty-one of the items are geared for both males and females. Three of the items are keyed in opposite directions for males and females; these items contain overt sexual materials. Elevated Mf Scales on the MMPI-A are unusual but are an indicator of either masculine traits in females or more feminine traits in males. The Mf Scale is designed to measure gender role identification in boys and girls. The scale does not contain items related to sexual preference and should not be used to identify homosexuality. T scores are considered elevated for both girls and boys if they

are equal to or greater than sixty. Girls with elevated T scores tend to be aggressive, assertive, have behavioral problems, and have what are considered in the views of the test developers to have masculine interests in athletics and academic areas. Elevated T scores for boys typically indicate a high comfort level in the expression of feelings, decreased likelihood of behavior problems, passiveness, and the possibility of insecurity in sexual identity. T scores equal to or less than 40 are considered low and illustrate the epitome of stereotypical male and female gender roles within the appropriate gender (Archer, 1997; Butcher et al., 1992).

Scale 6: Paranoia

The Pa (Paranoia) Scale consists of 40 items on the adolescent and adult version, which are used to identify overt psychotic behaviors. Although this is what the scale was designed for, researchers believe that it is possible to produce an elevated Pa Scale without being psychotic. Likewise, suave paranoid patients (who are still connected with reality) may escape identification by not endorsing obvious items. Items on the Pa Scale reference rigidity, moral self-righteousness, suspiciousness, feelings of persecution, and cynicism. In general, even well adjusted adolescents score higher (than adults) on items which reflect the "belief that one is misunderstood and unjustly punished or blamed by others" (Archer, 1997, p. 185). Adolescents with elevated T scores on the Pa Scale (greater or equal to 70) generally have some of the following characteristics: resentment, hostility, delusions of grandeur or persecution, disturbances in reality testing, social withdrawal, and thought disorders (Archer, 1997; Butcher et al., 1992).

Scale 7: Psychasthenia

The Pt (Psychasthenia) Scale consists of 48 items used to identify what is commonly known as obsessive compulsive disorder. Behaviors and symptoms associated with obsessive compulsive disorder include obsessive thought patterns, compulsive behaviors, excessive doubts, high levels of anxiety and tension, perfectionism, apprehension, self-criticism, inferiority, and ambivalence in decision making. In cases where extreme elevations exist, symptoms are usually debilitating (Archer, 1997; Butcher et al., 1992).

Scale 8: Schizophrenia

The Sc (Schizophrenia) Scale consists of 77 items, one item less than the MMPI Sc Scale and is the largest scale in the MMPI-A. The Sc Scale was designed to identify schizophrenic symptoms. Schizoid behavior may consist of peculiar perceptions, bizarre thought processes, disturbances in mood and behavior, difficulties in concentration, and difficulties in impulse control. Adolescents who have an elevated Schizophrenia Scale often demonstrate the following characteristics; disorganization, low self-esteem, feelings of inferiority, frustration, and unhappiness. These adolescents are often rejected by their peers and feel socially isolated. These adolescents are also viewed as vulnerable and get upset easily. Both boys and girls in clinical samples with highly elevated Sc Scales report a history of sexual abuse (Archer, 1997; Butcher et al., 1992).

Scale 9: Hypomania

The Ma (Hypomania) Scale has all 46 items from the Hypomania Scale on the MMPI. The Hypomania Scale is designed to recognize hypomanic behavior, which is often associated with high levels of energy, ideas of grandiosity, egocentrism, and

cognitive or behavioral overactivity. Many of the identifying traits of the Hypomania Scale seem to describe the typical teenager. As a result, adolescents typically have higher T-scores on the Hypomania Scale. However, extreme hypomanic behavior is not considered normal and is usually associated with antisocial acts or "irrational manic behavior" (Butcher et al., 1992, p. 49).

Scale 0: Social Introversion

Si (Social Introversion) measures social relationship problems in adolescents. The original scale consisted of seventy items; the MMPI-A Si scale has 62 items on it. Three subscales were developed by Ben-Porath, Hostetler, Butcher, and Graham for the MMPI-2 and were carried over to the MMPI-A. The subscales are Shyness/Self-Consciousness, Social Avoidance, and Alienation-Self and Others. Varying degrees of social introversion are reflected on elevated Si scores. Adolescents with elevated scores exhibit some of the following behaviors: low self-confidence, insecurity, timidity, shyness, submissiveness, introversion, cautiousness, and they may be difficult to get to know, as well as being uncomfortable in social settings and lacking in social skills. Girls produce elevated Si Scales at a slightly higher rate than boys do (Archer, 1997, Butcher et al., 1992).

Content Scales

The development of the MMPI-A Content Scales was a five-step process. The first step involved determination of the initial Content Scales. The second step examined the reliability and validity of the Content Scales. Step three involved the naming of the scales. The fourth step was statistical refinement and the final step provided written descriptions of the scales.

Step one involved the determination of the initial Content Scales. This stage involved analyzing MMPI-2 Content Scales and their relevance in dealing with adolescents. Authors rated the importance of items and placed them in Content Scale categories. The scale categories consisted of items dealing with similar issues. This step further reviewed the Content Scale items and deleted those questions which were thought to be "developmentally inappropriate as measures of personality or psychopathology in adolescents" (Williams et al., 1992, p. 62).

Step two involved the statistical verification of the initial Content Scales. This step examined the reliability and validity of the Content Scales that were not eliminated in step one. The domains "peer group orientation" and "identity concerns" were eliminated in this step as a result of insufficient reliability. Step three involved a final rational review. This step insured that scale names were accurate. The Adolescent Conduct Problems (A-con) Scale was developed in this stage as an alternative to the adult Antisocial Practices Scale. Step four involved final statistical refinement. During this stage additional items were eliminated if they were determined to be more highly correlated with other scales. This stage also determined the final validity and reliability coefficients. Finally, step five consisted of descriptions of the scales. This step finalized the descriptions of the adolescent Content Scales (Williams et al., 1992).

The outcome of these five steps are the MMPI-A's fifteen Content Scales: Adolescent-Anxiety (A-anx), Adolescent-Obsessiveness (A-obs), Adolescent-Depression (A-dep), Adolescent Health Concerns (A-hea), Adolescent-Alienation (A-aln), Adolescent-Bizarre Mentation (A-biz), Adolescent-Anger (A-ang), Adolescent-Cynicism (A-cyn), Adolescent-Conduct Problems (A-con), Adolescent-Low Self-Esteem (A-lse),

Adolescent-Low Aspirations (A-las), Adolescent-Social Discomfort (A-sod), Adolescent-Family Problems (A-fam), Adolescent-School Problems (A-sch), and Adolescent-Negative Treatment Indicators (A-trt) (Williams et al., 1992).

Adolescent-Anxiety

The A-anx (Adolescent-Anxiety) Scale has 21 items in comparison to the adult version, which has 23 items. Twenty of the MMPI-A items are similar to the MMPI version. Subjects who score high on this scale tend to be aware of their problems and realize that they are different than adolescents who do not experience high levels of anxiety. Subjects who identify with A-anx items report high anxiety levels, difficulty in concentrating, confusion, an inability to stay on task, low energy, depressive symptoms, social withdrawal, and introversion. They do not report externalizing behaviors such as anger and aggression. Research has found that inpatient boys with higher A-anx Scales are more likely to attempt suicide and girls are likely to be depressed and have somatic complaints. (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Obsessiveness

The A-obs (Adolescent-Obsessiveness) Scale has 15 items in comparison to 16 items on the adult scale. Twelve of the adolescent items are comparable to the adult version. High scores on the A-obs Scale indicate a tendency to worry beyond reason over matters that are often trivial. Adolescents with elevated scores tend to get uncomfortable with change and experience difficulty in decision making. Girls who score high on the A-obs Scale typically have a history of suicidal ideas and actions, yet lack serious suicide attempts. Boys tend to be overly passive and dependent on adult relationships. Boys are

characterized as having feelings of being bad and deserving punishment (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Depression

The A-dep (Adolescent-Depression) Scale has 26 items in comparison to 33 items on the adult version. Twenty-five of the MMPI-A items are similar to MMPI statements. An elevated A-dep Scale indicates depressive symptoms including sadness, crying spells, fatigue, self-deprecatory thoughts, feeling blue, and a sense of hopelessness. Suicidal ideation is sometimes present. Adolescents with elevated scores often believe they are not living the right kind of life and that others are happier than they are. Girls with elevated scores often earn low grades in school, are concerned with weight gain, and have low self-esteem. Boys with elevated scores typically have suicidal ideation and are often evaluated for a history of sexual abuse (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Health Concerns

The A-hea (Adolescent-Health Concerns) Scale is made up of 37 items, one item more than what is on the adult version. Thirty-four adolescent items are similar to items on the adult version. Adolescents who score high on the A-hea Scale blame many of their problems and difficulties on health issues and report having more health concerns then their friends. These adolescents report health problems in one or multiple systems including gastronomical, sensory, skin, respiratory, neurological, and cardiovascular areas. These adolescents seem to believe that all of their problems would be fixed if their health issues were fixed as well. Both boys and girls with an elevated A-hea Scale tend

to have difficulties at school and at home (Williams et al., 1992; Butcher & Williams, 2000).

Adolescent-Alienation

The A-aln (Adolescent-Alienation) Scale is unique to the adolescent version of the MMPI-A. Twenty items make up this scale. Adolescents who score high on the A-aln Scale are considered to be emotionally distant from other people. These adolescents report that they have no close friends and are not close to family members. They believe that life has not been fair to them and that other people do not understand what they are going through. These adolescents have difficulty disclosing information about themselves, and if given the choice, would live alone somewhere away from other people. These adolescents report that they do not like other people and that most people dislike them. In addition to these beliefs, adolescents with high A-aln Scales may also show signs of depression, feelings of hopelessness, and a lack of energy (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Bizarre Mentation

The A-biz (Adolescent-Bizarre Mentation) Scale has 19 items on it; the adult version is made up of 24 items. Seventeen of the adolescent questions are similar to the adult version. Adolescents with elevated A-biz scores report bizarre thought patterns including auditory and visual hallucinations. They believe that there is something wrong with their minds and categorize their experiences as strange and unusual. They often believe that others are plotting against them or attempting to steal their thoughts and ideas. An elevated A-biz Scale in both boys and girls may be an indicator of psychosis (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Anger

The A-ang (Adolescent-Anger) Scale has 17 items in comparison to only 16 in the adult version. Eleven of the seventeen items are comparable to items on the MMPI. An elevated A-ang score is an indicator of anger and control problems. Adolescents scoring high report throwing tantrums to get their way and losing their temper when others get in front of them in lines or try to hurry them. They also report that they often can not help feeling like swearing and smashing things. They get into fights and this behavior is more severe when they consume alcohol. This behavior is evident at home and in school and both boys and girls typically have a record of aggressive physical behaviors. Girls with an elevated A-ang Scale tend to be more promiscuous and dress provocatively. Boys display attention-seeking behavior and may have a history of cruelty to animals (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Cynicism

The A-cyn (Adolescent-Cynicism) Scale has 22 items, and 21 of the items are similar to the adult version, which is made up of 23 items. Adolescents with an elevated A-cyn Scale are distrustful of others and hold the belief that others are out to get them and jealous of them. They are always looking for hidden motives in their interpersonal relationships and believe that people dislike being nice to others, and only do so in order to gain something for themselves (Williams et al., 1992; Butcher & Williams, 2000).

Adolescent-Conduct Problem

The A-con (Adolescent-Conduct Problem) Scale has 23 statements, one more than the adult version. Only seven of the MMPI-A statements are comparable to the 22 statements on the MMPI. Adolescents with elevated A-con scores report a history of

negative or criminal behavior including things they say they cannot tell others about. These adolescents are strongly influenced by negative peer groups and report that they enjoy scaring other people. Their negative acting-out behaviors include: shoplifting, stealing, vandalism, lying, swearing, and disrespectful behavior towards others. Drug and alcohol abuse is commonly reported by these adolescents as well as severe school related problems including suspensions. Girls tend to admit to and take ownership of their negative behavior more readily than boys. Many of these adolescents have been involved in the juvenile court system (Williams et al., 1992; Butcher & Williams, 2000).

Adolescent-Low Self-Esteem

A-lse (Adolescent-Low Self-Esteem) Scale is comprised of 18 items. All the adolescent items are comparable to the adult version, which has a total of 24 items. Adolescents with high A-lse Scale report a low self-image and very negative feelings about themselves. These adolescents often let others make decisions for them, viewing themselves as incapable. They get confused easily and are often forgetful, feeling like they have little control and ability to plan their future. Elevated scores in girls may be an indicator of depression. Boys with a high A-lse Scale tend to have very poor social skills and should be evaluated further for the possibility of sexual abuse (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Low Aspirations

The A-las (Adolescent-Low Aspirations) Scale is unique to the adolescent version of the MMPI. The scale is made up of 16 items identifying adolescents who lack an interest in being successful. They report that others identify them as lazy but they believe that others are trying to block their success. Adolescents with elevated A-las scores

report that they have a disinterest in serious topics or bettering themselves intellectually. They tend to give up easy and prefer work that allows carelessness. These adolescents tend to have low grades and are not involved in school activities. Elevated scales tend to be related to running away in boys and acting out sexual behavior in girls (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Social Discomfort

Both the adolescent and adult version of the Social Discomfort Scale (the A-sod, Adolescent-Social Discomfort Scale) have 24 items. Twenty-one of the adolescent items are similar to the adult items. Adolescents with elevated A-sod Scales report difficulty making friends and a preference for being alone. Others report that these individuals are difficult to get to know, possibly in part due to their avoidance of public activities such as dances and parties. These adolescents typically will not speak unless spoken to and they avoid other people. Acting-out behavior is not associated with these students. Eating problems are often present as well as withdrawn and depressed behaviors (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Family Problems

The A-fam (Adolescent-Family Problems) Scale has 35 items. Fifteen of the items are similar to the adult scale, which is made up of 25 items. Adolescents with elevated A-fam Scales report extreme family discord between parents and other family members. Reports of abuse (beatings) are common, along with disagreements, blame, jealousy, lack of love, and limited communication. These adolescents hold the belief that they cannot count on their families in an emergency and look forward to the time when they can leave the home. These adolescents have externalizing and internalizing

symptoms. High A-fam Scales may also be an indicator of parental (marital) discord. Parents of adolescents with elevated A-fam Scales report that their sons are secretive, difficult to love, and lonely. Parents of girls report that their daughters are cruel, immature, hyperactive, sad, and secretive (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-School Problems

The A-sch (Adolescent-School Problems) Scale is unique to the MMPI-A. It is comprised of 20 items identifying characteristics that indicate habitual difficulties in school. These difficulties encompass both academic and behavior problems. Adolescents with high A-sch Scales report truancy, school suspension, learning disabilities, cheating, failing grades, fear of going to school, and dislike of teachers. These adolescents are not active in athletics or other school sponsored activities. The only positive aspects of school are their friends. Girls with elevated A-sch Scales are characterized as underachievers and possibly learning disabled. Boys are characterized as truant, irresponsible, and often times are involved in the use or abuse of controlled substances (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Adolescent-Negative Treatment Indicators

The A-trt (Adolescent-Negative Treatment Indicators) Scale is made up of 26 items, just like the adult version. Twenty-one of the adolescent items are similar to the adult items. Like adults, adolescents with elevated scales indicate a dislike and distrust of doctors and mental health professionals. These individuals do not take responsibility for their problems but are under the misguided belief that others are incapable of helping

them. Adolescents with an elevated A-trt Scale are often very resistant to mental health treatment (Williams et al., 1992; Butcher et al., 1992; Butcher & Williams, 2000).

Content Scales are used to help refine interpretation of the Clinical Scales. "An elevation on a Clinical Scale is difficult to interpret because not all of the empirically established correlates apply for a particular test subject. Examination of Content Scale scores can help eliminate correlates that are of low relevance for a particular test subject and focus on those that are more meaningful" (Williams et al., 1992 p. 136). The MMPI-A Content Scales are also useful in giving clinicians insight in an adolescent subject's self-perception, which is a difficult task of assessment process (Williams et al., 1992). Elevated scores (T scores equal or greater than 65) on one or more of the Content Scales indicate that the adolescent subject endorses symptoms that are characteristic of that particular scale or issue. Low (T scores equal or less than 55) or moderate (T scores of 60-64) Content scores indicate that the subject does not believe the scales content is descriptive of them. Low or moderate scores may also indicate a subject's unwillingness to admit to certain descriptors or a lack of awareness and insight to the problem (Butcher et al., 1992; Butcher & Williams, 2000).

Supplementary Scales

Supplementary Scales are common throughout the MMPI-A. However, there are six Supplementary Scales that stand alone and are not found within the Content, Validity, or Clinical Scales. These Supplementary Scales include the Welsh's Anxiety (A Scale) and Repression (R) Scales, the MacAndrew Alcoholism Scale (MAC-R), the Immaturity Scale (IMM), the Alcohol-Drug Problem Acknowledgment Scale (ACK), and the Alcohol-Drug Problem Proneness Scale (PRO). The original MMPI had over 450

Supplementary Scales. However, it was very uncommon for the majority of the scales to be used as a result of their limited research. In the development of the MMPI-2, nine scales from the original MMPI were retained. In the development of the MMPI-A only three Supplementary Scales were retained from the MMPI-2. These scales are the Welsh's Anxiety and Repression Scales, and the MacAndrew Alcoholism Scale-Revised. These three scales are considered "traditional scales" because they were adapted from the MMPI-2. The Immaturity Scale, Alcohol-Drug Problem Acknowledgment Scale and the Alcohol Drug Problem Proneness Scale were developed specifically for the MMPI-A and are referred to as the "new scales." The new scales were developed in order to reflect current adolescent concerns. The Supplementary Scales are not designed to be used alone, but to support the findings of the other scales. Supplementary Scales may only be utilized if the test-taker completes the entire MMPI-A test booklet (Archer, 1997, Butcher et al., 1992, Butcher & Williams, 2000).

Welsh Anxiety and Welsh Repression Scales

The A (Welsh's Anxiety) and the R (Welsh's Repression) Scales are commonly called the "Factor Scales." These scales are derived "…from a factor analysis of the basic MMPI-A Scales" (Butcher & Williams, 2000, p. 306). The MMPI-A may be broken up into two dimensions or factors which account for a "…majority of Basic Scale score variance" (Archer, 1997, p. 221). The Anxiety Scale was developed to supplement the first dimension, which has been identified as dealing with general maladjustment and a lack of ego resiliency. The Repression Scale was devised to address the second factor, which has been identified as dealing with inhibition and ego control. Elevated Anxiety scores indicate distress, anxiety, discomfort, ineffectiveness, maladjustment, and

fearfulness. Low Anxiety scores typically represent adolescent behavior that is outgoing, energetic, and competitive. Elevated Repression scores indicate inhibition, submissiveness, overcontrolled, and lacking in spontaneity. Adolescents scoring low on the Repression Scale tend to be emotionally aggressive and dominating (Archer, 1997, Butcher et al., 1992).

MacAndrew Alcoholism Scale-Revised

The MAC-R (MacAndrew Alcoholism Scale-Revised) has 45 items related to alcohol and drug use. During the revision of the MAC-R (MAC-R is the name of the MMPI-A version of the MAC Scale) from the original MMPI and the MMPI-2, four items were deleted and replaced with new items that empirically separated clinically placed individuals contending with drug and alcohol problems from individuals with a history of drug and alcohol problems. The MAC-R Scale has received the most extensive research of all of the traditional Supplementary Scales. Research findings suggest that adolescents with elevated MAC-R Scores (high elevation is considered a T score greater or equal to 65, moderate elevation is represented by T scores between 60-64) have confirmed tendencies towards problematic alcohol or other drug use. Elevated MAC-R scores do not recognize tendencies towards either alcohol use or drug use alone, rather the presence of tendencies towards both. Adolescents with moderately or highly elevated MAC-R T scores may be described as impulsive, self-indulgent, egocentric, and attention seeking individuals who like wild parties and who associate with people who also enjoy the party atmosphere. These adolescents also seem unable to anticipate consequences associated with their behavior (Archer, 1997, Butcher et al., 1992, Butcher & Williams, 2000).

Alcohol and Drug Problem Acknowledgment Scale

The ACK (Alcohol and Drug Problem Acknowledgment) Scale consists of 36 items and was designed to evaluate the test taker's willingness to admit to problematic drug and or alcohol use. In addition, the ACK Scale is used to evaluate the test taker's willingness to acknowledge symptoms associated with their drug and alcohol problems, as well as measure attitudes and beliefs surrounding drug and alcohol use. The more elevated the ACK score, the more openly the individual admits to struggling with a drug and/or alcohol problem. Not all items in the ACK scale relate directly to the use of alcohol and/or drugs, some of the items only relate to beliefs and attitudes concerning the use of alcohol and drugs. Overall, research has found that adolescents tend to be more candid and honest on the MPPI-A concerning their drug and alcohol use than they are with a therapist (Archer, 1997, Butcher et al., 1992, Butcher & Williams, 2000).

Alcohol and Drug Problem Proneness Scale

The PRO (Alcohol and Drug Problem Proneness) Scale consists of 36 items. The PRO Scale is similar to the ACK Scale except the PRO is identifying the likelihood of drug and alcohol use in adolescents rather than actual use. Elevated scores (a T score of 65 or higher) "are associated with an increased potential for the development of alcohol and drug problems" (Archer, 1997, p. 218). In addition to the probability of alcohol and drug use, elevated PRO scores indicate aggressive and sensation seeking behavior as well as an inability to plan and predict consequences to behavior. The items on this scale were developed by comparing the responses of adolescents in treatment for drug and alcohol related issues to adolescents in mental health treatment for concerns other than drug and

alcohol use. The items include issues concerning family characteristics, academics, peer group characteristics, and antisocial beliefs and behaviors (Archer, 1997; Butcher et al., 1992; Butcher & Williams, 2000).

Immaturity Scale

The IMM (Immaturity) Scale consists of 43 items used to measure immaturity. The development of the IMM Scale was a four stage process originating with Loevinger's concept of ego development. According to Loevinger's concept, the IMM Scale recognizes the distinction between the preconformist and the conformist stage of maturation. The IMM may be divided into eight content areas. The content areas include "orientation toward the present in contrast to planning for the future, lack of self-confidence, lack of insight or introspection, lack of cognitive complexity…hostility and antisocial attitudes, egocentricity and self-centeredness, and externalization of blame" (Butcher et al., 1992, p. 73). Boys and girls with elevated scores often lack involvement in organized social activities and have a higher than average rate of school, academic, and behavior problems (Archer, 1997; Butcher et al., 1992; Butcher & Williams, 2000).

Reliability and Validity of the MMPI-A

In general, the MMPI-A is considered to be a valid and reliable tool in the assessment of psychopathology in adolescents. Upon publication, the MMPI-A was immediately popular and became a widely used tool. The MMPI-A's instantaneous popularity can be credited to two factors. First, only a limited number of tools exist to recognize adolescent personality, particularly mental disorders and psychopathology. Secondly, the MMPI-A followed in the footsteps of the legacy and standards of the MMPI. Because the MMPI-A is based on the original MMPI and its revision, the

MMPI-2, it's reliability and validity seems to go unquestioned. In comparison to the adult version, very little research exists specific to the reliability and validity of the MMPI-A. However, because the MMPI-A retained the essence of the adult version, the Scales demonstrate validity based on the research of the original version (Conoley & Impara, 1995).

Reliability

"Reliability refers to the consistency of scores obtained by the same persons when they are reexamined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions" (Anastasi & Urbina, 1997, p. 84). The five main methods of determining reliability include, test-retest reliability, scorer reliability, split-half reliability, alternate-form reliability, and Kuder-Richardson reliability and coefficient alpha (Anastasi & Urbina, 1997). The MMPI-A user manual supplies a limited amount of information regarding the reliability of the MMPI-A. The manual addresses the reliability of the Validity, Clinical, and Content Scales using a test-retest method. Test-retest involves administering the test or inventory and repeating administration of the same test to the same population at a later date. The subjects in the MMPI-A's test-retest study were volunteers and consisted of 45 boys and 109 girls. The participants completed the MMPI-A one-week after the first administration. Only one week was given between administration of the two inventories with the hopes that the emotional status of the subjects would remain constant. "Fifty percent of the time the retest scores fell within the range (either plus or minus) of one standard error of measurement (4-6 T score points) from the original score" (Butcher et al., 1992, p. 51). The manual also provides internal consistency coefficients for the

Validity and Clinical Scales. Strong internal consistency is reported for the PT, SC, F, and F2 Scales (.70-.90), and low to moderate internal consistency is found with the remaining scales (.40-.60). In addition, the manual reports that the MMPI-A Content Scales have acceptable internal consistency.

Validity

"Validity of a test concerns what the test measures and how well it does so" (Anastasi & Urbina, 1997, p. 113). To date, the consensus is that the MMPI-A is a valid tool, and is considered the "best" tool out there in assessing adolescent psychopathology (Conoley & Impara, 1995). Because the MMPI-A retains a significant amount of material from the original MMPI, the MMPI-A has assumed validity based on the transference of the enormous body of research supporting the adult version. However, Conoley and Impara (1995) state that despite the research on the MMPI, further validity studies of the MMPI-A are necessary, particularly on the Content Scales. The Content Scales have not been as widely researched and thus warrant further investigation.

The MMPI-A and the Assessment of (Serious) Emotionally Disabled Adolescents

When using the MMPI-A in the evaluation process of emotionally disabled Adolescents, particular MMPI-A scales correspond to the emotional disability criteria. The criteria required to be recognized as emotionally disabled involves "…an inability to learn which cannot be explained by intellectual, sensory, or health factors…" (Bower, 1982, p. 55; IDEA, 1997). The scales most closely related to this criterion include the Adolescent-Low Aspirations and Adolescent-School Problem Scales. Two MMPI-A scales, Psychopathic Deviate and Immaturity, correspond to the second criteria for an emotional disability diagnosis, "an inability to build or maintain satisfactory interpersonal

relationships with peers and teachers" (Bower, 1982, p. 55; IDEA, 1997). The Schizophrenia, Paranoia, and Hypomania Scales match the third criteria which is "inappropriate types of behavior or feelings under normal circumstances" (Bower, 1982, p. 55; IDEA, 1997). The Depression, Adolescent-Low Self-Esteem, and Adolescent-Depression Scales correlate with the fourth criteria in the emotional disability diagnosis which is "a general pervasive mood of unhappiness or depression" (Bower, 1982, p. 55; IDEA, 1997). Lastly, the Hypochondriasis and Adolescent-Health Concerns Scales are related to the fifth criteria in an emotional disability diagnosis, "a tendency to develop physical symptoms or fears associated with personal or school problems" (Bower, 1982, p. 55; IDEA, 1997). Based on these relationships, it is practical to expect significantly elevated scores over a long period of time on one or more of the above scales, indicating behavior necessary to meet IDEA criteria (Frye, 1998).

Limited research has been conducted using the MMPI-A with emotionally disabled students. A 1997 study by Steven Finlay compared the results of severely emotionally disabled (SED) individuals and inpatients at a residential treatment center using the MMPI and the MMPI-A. His research was not intended to distinguish between the two groups but rather between the two inventories. He did find significant differences in between the MMPI and the MMPI-A (Finlay, 1997). Had he compared the MMPI-A results between groups, his research would have been significant to this study. Ellen Frye conducted research more closely related to this study in 1998. She emphasized the need for a standardized, un-biased tool to use in the assessment process of severe emotional disabilities. She concluded that the MMPI-A should be used and is able to distinguish between a normative sample of adolescents, adolescents identified

with serious emotional disabilities and a clinical inpatient sample of adolescents when specific scales are utilized (Frye, 1998). Based on Frye's research and the findings of this study the assumption should be made that the MMPI-A should be considered in the assessment process of emotionally disabled adolescents but that additional research in this area is still necessary.

Psychopathology

Psychopathology is defined as "the study of significant causes and processes in the development of mental illness" (On-Line Medical Dictionary, 2002, p. 3). Several terms are associated with the word "psychopathology" including, psychosis (or psychotic), psychopathy (or psychopath), and sociopathy (or sociopath). Psychosis, which is the typical mental illness studied in psychopathology, is "a mental disorder characterized by gross impairment in reality testing as evidenced by delusions, hallucinations, markedly incoherent speech or disorganized and agitated behavior without apparent awareness on the part of the patient of the incomprehensibility of his behavior. The term is also used in a more general sense to refer to mental disorders in which mental functioning is sufficiently impaired as to interfere grossly with the patient's capacity to meet the ordinary demands of life" (On-Line Medical Dictionary, 2002, p. 3). Psychopath and sociopath are also common terms used when addressing psychopathology. Psycopath and sociopath are often used interchangeably. A psychopath is "an individual with an antisocial type of personality disorder" (On-line Medical Dictionary, 2002, p.3). Sociopath is also defined as "a person with an antisocial personality type of disorder" (On-line Medical Dictionary, 2002, p. 3). Antisocial personality disorder is defined as "a personality disorder characterized by a continuous

and persistent pattern of aggressive behavior in which the rights of others are violated" (On-line Medical Dictionary, 2002, p. 3). People who are categorized as psychopathic, sociopathic, or having antisocial personality disorders generally display behavior, which goes against social and legal norms. They are considered mentally ill, however, they tend to be high functioning people who fail to display mental confusion (Kellerman, 1999).

Fundamentally, psychopathology is the study of mental disorders and individuals that are suffering with mental disorders. The field of psychopathology covers an extensive gamut of mental disorders ranging from depression to schizophrenia. Overall, there is no clear definition or limits to disorders classified or termed with the word psychopathology.

The MMPI-A's use in the Assessment of Psychopathology

The majority of the MMPI-A's use with psychopathology has been in relation to delinquency and adjudicated youth. In relation to delinquency, the MMPI-A has primarily been used to identify personality types or subtypes of juvenile offenders. Cashel, Rogers, Sewell, and Holliman conducted a study in 1998 to "establish clinical and behavioral correlates for the MMPI-A in a male delinquent population" (Cashel, et al., 1998, p. 55). Delinquent boys between the ages of 13 and 18 were used in this study. All of the subjects were residing in a correctional facility for delinquent youth in northern Texas. The results of this study found significant correlations on the Basic Scales 4, 7, and 8, as well as Supplementary and Content Scales ACL , IMM, and D. This study also evaluated the MMPI-A's ability to accurately predict DSM-IV diagnosis. Overall, accuracy ranged from 58.2% to 82.7% (Cashel, et al., 1998). A study done by Rogers, Hinds, and Sewell in 1996 evaluated the MMPI-A's ability to recognize adolescents who

were faking a mental disorder, primarily schizophrenia, depression, or generalized anxiety disorders. Their research found that two tools (the MMPI-A and the SIRS) used in combination proved to be the most accurate. In relation to the MMPI-A, the study found that "for each 1000 adolescent offenders, 137 feigners would be correctly identified by the MMPI-A as malingering at the expense of 126 honest responders that are mistakenly classified as malingering" (Cashel, et al., 1998, p. 254). According to the results of Cashel et al.'s study, the MMPI-A misclassifies many adolescents who are able to "trick the tool" (purposely or accidentally) into identifying a disorder that may not exist. These results have enormous implications if the MMPI-A is used in the evaluation process of emotionally disabled students in public education (particularly as the sole tool).

Relationship Between Emotional Disability and Psychopathology

Research exists relating to MMPI-A scores and residentially placed or incarcerated youth. Some of these studies include, *Comparison of MMPI-A, Marks and Briggs, and MMPI-2 Norms for Juvenile* Delinquents, by Gumbiner and Arriaga, 1999; *Preliminary Validation of the MMPI-A for a Male Delinquent Sample; An Investigation of Clinical Correlates and Discriminant Validity*, by Cashel, Rogers, Sewell, and Holliman, 1998; *Assessing the Personality Psychopathology Five (PSY-5) in Adolescents; New MMPI-A Scales*, by, McNulty, Harkness, Ben-Porath, and Williams, 1997; and *Feigning Psychopathology Among Adolescent Offenders; Validation of the SIRS, MMPI-A, and SIMS*, by, Rogers, Hinds, and Sewell, 1996. However, relatively few studies have addressed the use of the MMPI-A with emotionally disabled students. The research that

does exist, indicates that there is an overlap regarding severely emotionally disabled students and students diagnosed with psychopathology.

A 1994 study by Singh, Landrum, Donatelli, Hampton, and Ellis, found that more boys with severe emotional disability (SED) receive psychiatric services than general education students. Also "more students with SED have a history of receiving inpatient and outpatient psychiatric services; need psychiatric services for ADHD; are prescribed medication, both at admission and at discharge; and are prescribed two or more medications, both at admission and at discharge…" (Singh, Landrum, Donatelli, Hampton, Ellis, 1994, p. 18). Based on this research, it is evident that emotionally disabled and psychopathological adolescents require similar treatment. If this is true, treatment and interventions for these students in public education settings should also be similar.

Summary

Studies have been conducted using the MMPI-A with multiple populations of adolescents (Frye, 1998; Finlay, 1997; Cashel, et al., 1998; Singh et al., 1994). Despite all the research that has been conducted, very limited research has been done which evaluates the MMPI-A's use in the assessment and eligibility process of emotionally disabled adolescents.

Chapter Three

Methodology

Chapter three outlines how this study was conducted including the selection of subjects, the procedures followed, the instrumentation used (MMPI-A), and the data analysis. Permission to conduct this study was granted by the University of Wisconsin-Stout and approved by the University's internal research and review board.

Selection of Subjects

Forty-five middle and high school students from three school districts and one residential treatment center participated in this study. There were 15 general education students, 15 students identified as emotionally disabled, but receiving special education services in the public school setting, and 15 residentially placed students. All subjects participating in this study were native English speakers and able to read at a sixth grade reading level.

The general education students came from two school districts in northwestern Wisconsin. These two districts were chosen because they are of similar size and socioeconomic status. The general education sample consisted of five males and ten females between the ages of 15 and 18. The general education students participated voluntarily and completed the MMPI-A primarily during their study halls or lunch periods.

The sample of students identified as emotionally disabled came from three different school districts. One small district in northwestern Wisconsin of low socioeconomic status and two larger, wealthier districts in northcentral Wisconsin. The emotionally disabled sample consisted of eleven males and four females between the ages

of 13 and 18. The emotionally disabled students participated voluntarily, but used class time to complete the inventory.

Personnel at the residential treatment facility provided the data on the residentially treated population to the researcher. The students' whose files were used were randomly selected by personnel at the institution and provided to the researcher with no identifying information. The residentially placed students were from varying size schools and economically diverse school districts located throughout Wisconsin and possibly Iowa and Illinois. The residential sample consisted of eight males and eight females between the ages of 12 and 18. At the time the inventories were administered, all students were receiving their education at a residential treatment center in northwestern Wisconsin.

Procedures

All subjects were administered the Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A). All subjects completed the inventory in a school setting during the school day. Participants completed the MMPI-A using a reusable test booklet and separate answer sheet. The test was administered according to the standardized procedures reported in the technical manual. The investigator had been trained in the administration of the MMPI-A prior to conducting the study.

Students who completed the inventory in a public school setting were asked to complete a consent to participate form, signed by themselves and a parent or guardian if they were under 18. The consent form explained the purpose of the study and what their participation involved, including the right to be removed from the study at any time per their request. Most of the inventories were administered in an individual setting. Some

of the students completed the inventory in a group setting, with the group never exceeding six students. Any time a group setting was used, more than one adult was present to assist with supervision. All of the subjects, except for the residentially placed students, received verbal reinforcement, as well as tangible reinforcement, in the form of snacks and beverages as a "thank you" for participation.

The MMPI-A was administered to all of the general education students by the investigator. Testing time took approximately two to two and one half hours. All of the general education students completed the inventory during a study hall or lunch hour.

Class time was used to administer the MMPI-A to the emotionally disabled students. In general, two to three class periods were needed to complete the inventory. Testing time for most of these students was approximately three to four hours. The investigator, and when necessary, the student's primary teacher completed the administration.

Professionals at the institution completed the administration of the MMPI-A with the residential sample. All new residents entering the facility are given the MMPI-A. Protocols from seventeen students who had recently taken the MMPI-A were provided to the investigator by the facility. The protocols chosen were done so at random by personnel at the facility.

All of the inventories were hand-scored by the researcher. Raw scores were transferred from the inventory to a data sheet and converted to T scores. The data sheets also contained information on each subject concerning age, birthdate, gender, ethnicity, geographic area (rural or urban), and criminal history, as well as a password. The password was chosen by the student as an identifying feature to be used in case the

student wanted to be removed from the study. Only the T scores were utilized in this study; there was no interpretive profile or report obtained. As a result, students were not given access to the results of their inventories.

Instrumentation

The MMPI-A is a standardized and widely used tool in the assessment of adolescent psychopathology (Butcher, et. al., 1992). The MMPI-A was designed to be used with children between the ages of 14-18. However, it is sometimes used with 12 and 13-year-old students considered to be "bright" or more mature. Despite its use with those younger than 14, it is not recommended (Butcher, et. al., 1992). The MMPI-A is made up of 478 questions resulting in 37 scales and an additional 31 subscales (subscales were not used in this study) in areas ranging from psychopathic deviance to family problems. The MMPI-A provides six Validity Scales, ten Clinical (Basic) Scales, and 21 Content or Supplementary Scales.

Validity Scales

There are six scales built into the MMPI-A that serve as validity indicators. These validity measures include: Cannot Say (?), Lie (L), F, F1, and F2 (Infrequency), K (Defensiveness), VRIN (Variable Response Inconsistency), and TRIN (True Response Inconsistency)

Cannot Say

Cannot Say (?) is the number of questions the subject either did not answer or to which they responded both "true" and "false." Because there is no "fixed item pool," (Butcher, et al., 1992 p. 35) the Cannot Say Scale is not a formal MMPI-A Scale, but it may eliminate an answer sheet from being scored. If 30 or more items are not answered

or are omitted evenly throughout the booklet, the test protocol should be considered invalid. If the majority of the omissions occur after item 350, only the F1, L, and K measures should be interpreted. All other scales should be considered invalid (Butcher, et al., 1992).

Lie Scale

The Lie (L) Scale was designed to identify adolescents who are attempting to present themselves positively, particularly in relation to "personal ethics or social behavior." Those with highly elevated L scores are often thought to be "faking good" (Butcher, et al., 1992, p. 35).

Infrequency Scale

Elevated F (Infrequency) scores are considered the opposite of L scores. Individuals with high F scores tend to be presenting themselves negatively or to be "faking bad" (Butcher, et al., 1992, p. 36). Besides answering falsely, additional factors may account for elevated F scores, such as the "presence of severe maladjustment, or a tendency to be overly candid, to respond carelessly or inconsistently, or to respond falsely be exaggerating symptoms" (Butcher, et al., 1992, p. 36). All of the F1 items occur within the first 350 questions, so F1 measures the acceptability of the response pattern for the basic MMPI-A Scales. F2 questions are found in the remaining 150 questions and evaluate the acceptability of the Content and Supplementary Scales.

Defensiveness Scale

The K (Defensiveness) Scale is used to evaluate if a test taker has a negative attitude towards taking the inventory. The K Scale is more applicable to the adult version of the inventory as few descriptors exist for adolescent normative and clinical samples

(Butcher, et al., 1992). An elevated K score should be interpreted cautiously, but an MMPI-A profile should not be considered invalid based exclusively on the K Scale.

VRIN and TRIN Scales

The VRIN (Variable Response Inconsistency) and TRIN (True Response Inconsistency) Scales are used to illustrate a subject's tendency to respond to items in ways that are "inconsistent or contradictory" (Butcher, et al., 1992, p. 41). VRIN and TRIN are made up of specifically selected pairs of items. VRIN consists of pairs that are either similar or opposite in content. If item pairs are answered inconsistently, the VRIN score will be elevated, suggesting an indiscriminate response pattern, which may invalidate the profile (Butcher, et al., 1992). Similarly, an elevated TRIN score may also result in an inventory being invalid. However, TRIN questions consist exclusively of pairs that are opposites. A very high TRIN suggests a true response pattern, whereas, a very low TRIN score indicates a false response pattern. Either a high TRIN or a low TRIN suggest the possibility of an invalid profile (Butcher, et al., 1992).

Clinical (Basic) Scales

The MMPI-A has ten Clinical Scales, also referred to as Basic Scales. The Clinical Scales are made up of Hypochondriasis (HS), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity-Femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), and Social Introversion (Si) (Butcher, et, al., 1992). Depression, Hysteria, Psychopathic Deviate, Paranoia, Schizophrenia, Hypomania, and Social Introversion have Harris-Lingoes Subscales. The Subscales were not utilized in this study for two reasons; use of Subscales is not recommended when inventories are going to be hand-scored because of the time involved

in scoring. Also, the Harris-Lingoes Subscales are only recommended in "supplementing basic scale profiles under certain conditions," and are typically used only on an individual basis (Archer, 1997, p. 252).

Scale 1: Hypochondriasis

The Hs (Hypochondriasis) Scale "reflects a preoccupation with health and illness" if elevated (Butcher et al., 1992, p. 44). However, true physical ailments may slightly raise Hs scores, so true physical disorders should be ruled out in advance or taken into consideration when interpreting Hs scores.

Scale 2: Depression

D (Depression) is used to "measure…general dissatisfaction with one's life, including feelings of discouragement, hopelessness, and low morale" (Butcher et al., 1992, p. 44). The Depression Scale may include internal as well as physical complaints and symptoms.

Scale 3: Hysteria

The Hy (Hysteria) Scale is used to identify "individuals who respond to stress with hysterical reactions that include sensory or motor disorders without an organic basis" (Butcher et al., 1992, p. 45). A hysterical reaction is often an emotional or excitable state, which is often overwhelming and unmanageable (Merriam-Webster, 1994).

Scale 4: Psychopathic Deviate

The Pd (Psychopathic Deviate) Scale focuses on behavior that is often characterized as deviant. This behavior consists of patterns students have established in

relation to "lying, stealing, sexual promiscuity, and alcohol abuse" (Butcher et al., 1992, p. 45).

Scale 5: Masculinity-Femininity

Mf (Masculinity-Femininity) is a scale that is scored separately for males and females and in which elevated scores indicate different behaviors, depending on the gender of the adolescent taking the inventory. If a male has an elevated Mf Scale, it indicates an atypical pattern of what is frequently considered to be "feminine" interests. An elevated Mf Scale in a female indicates interests that are often considered more masculine (Butcher et al., 1992).

Scale 6: Paranoia

Pa (Paranoia) is used to identify subjects who are "manifesting paranoid symptomology". This symptomology refers to "ideas of reference, suspiciousness, feelings of persecution, rigidity, and moral self-righteousness" (Butcher et al., 1992, p. 47).

Scale 7: Psychasthenia

The Pt (Psychasthenia) Scale is used to identify subjects who are displaying behaviors closely related to obsessive-compulsive disorder. Common symptomology includes "physical complaints, unhappiness, problems in concentration, obsessive thoughts, anxiety, and feelings of inferiority" (Butcher et al., 1992, p. 48).

Scale 8: Schizophrenia

The Sc (Schizophrenia) Scale is used to identify those who are, or have, similar characteristics to those with the clinical diagnosis of Schizophrenia. Those traits include "bizarre thought processes, peculiar perceptions, social isolation, disturbances in mood

and behavior, and difficulties in concentration and impulse control" (Butcher et al., 1992, p. 49).

Scale 9: Hypomania

The Ma (Hypomania) Scale is used to identify "hypomanic" symptoms. These symptoms often resemble what is considered typical adolescent enthusiasm and energy. The purpose of this scale is to identify unusually high levels of this behavior. Some of the identified behaviors include "grandiosity, irritability, flight of ideas, egocentricity, elevated mood, and cognitive and behavioral overactivity" (Butcher et al., 1992, p. 49).

Scale 0: Social Introversion

Si (Social Introversion) measures problems associated with social relationships. These problems may include low self-esteem and being socially withdrawn. Students with elevated Si scores tend to avoid being involved in school functions. These students also tend to be depressed and have a history of having few friends (Butcher et al., 1992).

Content Scales

In order for the MMPI-A Content Scales to be used, the entire MMPI-A must be completed. Completion of the MMPI-A through item number 350 is sufficient to use the Validity and Clinical Scales. However, in order for the Content Scales to be used, all 465 questions of the MMPI-A must be completed (with exceptions to a limited number of unanswered or invalid questions throughout the inventory). Elevated Content Scales mean that the subject "has endorsed more of a particular group of symptoms" (Buthcer & Williams, 2000, p. 275). The Content Scales are comprised of the following fifteen scales: Adolescent-Anxiety (A-anx), Adolescent-Obsessiveness (A-obs), Adolescent-Depression (A-dep), Adolescent Health Concerns (A-hea), Adolescent-Alienation (A-

aln), Adolescent-Bizarre Mentation (A-biz), Adolescent-Anger (A-ang), Adolescent-Cynicism (A-cyn), Adolescent-Conduct Problems (A-con), Adolescent-Low Self-Esteem (A-lse), Adolescent-Low Aspirations (A-las), Adolescent-Social Discomfort (A-sod), Adolescent-Family Problems (A-fam), Adolescent-School Problems (A-sch), and Adolescent-Negative Treatment Indicators (A-trt). Elevated scores on one or more of these scales indicate that the adolescent endorses symptoms that are characteristic of that particular scale or issue (Buthcer & Williams, 2000). Clinically, MMPI-A Content Scales should only be used to "…augment and refine the interpretation of the MMPI-A Basic and Clinical Scales" (Archer, 1997, p. 227) not replace those scales.

Adolescent-Anxiety

The A-anx (Adolescent-Anxiety) Scale recognizes feelings and beliefs about anxiety, rather than actual physiological symptoms of anxiety. These feelings may include "…tension, apprehension, rumination, and the self-perception of being overwhelmed by stress" (Archer, 1997, p. 233). The A-anx Scale also appears to be able to recognize symptoms correlating to depression, general maladjustment, and a high possibility of suicidal thoughts.

Adolescent-Obsessiveness

The A-obs (Adolescent-Obsessiveness) Scale "contains items concerning ambivalence and difficulty in making decisions, excessive worry and rumination, and the occurrence of intrusive thoughts" (Archer, 1997, p. 234). At times, worries may be so severe that these individuals are unable to sleep, yet the worry is over matters which would be considered trivial to the average adolescent (Butcher et al., 1992).

Adolescent-Depression

The A-dep (Adolescent-Depression) Scale is used to recognize depressive symptoms in adolescents. Those who score high on this scale claim to have self-depreciative thoughts, experience frequent crying spells, feel fatigued, are lonely, feel useless, and often have suicidal ideation (Butcher & Williams, 2000).

Adolescent-Health Concerns

The A-hea (Adolescent-Health Concerns) Scale is used to identify adolescents who are concerned about their health and who feel physically ill. The symptoms experienced by adolescents with an elevated A-hea Scale cover a range of areas including "gastrointestinal, neurological, sensory, cardiovascular, and respiratory systems" (Archer, 1997, p. 237).

Adolescent-Alienation

The A-aln (Adolescent-Alienation) Scale is used to recognize adolescents who feel isolated and alienated from their peers. These adolescents typically withdraw socially and believe that life is unfair and no one really understands them (Archer, 1997).

Adolescent-Bizarre Mentation

The A-biz (Adolescent-Bizarre Mentation) Scale is used to recognize adolescents experiencing psychotic thoughts. Characteristics associated with the A-biz Scale include a weak connection with reality including weaknesses in impulse control and symptoms of paranoia consisting of hallucinations and delusions (Archer, 1997).

Adolescent-Anger

The A-ang (Adolescent-Anger) Scale recognizes those adolescents who report having difficulty controlling their anger. These students are likely to act out in school

and at home. Their behavior is often characterized as irritable, grouchy, hostile, inpatient, and physically aggressive (Butcher & Williams, 2000).

Adolescent-Cynicism

The A-Cyn (Adolescent-Cynicism) Scale identifies feelings of mistrust, suspiciousness of others, and hostile attitudes in interpersonal relationships (Archer, 1997). Those adolescents with elevated A-Cyn scores tend to not trust anyone and believe people are jealous of them and always have hidden motives (Butcher & Williams 2000).

Adolescent-Conduct Problem

Adolescents who score high on the A-con (Adolescent-Conduct Problem) Scale report behavioral problems in multiple settings. These adolescents tend to have poor impulse control and are often in trouble as a result of their behavior. These adolescents may have a co-morbid diagnosis of conduct disorder and often have conflicts with authority figures, while going against social norms and expectations (Archer, 1997).

Adolescent-Low Self-Esteem

The A-lse (Adolescent-Low Self-Esteem) Scale recognizes adolescents with poor self-concept and low self-esteem (Archer, 1997). These students tend to think they are worthless and have few if any positive attributes. These students often do poorly in school, easily getting confused or forgetful (Butcher et al., 1992).

Adolescent-Low Aspirations

The A-las (Adolescent-Low Aspirations) Scale identifies adolescents who have a consistent pattern of underachievement. These adolescents set low goals and tend to become frustrated quickly when faced with any type of challenge (Archer, 1997).

Adolescent-Social Discomfort

The A-sod (Adolescent-Social Discomfort) Scale has similar characteristics to the A-aln (Adolescent-Alienation) Scale. Elevated A-sod scores indicate withdrawal and social introversion in adolescents (Archer, 1997). These students prefer to be alone and are often uncomfortable with other people (Butcher et al., 1992).

Adolescent-Family Problems

Those students with elevated A-fam (Adolescent-Family Problems) scores are more likely to run away from home and be hostile individuals. In addition, they often perceive their home/family environment to be unstable and unloving. These adolescents generally hold a great deal of animosity and anger towards family members (Archer, 1997).

Adolescent-School Problems

Poor school performance and a negative attitude towards school and learning are characteristic of an elevated A-sch (Adolescent-School Problems) Scale. An elevated score may also be the result of an unrecognized learning disability or a significant delay in development (Archer, 1997).

Adolescent-Negative Treatment Indicators

High A-trt (Adolescent-Negative Treatment Indicators) scores are a negative sign for adolescents seeking treatment. An elevated A-trt Scale indicates that an adolescent has a negative attitude towards getting help. They do not think that others will be able to help them or understand them. They tend to keep their feelings inside and do not share with others what they are thinking. They fail to plan for the future on their own and do

not take any responsibility for what has happened in their life (Butcher & Williams, 2000).

Supplementary Scales

Like the Content Scales, Supplementary Scales are also used to assist in the interpretation of the Basic and Clinical Scales. More than 450 (Supplementary) Scales were developed for the original MMPI, however the MMPI-A retained only three of those scales while an additional three scales were developed specifically for the MMPI-A. In order for the Supplementary Scales to be used, the entire test booklet must be completed. It is also important to note that the Supplementary Scales "…should be used to refine, but not replace, the interpretation of the MMPI-A Basic Scales" (Archer, 1997, p. 211). The Supplementary Scales on the MMPI-A are the MacAndrew Alcoholism Scale-Revised (MAC-R), the Alcohol and Drug Problem Acknowledgment Scale (ACK), The Alcohol and Drug Problem Proneness Scale (PRO), The Immaturity Scale (IMM), the Welsh's Anxiety Scale (A), and the Repression Scale (R). The Supplementary Scales are also referred to as "special" scales; the titles are used interchangeably (Archer, 1997). Interpretive recommendations associated with the Supplementary Scales are primarily based on clinical experience rather than empirical data (Archer, 1997).

MacAndrew Alcoholism Scale-Revised

The MAC-R (MacAndrew Alcoholism Scale-Revised) is used to identify adolescents who have a general tendency toward alcohol use and other drug problems. The adolescents are identified as attention seeking individuals who like wild parties and associate with people who also enjoy the party atmosphere. Adolescents with elevated

MAC-R scores also tend to take part in more risky behavior and gravitate towards illegal activity (Butcher & Williams, 2000).

Alcohol and Drug Problem Acknowledgment Scale

The ACK (Alcohol and Drug Problem Acknowledgment) Scale evaluates an adolescent's willingness to admit to problematic drug and or alcohol use, as well as, acknowledge symptoms associated with drug and alcohol problem behavior (Butcher & Williams, 2000).

Alcohol and Drug Problem Proneness Scale

The PRO (Alcohol and Drug Problem Proneness) Scale is used to assess the likelihood of the subject to develop an alcohol or drug problem. An elevated score does not mean that they currently have a problem but that they endorse traits similar to people who are struggling with alcohol and/or drug issues. Some of these traits may include aggressive and sensation seeking behaviors (Butcher & Williams, 2000).

Immaturity Scale

The IMM (Immaturity) Scale is used as a measure of psychological development and maturation. The IMM is based on Loevinger's "concept of ego development" (Archer, 1997, p. 219). Adolescents with high IMM scores tend to have difficulties in school. Behaviors characteristic of these students include impatience, undependability, defiance, low frustration level, and bullying behavior (Archer, 1997).

Welsh's Anxiety

The *A* (Welsh's Anxiety) Scale recognizes adolescents who are high anxiety individuals demonstrating tense, self-critical, guilty, and overwhelmed behavior.

Adolescents with elevated A scores tend to be viewed by others as severely maladjusted (Archer, 1997).

Welsh's Repression

Adolescents with elevated R (Welsh's Repression) display over-controlled and inhibited behavior. These adolescents seem to lack emotion and come across as defeated and pessimistic (Archer, 1997).

Data Analysis

The data were analyzed with respect to the research questions outlined in Chapter One. The research questions and the method of analysis are provided below.

R1. Does the MMPI-A differentiate between adolescents categorized as emotionally disabled, those considered socially maladjusted (residentially placed only), and non-disabled individuals?

R2. Does the MMPI-A differentiate educational placement (ranging from r regular classroom to residentially placed) of individuals accurately?

Following the data collection, Stepwise Disriminant Function Analyses were done with the Validity and Clinical Scales, and the Content Scales, in an effort to predict group membership of the sample population. An Analysis of Variance (ANOVA) was also carried out in an attempt to determine if there were significant differences between the three populations (e.g. general education, emotionally disabled, and residential). These analyses were chosen based on the sample and their ability to answer the research questions and determine the MMPI-A's utility in recognizing emotionally disabled adolescents.

Chapter Four

Results

This chapter consists of three parts; descriptive statistics, discriminant analyses (including Wilks' Lambda and Canonical Discriminant Functions) and analysis of variance (ANOVA) results. The descriptive statistics, in combination with the multivariate statistics, are used to determine if the MMPI-A is capable of differentiating adolescents based on educational placement, including general education, emotional disability and residential placement.

Descriptive Statistics

The subjects in this study varied on more than just educational placement. The participants were of different genders, ethnicities, ages, grade in school, geographical living environments, and criminal history. The following tables describe the subjects who participated in this study.

Table 1

Gender and Ethnicity

	Frequency	Percent
Male	24	52.2
Female	22	47.8
Caucasian	39	84.8
Native American	1	2.2
No Response	6	13.0
Total	46	100.00

A total of 46 subjects participated in this study. Table 1 provides data on the sample's gender and ethnicity. Twenty-four of the subjects were male (52.2%) and 22 of the subjects were female (47.8%). Of the 46 subjects, 39 were Caucasian, representing 84% of the sample. Six participants (13%) did not respond with their ethnicity and one participant (2.2%) was of Native American descent.

Participants ranged in age from 12 to 19. Table 2 presents the sample's age in years. The mean age of the sample was 16.02. Twenty-eight point three percent of the sample was 16 years of age. The ages of 15, 17, and 18 represented 15.2%, 17.4%, and 17.4% of the sample, respectively.

Table 2

Age in Years

	Frequency	Percent
12	2	4.3
13	2	4.3
14	4	8.7
15	7	15.2
16	13	28.3
17	8	17.4
18	8	17.4
19	2	4.3
Total	46	100.00

Table 3 presents the grade level of the subject pool. The lowest grade represented in this study was eighth grade and the highest grade represented was 12th. The mean grade in this study was 10.3, not including students whose year in school was not reported (13). The majority of non-reported grade levels were obtained from the residential treatment facility. Non-reported grade level represented 28.3% of the sample. Nineteen point six percent of the subjects were in the 12th grade, 13% in 11th grade, 17.4% were in 10th grade, 13% in 9th grade, and 8.7% were in the 8th grade.

Table 3

Grade in School

	Frequency	Percent
8	4	8.7
9	6	13.0
10	8	17.4
11	6	13.0
12	9	19.6
Not reported	13	28.3
Total	46	100.00

Approximately 80% of the subjects who participated in this study came from a rural environment, 10.9% were from an urban environment, and 8.7% did not report the information. Table 4 provides data regarding living status (urban vs. rural) of the sample.

Table 4

Rural vs. Urban Living Environment

	Frequency	Percent
Rural	37	80.4
Urban	5	10.9
Not reported	4	8.7
Total	46	100.00

The educational status of the sample (general education, self-contained emotional disability classroom, or residential placement) is found in table 5. The three groups were relatively equally represented, 32.6%, 32.6%, and 34.8% respectively.

Table 5

Educational Status

	Frequency	Percent
General Education	15	32.6
Emotional Disability	15	32.6
Residential Treatment	16	34.8
Total	46	100.00

Table 6 presents conviction status of subjects. Of the 46 participants in this study, 19 admitted to being convicted of a crime. That number does not represent the number of participants whom may have been arrested or may have not been caught; it only includes

those who were convicted. Forty one percent of the subjects had been convicted of a crime, whereas 43.5% had not been convicted of a crime.

Table 6

Convicted of a Crime

	Frequency	Percent
No	20	43.5
Yes	19	41.3
No Response	7	15.2
Total	46	100.00

Discriminant Function Analysis

A variety of statistical procedures were considered to analyze the data set. The intent of the research was to predict group membership from a set of predictor variables. Multiple regression analysis was considered and rejected due to the small sample size. Multiple regression requires more cases than variables (40 to 1 is suggested as reasonable) in order to obtain acceptable results (Tabachnick & Fidell, 1996). Given the small sample size of this study and that many of the independent variables were highly correlated, discriminant function analysis was chosen. The goal of discriminant function analysis matches the goal of this study, to predict group membership from a set of predictor variables. The primary question of this study was, can a differential diagnosis between a group of normal adolescents, a group of emotionally disabled adolescents, and a group of residentially placed adolescents, be made reliably from a set of psychological test scores, specifically the MMPI-A? In univariate terms, a significant difference

between groups implies that, given a score, one can predict (imperfectly) which group the score comes from (general education, emotionally disabled, or residentially placed). A primary goal is to find the dimension or dimensions along which groups differ and to find classification functions to predict group membership (Tabachnick & Fidell, 1996).

The major purpose of discriminant function analysis is to predict group membership using a set of predictors. In this study, the researcher attempted to predict educational placement using scores on the MMPI-A. Students in three levels of educational placement were considered, they included; general education students, emotionally disabled students served in public education settings, and residentially placed students. MMPI-A scores served as the predictors. Significant differences between groups, recognized via a discriminant analysis, predict which group the subject belongs to. Stepwise Discriminant Function Analysis was used in this study. Discriminant analysis was chosen because accurate conclusions can be made with a limited sample size (Tabachnick & Fidell, 1996).

Initially, the researcher intended to include the entire MMPI-A scales (validity, clinical, and content) in the discriminant function analysis, but discriminant function analysis is similar to regression and assumes more cases than variables. So as to not violate this assumption, two discriminant analyses were calculated, one using the validity and clinical scales, the other using the content scales. The clinical scales are the most common scales analyzed by practitioners, because of this, the study paid special attention to the clinical scales. Finally, several one-way analyses of variance (ANOVA's) were conducted.

Data Analysis of MMPI-A Validity and Clinical Scales

Stepwise (Statistical) Discriminant Function Analysis

Initially, a stepwise discriminant function analysis was performed, using the MMPI-A validity and clinical scales as predictors of membership in three groups. (general education, emotional disability, and residential). "Statistical stepwise discriminate analysis is a rather controversial procedure, in which order of entry of variables is based solely on statistical criteria. The meaning or interpretation of the variables is not relevant. Decisions regarding which variable should be included and which variable should be omitted from the equation are based solely on statistics computed from the particular sample drawn" (Tabachnick & Fidell, 1996, p. 150). Stepwise discriminant function analysis is used when a researcher is not prioritizing predictors. For example, the researcher wants to "…reduce the set of predictors but has no preference among them" (Tabachnick & Fidell, 1996, p. 532). For the purpose of this study, variables (Scales) were entered into the equation based on their F values. Items with the highest F values were entered first. The Scales with the lowest F values were then removed, leaving the Scales with the highest F values as contributors to the variance. In this case, an F value of 1.25 was necessary to enter and an F value of 1.00 was necessary to be removed. The determination of which scale to enter in which order, was based exclusively on the F value; the particular scale was irrelevant. In this study, it was found that two MMPI-A Scales significantly contributed to the variance in educational placement; they were the Psychopathic Deviate Scale and the Schizophrenia Scale.

Wilks' Lambda

The purpose of Wilks' Lambda is to produce the smallest value, which results in the largest multivariate F. Using the Wilks' Lambda, it was found that the Psychopathic Deviate Scale and Schizophrenia Scale, combined, were significant at the .001 level. After removing the Psychopathic Deviate Scale, the Schizophrenia Scale is no longer significant by itself. Table 7 presents the results of the Wilks' Lambda analysis.

Table 7

Wilks' Lambda of Validity and Clinical Scales

Test of Functions	Wilks' Lambda	Chi-Square	df	Sig.
1 thru 2	.387	38.010	14	.001
2	.729	12.646	6	.049

Note. The number one represents the Psychopathic Deviate Scale and Schizophrenia Scale combined, and the number two represents the Schizophrenia Scale.

Canonical Discriminant Function

The purpose of Canonical Discriminant Function is to "analyze the relationship between two sets of variables…canonical correlation provides a statistical analysis for research where each subject is measured on two sets of variables and the researcher wants to know if and how the two sets relate to each other" (Tabachnick & Fidell, 1996, p. 195). A canonical correlation has two sides to the equation and each side has several variables. Each side will predict a value that has the highest correlation with a predicted value on the opposite side (Tabachnick & Fidell, 1996). Canonical discriminant function was used in this study to identify the degree of relationship between group membership

and the set of predictors, as well as recognize which predictors are most important in predicting group membership.

For the 46 cases, evaluation of assumptions of linearity, normality, multi-colinearity, or singularity, and homogeneity of variance-covariance matrices revealed no threat to multivariate analysis. Two discriminate functions were calculated with a combined $X^2(14) = 38.01$, $p < .01$. After removal of the first function, there was still a strong association between groups and predictors $X^2(6) = 12.64$ $p < .05$. The two discriminant functions accounted for 70% and 29% respectively, of the between group variability. Psychopathic Deviate accounts for 70.4% of variance alone and Schizophrenia accounts for an additional 29.6% of variance. Results are found in Table 8.

Table 8

Eigenvalues of Validity and Clinical Scales

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.885[a]	70.4	70.4	.685
2	.372[a]	29.6	100.0	.521

Note. First two canonical discriminant functions were used in this analysis.

The first discriminant function maximally separates general education students from emotionally disabled and residentially placed students. The second discriminant function discriminates emotionally disabled students from general education and residentially placed students. The best predictor for distinguishing between general education students and the other two groups (emotionally disabled and residential) is the Psychopathic Deviate Scale. General education students demonstrate fewer characteristic

measured by the Psychopathic Deviate Scale (X = 52.60) than the emotionally disabled (X = 57.67) or the residentially placed students (x = 62.75). The Schizophrenia Scale is the best predictor for distinguishing between the emotionally disabled (X = 55.20), the general education (X = 51.13), and the residentially placed students (X = 51.13). Table 9 provides group means and standard deviations for the three groups. Looking at the relationship of the group means, of the three groups the means are not significantly different but are approaching significance on the Psychopathic Deviate Scale and the Paranoia Scale.

Table 9

Group Means and Standard Deviations of Validity and Clinical Scales

Educational Status	Scale	Mean	Standard Deviation
General Education	Infrequency	48.27	9.34
	Lie	49.33	9.06
	Defensiveness	50.00	10.13
	Hypochondriasis	48.40	12.68
	Depression	45.87	7.32
	Hysteria	48.93	7.68
	Psychopathic Deviate	52.60	14.71
	Masculinity-Femininity	52.60	13.45
	Paranoia	49.20	12.51
	Psychasthenia	48.33	12.65

	Schizophrenia	51.13	15.31
	Hypomania	51.53	12.45
	Social Introversion	49.60	11.44
Emotional Disability	Infrequency	54.60	12.19
	Lie	53.20	8.71
	Defensiveness	51.13	12.24
	Hypochondriasis	52.00	9.75
	Depression	51.67	5.92
	Hysteria	52.20	7.44
	Psychopathic Deviate	57.67	10.26
	Masculinity-Femininity	48.00	9.54
	Paranoia	55.00	13.02
	Psychasthenia	52.27	11.83
	Schizophrenia	55.20	12.98
	Hypomania	61.40	16.77
	Social Introversion	49.00	9.58
Residential Placed	Infrequency	52.13	9.47
	Lie	54.50	8.69
	Defensiveness	51.38	11.20
	Hypochondriasis	53.00	12.53
	Depression	52.56	13.54
	Hysteria	54.56	9.63

Psychopathic Deviate	62.75	13.47
Masculinity-Femininity	50.63	13.39
Paranoia	58.50	10.86
Psychasthenia	50.06	12.89
Schizophrenia	51.13	12.02
Hypomania	57.50	11.61
Social Introversion	47.13	11.29

Note. The table consists only of the Clinical Scales

Table 10

Classification Results: Predicted Group Membership of Validity and Clinical Scales

	Educational Status	General Education	Emotionally Disabled	Residential
Original Count	General Education	12	3	0
	Emotionally Disabled	3	11	1
	Residential	2	4	10
%	General Education	80.0	20.0	.0
	Emotionally Disabled	20.0	73.0	6.7
	Residential	12.5	25.0	62.5

Note. 71.7% of original grouped cases correctly classified.

Based on the data analysis of the Validity and Clinical Scales together it was discovered that the MMPI-A accurately predicted group membership. Table 10

illustrates predicted group membership results. Eighty percent of the time general education students were accurately classified. However 20% of the time general education students were misclassified in the emotional disability category but were never misclassified as residentially placed. Students with emotional disabilities were correctly classified 73.3% of the time. Twenty percent of the time emotionally disabled students were misclassified as general education students and 6.7% of the time they were misclassified as residentially placed. The results also indicated that the MMPI-A correctly recognized residentially placed students 62.5% of the time. Residentially placed students were incorrectly recognized as general education students 12.5% of the time and emotionally disabled 25% of the time.

Data Analysis of MMPI-A Content Scales

A stepwise discriminant function analysis was also performed using the MMPI-A Content Scales as predictors of group membership (general education, emotional disability, and residential placement).

Wilks' Lambda

In the calculation of Wilks' Lambda, it was found that the Alcohol/Drug Problem Proneness and Alcohol/Drug Problem Acknowledgment combined were significant at the .000 level. After removing the Alcohol Proneness Scale, the Alcohol Acknowledgment Scale was not significant by itself. Table 11 presents the results of the Wilks' Lambda analysis for the Content Scales.

Table 11

Wilks' Lambda of Content Scales

Test of Functions	Wilks' Lambda	Chi-Square	df	Sig.
1 thru 2	.335	42.661	14	.000
2	.836	6.972	6	.323

Note. Number one represents the Alcohol/Drug Problem Proneness Scale and Alcohol/Drug Problem Acknowledgment Scale together and number two represents the Alcohol/Drug Problem Acknowledgement Scale alone.

Canonical Discriminant Functions

Similarly to how the canonical discriminant function was used in relation to the Validity and Clinical Scales, it was also used in relation to the Content Scales to identify the degree of relationship between group membership and the set of predictors, as well as recognize which predictors are most important in predicting group membership.

For the 46 cases, two discriminant functions accounted for 88% and 12% respectively, of the between group variability. Alcohol/Drug Problem Proneness accounted for 88.4% of variance and Alcohol/Drug Problem Acknowledgement accounted for an additional 11.6% of the variance. Results are found in Table 12.

Table 12

Eigenvalues of Content Scales

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.497[a]	88.4	88.4	.774
2	196[a]	11.6	100.00	.405

Note. First two canonical discriminant functions were used in this analysis.

Group Means and Standard Deviations

Table 13 provides group means and standard deviations for the three groups (general education, emotionally disabled, and residentially placed). Looking at the relationship of the three groups, the means are not significantly different but are approaching significance on the Alcohol/Drug Problem Proneness Scale (.035) and the Alcohol/Drug Problem Acknowledgement Scale (.003).

Table 13

Group Means and Standard Deviations

Educational Status	Scale	Mean	Standard Deviation
General Education	Anxiety	46.87	13.61
	Obsessiveness	49.27	12.77
	Depression	47.20	10.21
	Health Concerns	50.07	12.79
	Alienation	46.67	10.35
	Bizarre Mentation	50.13	13.71
	Anger	49.47	16.58
	Cynicism	54.27	12.50
	Conduct Problems	49.87	12.88
	Low Self-Esteem	47.07	9.57
	Low Aspirations	48.60	11.11
	Social Discomfort	47.67	12.64
	Family Problems	51.80	14.12
	Negative Treatment Indicators	47.47	9.43

	McAndrew Alcoholism	54.20	12.00
	Alcohol Drug Problem Acknowledgement	50.20	12.77
	Alcohol Drug Problem Proneness	46.93	13.00
	Immaturity	48.47	10.99
	Anxiety	48.33	11.68
	Repression	47.73	8.43
Emotionally Disabled	Anxiety	52.79	12.87
	Obsessiveness	50.43	12.79
	Depression	53.86	12.13
	Health Concerns	55.14	10.48
	Alienation	55.64	14.15
	Bizarre Mentation	56.71	15.07
	Anger	59.43	16.99
	Cynicism	52.50	11.10
	Conduct Problems	58.71	15.07
	Low Self-Esteem	53.93	12.39
	Low Aspirations	54.71	10.72
	Social Discomfort	50.14	10.79
	Family Problems	53.21	13.12
	Negative Treatment Indicators	54.43	15.46

	McAndrew Alcoholism	60.21	14.95
	Alcohol Drug Problem Acknowledgement	56.07	14.07
	Alcohol Drug Problem Proneness	53.71	13.00
	Immaturity	56.00	10.89
	Anxiety	51.29	12.13
	Repression	48.71	8.23
Residentially Placed	Anxiety	51.63	11.98
	Obsessiveness	49.13	10.72
	Depression	52.06	12.43
	Health Concerns	51.31	12.12
	Alienation	56.31	13.23
	Bizarre Mentation	49.00	9.50
	Anger	56.56	16.30
	Cynicism	51.88	9.48
	Conduct Problems	58.00	15.00
	Low Self-Esteem	49.00	11.93
	Low Aspirations	53.50	12.77
	Social Discomfort	48.81	10.36
	Family Problems	51.69	12.61
	Negative Treatment Indicators	53.56	15.59

McAndrew Alcoholism	63.81	9.65
Alcohol Drug Problem Acknowledgement	52.25	10.07
Alcohol Drug Problem Proneness	60.31	13.21
Immaturity	55.56	13.99
Anxiety	48.88	12.26
Repression	50.56	12.51

Content Scale Analysis

The Content Scales were clearly able to identify general education and residentially placed students but not emotionally disabled students. Ninety-three point three percent of the time general education students were correctly classified using the Content Scales. General education students were never misclassified as emotionally disabled. However, 6.7% of the time general education students were misclassified as residentially placed. The emotionally disabled population was only correctly classified 46.7% of the time. These students were misclassified as general education students 40% of the time and as residentially placed 13.3% of the time. Eighty one point three percent of the time residentially placed students were correctly classified. Residentially placed students were misclassified as emotionally disabled 18.8% of the time and were never incorrectly identified as general education students. Refer to Table 14.

Table 14

Classification Results of Content Scales: Predicted Group Membership

	Educational Status	General Education	Emotionally Disabled	Residential
Original Count	General Education	14	0	1
	Emotionally Disabled	6	7	2
	Residential	0	3	13
%	General Education	93.3	.0	6.7
	Emotionally Disabled	40.0	46.7	13.3
	Residential	.0	18.8	81.3

Note. 73.9% of original grouped cases correctly classified

Analysis of Variance (ANOVA)

An analysis of variance (ANOVA) is used to find reliable differences between two or more means. "Analysis of variance evaluates the differences among means relative to the dispersion in the sampling distributions…" (Tabachnick & Fidell, 1996, p. 37-38).

A one-way analysis of variance was run to determine if groups varied significantly on any MMPI-A factor. The analysis of variance looked at between group and within group variance on all 38 scales of the MMPI-A. Variance is the amount of difference between variables. In relation to the MMPI-A Scales, variance is the amount of difference between the three groups of students (general education, emotionally disabled, and residentially placed). A .05 difference is significant and a .01 difference is very significant. In this study two scales were found to be approaching significance

between groups. Those scales were the Alienation Scale which had a between group significance of .085 and the MacAndrew Alcoholism Scale which had a between group significance of .095. Two scales were found to have between group significance. Those scales were the True Response Inconsistency Scale with a between group significance of .005 and the Alcohol Drug Problem Proneness Scale which had a between group significance of .033. Refer to Tables 15, 16, and 17 for the results of the One-way Analysis of Variance of the Validity, Clinical, and Supplementary Scales.

Table 15

Validity Scales One-way Analysis of Variance

	Sum of Squares	Difference	Mean Square	F	Sig.
VRIN					
Between Groups	89.664	2	44.832	.778	.466
Within Groups	2476.771	43	57.599		
TRIN – F					
Between Groups	14.710	2	7.355	.264	.770
Within Groups	668.697	24	27.862		
TRIN – T					
Between Groups	424.351	2	212.175	7.456	.005
Within Groups	455.333	16	28.458		
F1					
Between Groups	440.548	2	220.274	1.149	.327
Within Groups	8245.104	43	191.747		

F2					
Between Groups	218.945	2	109.472	1.573	.219
Within Groups	2992.533	43	69.594		
F					
Between Groups	305.825	2	152.913	1.415	.254
Within Groups	4648.283	43	108.100		
Lie					
Between Groups	221.223	2	110.612	1.422	.252
Within Groups	3343.733	43	77.761		
Defensiveness					
Between Groups	16.451	2	8.226	.065	.937
Within Groups	5413.483	43	125.895		
Cannot Say					
Between Groups	10.558	2	5.279	1.718	.191
Within Groups	132.122	43	3.073		

Table 16

Clinical Scales One-way Analysis of Variance

	Sum of Squares	Difference	Mean Square	F	Sig.
Hypochondriasis					
Between Groups	179.009	2	89.504	.649	.528
Within Groups	5933.600	43	137.991		
Depression					
Between Groups	402.648	2	201.324	2.169	.127
Within Groups	3991.004	43	92.814		
Hysteria					
Between Groups	246.642	2	123.321	1.773	.182
Within Groups	2991.271	43	69.564		
Psychopathic Deviate					
Between Groups	797.893	2	398.946	2.374	.105
Within Groups	7225.933	43	168.045		
Masculinity-Femininity					
Between Groups	159.802	2	79.901	.529	.593
Within Groups	6495.350	43	151.055		
Paranoia					
Between Groups	679.709	2	339.854	2.308	.112
Within Groups	6332.400	43	147.265		
Psychasthenia					
Between Groups	116.622	2	58.311	3.75	.690

Within Groups	6693.204	43	155.656		
Schizophrenia					
Between Groups	167.530	2	83.765	.461	.633
Within Groups	7805.883	43	181.532		
Hypomania					
Between Groups	741.275	2	370.638	1.960	.153
Within Groups	8129.333	43	189.054		
Social Introversion					
Between Groups	52.063	2	26.032	.223	.801
Within Groups	5029.350	43	116.962		
Anxiety					
Between Groups	292.888	2	146.444	.913	.409
Within Groups	6896.417	43	160.382		
Obsessiveness					
Between Groups	9.083	2	4.542	.032	.969
Within Groups	6152.417	43	143.079		
Depression					
Between Groups	357.734	2	178.867	1.351	.270
Within Groups	5691.071	43	132.350		
Health Concerns					
Between Groups	170.296	2	85.148	.613	.546
Within Groups	5969.704	43	138.830		

Alienation					
Between Groups	829.622	2	414.811	2.611	.085
Within Groups	6831.704	43	158.877		
Bizarre Mentation					
Between Groups	466.203	2	233.101	1.591	.216
Within Groups	6300.667	43	146.527		
Anger					
Between Groups	876.352	2	438.176	1.614	.211
Within Groups	11672.604	43	271.456		
Cynicism					
Between Groups	44.830	2	22.415	.187	.830
Within Groups	5155.083	43	119.886		
Conduct Problems					
Between Groups	821.884	2	410.942	2.005	.147
Within Groups	8813.333	43	204.961		
Low Self-Esteem					
Between Groups	323.942	2	161.971	1.276	.289
Within Groups	5456.667	43	126.899		
Low Aspirations					
Between Groups	322.109	2	161.054	1.221	.305
Within Groups	5674.000	43	131.953		
Social Discomfort					
Between Groups	23.347	2	11.673	.092	.913

Within Groups	5475.371	43	127.334		
Family Problems					
Between Groups	251.547	2	125.773	.794	.458
Within Groups	6809.171	43	158.353		
School Problems					
Between Groups	691.099	2	345.549	1.696	.195
Within Groups	8761.771	43	203.762		
Negative Treatment Indicators					
Between Groups	377.881	2	188.941	.998	.377
Within Groups	8141.271	43	189.332		

Table 17

Supplementary Scales One-way Analysis of Variance

	Sum of Squares	Difference	Mean Square	F	Sig.
MacAndrew Alcoholism					
Between Groups	730.867	2	365.433	2.485	.095
Within Groups	6324.438	43	147.080		
Alcohol Drug Problem Acknowledgement					
Between Groups	205.957	2	102.978	.684	.510
Within Groups	6473.333	43	150.535		
Alcohol Drug Problem Proneness					
Between Groups	1386.122	2	693.061	3.710	.033
Within Groups	8031.704	43	186.784		

Immaturity					
Between Groups	506.965	2	253.483	1.754	.185
Within Groups	6213.404	43	144.498		
Anxiety					
Between Groups	56.701	2	28.350	.200	.820
Within Groups	6102.017	43	141.907		
Repression					
Between Groups	64.183	2	32.092	.319	.728
Within Groups	4221.728	42	100.517		

Conclusion

Based on the data analysis, results indicate that the MMPI-A is able to correctly identify educational placement and discriminate between groups. These results are based on a sample size consisting of forty-six students of varying ethnic and geographical background as well as varying age and grade levels. In order to achieve these results it was necessary to run the data analysis of the Content Scales separate from the Validity and Clinical Scales. When this was done, results indicate that the Psychopathic Deviate Scale and the Schizophrenia Scale are the most significant scales in recognizing adolescent placement in relation to education setting. Furthermore, the ANOVA results indicate the True Response Inconsistency Scale and the Alcohol Drug Problem Proneness Scale are responsible for significant between group variance. Overall, the results illustrate that the MMPI-A has the capability to predict educational placement.

Chapter Five

Discussion

Chapter five summarizes the study and it's results, implications of this research, limitations of the study, and directions for future research in this area.

This study was conducted in order to expand the limited amount of research that currently exists related to the MMPI-A and its use with various populations, particularly emotionally disabled students being served in public education settings. The purpose of this research was to determine the predictive utility of the MMPI-A in identifying emotional disability in adolescents. The MMPI-A has historically been used almost exclusively in institutional and private settings. However, more recently the MMPI-A has made its debut in the public sector in the assessment of emotionally disabled adolescents. The primary research goal was to evaluate if the MMPI-A is a valid and appropriate tool to be using with this population.

MMPI-A

The Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A) was published in 1992 and is a downward extension off of the previously published adult version (MMPI, 1943; MMPI-2, 1989). The purpose of the MMPI-A is similar to the adult version, it was developed to identify and evaluate individuals who are psychoneurotic and aid in their treatment. However, the MMPI-A was designed to be used exclusively with adolescents whereas the MMPI and MMPI-2 were designed with an adult sample and with the intention of being used with adults. The MMPI-A consists of 478 items comprising 38 scales divided into four sets: Validity Scales, Clinical (Basic) Scales, Content Scales, and Supplementary Scales (Archer, 1997).

Subjects

The subjects in this study consisted of forty-six adolescents between the ages of twelve and nineteen. The students were either general education students, emotionally disabled students in the public education system, or residentially placed students. The sample group was almost evenly split in the number of males and females, but was disproportionally Caucasian. All of the participants had at least a six grade reading level. The general education and emotionally disabled students were currently in a public education setting and participated voluntarily. The residentially treated sample was obtained via a treatment center, which randomly selected MMPI-A answer sheets of current residents in their facility.

Major Findings and Implications

The purpose of this study was to determine the predictive utility of the MMPI-A in identifying emotional disability in adolescents. Overall, it was found that the MMPI-A has the ability to differentiate group of students based on their educational placement (general education, emotionally disabled, residentially placed). Initially, it was the belief of this researcher that as the severity of educational placement increased so would particular scores on the MMPI-A. However, the results indicate that overall the three groups of students did not vary significantly on the scales of the MMPI-A. It was found that elevated Psychopathic Deviate and Schizophrenia Scales were the best predictors of educational placement and successfully differentiated between the three groups. Overall, the most significant scale was the Psychopathic Deviate Scale. Furthermore, results also indicate that the True Response Inconsistency Scale and the Alcohol Drug Problem Proneness Scale were responsible for significant between group variance. It was

originally the belief of this researcher that numerous scales would be significant in determining educational placement including Adolescent-Anger, Adolescent-Cynicism, Adolescent-Conduct Problems, Adolescent-Family Problems, and Adolescent-School Problems. Although the results of this research were positive, the results differed from what the researcher anticipated.

Unfortunately, very little research exists that is comparable to this study. In a 1998 study done by Ellen Frye it was determined that the MMPI-A (although imperfect) was able to identify some students with severe emotional disability from a clinical sample. The implications of her work suggest that severely emotionally disabled students more closely resemble clinical inpatient adolescents rather than a normal population. The research conducted by Frye is the most closely related study this researcher could find. However, this researcher was not attempting to find resemblance between populations but rather the MMPI-A's ability to significantly distinguish between populations. Based on this goal, the current research was successful, the MMPI-A was able to differentiate between general education students, emotionally disabled students, and residentially placed students. Additionally, it was discovered that when utilizing only the Content Scales of the MMPI-A, one could identify general education and residentially placed students but not emotionally disabled students.

Based on these findings, it is reasonable to believe that the MMPI-A is a valid tool to be used in the assessment of Emotionally Disabled students in public education utilizing the Clinical and/or the Content Scales. The research also indicated that the MMPI-A should be a part of the assessment process but should not be used as the sole indicator of emotionally disability. The results of this study affirmed what those in

special education may already believe; a possibility exists of either over-identification of emotional disability or the under-identification of emotional disability by twenty percent either way. This means that students who may not be emotionally disabled are being identified and treated as such, likewise unidentified emotionally disabled students are not being recognized, and as a result, are not receiving services.

Limitations

Although this study was successful in recognizing that the MMPI-A has predictive utility in identifying educational placement, additional research is necessary before accepting it as a universal tool in the identification process of emotionally disabled students in public education settings. The following areas were found to be limitations to this study:

Sample Size

The sample size used for this study was small and as a result findings were limited. When using a predictive equation such as Discriminant Function Analysis or Multiple Regression Analysis the sample size of the smallest group should exceed the number of prediction variables. A negative outcome of using a small sample is overfitting (producing results so close to the sample that they don't generalize to other samples) which occurs when the number of cases does not exceed the number of predictors. To assist in the reliability of the analysis a separate analyses of two halves of a sample should be conducted then limiting conclusions to results that are consistent with both halves (Tabachnick & Fidell, 1996).

Generalization

A second limitation to this study is that the sample does not generalize to the American adolescent population. This study consisted of an over-representation of Caucasian adolescents from northwestern and north-central Wisconsin. In addition, males were over-represented in the emotional disability group and females were over-represented in the general education group. Due to the limited sample size and the inaccurate representation of the general population of adolescents, the results of this study cannot accurately be transferred to other populations. Although the MMPI-A proved to be successful in this study, the results are limited to this study and should not be generalized to other groups without further research.

Hand-scoring

Computer scoring of the MMPI-A is recommended, particularly when scoring more than one inventory. Typically, hand-scoring is only utilized when scoring one inventory at a time. This researcher hand-cored all 46 inventories. As a result, an increased possibility exists for minor mistakes in the scoring process.

Lack of Similar Research

Unfortunately, very little research is available in relation to the MMPI-A and adolescents who are emotionally disabled. As a result, there is little research to compare this study too. If additional research were available more conclusive results may be possible due to what has already been discovered.

Recommendations

Based on the limitations, the researcher would recommend repeating or building upon this study utilizing a much larger sample size as well as a sample that is comparable

in demographics to the American adolescent population. If this were done, more conclusive results may be drawn and possibly further support could be found for the use of the MMPI-A in the assessment of emotionally disabled adolescents.

Implications for Future Research

Continued use of the MMPI-A, particularly in public education, can be expected. As a result, additional research relating to the MMPI-A and its use with emotionally disabled adolescents is imperative. The implications of utilizing the MMPI-A in the assessment process of students served in the public education setting are positive if continued research can support the MMPI-A's validity with this population. If the MMPI-A is used to discriminate between normal adolescents, emotionally disabled adolescents, and socially maladjusted adolescents the future paths of these individuals may be re-routed for the better. Early intervention is the key in preventing criminal behavior.

An increased ability to differentiate between emotionally disabled and socially maladjusted adolescents is critical, particularly when services may be provided. If a student is identified as emotionally disabled they are eligible for services in the public education setting under the Individuals with Disabilities Education Act (IDEA). Under IDEA, students have a right to an Individual Education Plan (IEP) which allows for educational accommodations based on their disability. IDEA also provides detailed guidelines for discipline procedures of disabled students. This is of particular importance with emotionally disabled students, who by the nature of their disability, poses an increased risk of displaying negative behaviors that may result in suspension and or expulsion. The guidelines set forth under IDEA prevent emotionally disabled students

from being suspended in the same manner as general education students; particularly if their behavior is connected to, or a result of, their disability.

Just as it is important to accurately recognize emotionally disabled students it is also important to correctly recognize socially maladjusted students. Unfortunately, if students are not properly identified or are misclassified as socially maladjusted based on manifested behaviors, their chances of receiving services prior to entering the justice system are grim. This statement reveals the importance of finding a successful evaluation process, which may include the MMPI-A. If student's can be identified as socially maladjusted the opportunity to provide services in the school system are not hopeless, even if services are not possible under IDEA. Recognizing that these students are more than just "trouble makers" allows for intervention via at-risk programs or alcohol and other drug abuse (AODA) programs, as well as classes that emphasize social and life skills. For students identified as socially maladjusted, family connections may be extremely beneficial, particularly in connecting the family to resources outside the school such as individual and family counseling.

Differentiating between emotionally disabled and socially maladjusted students is important. The most important aspect is that intervention strategies for both groups are somewhat different. The nature of their identified disorders call for different intervention strategies. Socially maladjusted students typically need more services than a school is able to provide. Unfortunately, based on the previously discussed exclusionary clause of IDEA these students are generally not being served in the school system and as a result may not be receiving any type of services.

Summary and Conclusion

Currently, over and under identification of emotionally disabled adolescents is a real concern, indicating a need for improved assessment of adolescents. The emotionally disabled population is obviously more troubled than normal students, however the potential remains to prevent these individuals from becoming delinquent burdens on society. It is the responsibility of those in public service and helping professions to undertake the task of identifying and serving these students in order to help the students, their families, the school, and society as a whole.

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APPENDIX A.

Parent/Guardian Informational and Permission Letter

Parent/Guardian Informational and Permission Letter

Date

Dear Parent or Guardian:

My name is Ambrea Bigley. I am currently a graduate student at the University of Wisconsin -Stout, pursuing a degree in school guidance and counseling. I will be completing my course work in May, once I finish my practicum experience at_____. I will be graduating in August when I finish my thesis.

I am writing to you in regards to my thesis. My project involves administering the Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A). The MMPI-A is a standardized inventory used to assess adolescent personalities. This is not a test; there are no right or wrong answers. The inventory is comprised of about an hour and a half worth of statements/questions that the students are asked to respond to as "true" or "false."

The students that participate are asked **not** to identify themselves. The study is not interested in particular student responses individually or as a whole. I will not be interpreting the inventories to "determine" or "analyze" your child's personality; I am only interested in the overall raw score. I will be scoring the inventories with the assistance of my thesis advisor who is a licensed school psychologist with over 15 years experience. I am interested in the total score not the response to any particular questions. I am also interested in the range of scores from each population I look at, not from any individual student or school.

I am conducting this study because the MMPI-A has recently been used in the assessment process of emotionally disturbed students in public education settings. I question whether this is an accurate assessment tool. By looking at the scores of multiple students who have all been identified with various educational needs I hope to gain a better understanding of the validity of the MMPI-A.

I appreciate your cooperation and assistance in this research project. All student participation is voluntary and greatly appreciated. If you have any questions please feel free to contact me at (715) 232-9413 or my thesis advisor Dr. Denise Maricle at (715) 232-2229. If you choose to allow your child to participate please sign the attached consent form and return to school with your child to be returned to me at _____ High School by April 18, 2001, or earlier. I will begin administering the inventories on Thursday, April 19th.
Thank you again for your help.

Sincerely,
Ambrea Bigley

APPENDIX B.

Staff Informational Letter

Staff Informational Letter

Date

Dear Staff:

My name is Ambrea Bigley. I am a practicum student working with Mrs. _____ in the guidance office. I am also working on completing my thesis. In order to finish my thesis I have asked for student volunteers to take a personality inventory. This is a rather lengthy inventory, which could take up to two hours to complete. As a result of the length it may require students to miss some class. Students will have the option of taking the inventory this week, beginning on Friday, April 20, or next week. In order to participate, some students may be requesting to be dismissed from a class. If it is not a convenient or appropriate time for a student to miss your class please don't hesitate to let them know, we will work at re-scheduling a more opportune time for the student to take the inventory. I appreciate your cooperation. If you have any questions I will be at school on Thursday and Friday this week.

Thank you,
Ambrea Bigley

APPENDIX C.

Student Participation Request

Student Participation Request

Date

Students:

I am requesting your help!!! I am currently a graduate student at UW-Stout, working on my master's in school guidance and counseling. I will complete all of my course work this May but I will not graduate until August, which is when I anticipate completing my thesis.

The research project that I am writing my thesis on involves the Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A). The MMPI-A is a standardized inventory used to assess adolescent personalities. This is not a test; there are no right or wrong answers. The inventory consists of questions or statements which you are asked to respond to as "true" or "false." The inventory will take approximately an hour and a half to complete and it can be completed in two separate sessions if your time is limited.

Before you begin the inventory I will ask for some general information such as your age and gender but I do **not** want to know your name or any other information that can be used to identify you. I will be comparing your scores to the scores of other populations that take the inventory. I will not be analyzing or assessing your personality. This research project is not interested in how you answer a particular question but in the total score at the end.

To complete this portion of my research I am seeking at least 15 student volunteers. If you choose to participate, please return the attached consent form to me by Thursday, April 18th or earlier. I am planning on beginning the administration of the inventories on Friday, April 20th. You may also return your consent form at that time. The consent form needs to have your signature as well as a legal parent or guardian signature.

Thank you for your help!!!
If you have any questions please feel free to ask me, I can be found in the guidance office on Tuesday's, Thursday's, and Friday's.

Sincerely,
Ambrea Bigley

APPENDIX D.

Consent for Participation

Consent for Participation

This research examines the relationship between the level of student placement relating to emotional disturbance and MMPI-A (Minnesota Multiphasic Personality Inventory for Adolescents) scores. The goal of this study is to determine if the results of a personality inventory, particularly the MMPI-A has the potential to be a (valid) predictor of school placement level for disturbed adolescents.

Before completing the MMPI-A (or allowing your son or daughter to complete the MMPI-A) please read and sign this consent form, indicating that you understand the potential risks and benefits of participation, and that you understand your rights as a participant.

Risks:
Completion of the MMPI-A may take up to two hours. Some of the items on the MMPI-A may be personal.
*In response to the potential risks, the following actions will take place. The MMPI-A may be completed in two separate sections. For the most accurate results, as many questions as possible should be answered, but no individual response to a particular item is identifiable.

Benefits:
Although the result of this study may be of benefit to others in the future, there is no direct benefit to you or your child by participating in this study.

Confidentiality of responses:
The data associated with this study will remain strictly confidential. The data obtained will be recorded in such a manner that subjects cannot be identified, directly or indirectly. (In order to ensure confidentiality and anonymity of participants no one will have access to their results).

Right to withdraw or decline to participate:
Participation in this study is entirely voluntary. Should you or your child choose to participate and later wish to withdraw from the study, participation may be discontinued at any time without incurring adverse consequences.

If you have any questions or concerns about participation in the research please first contact Ambrea Bigley, researcher, P.O. Box 473 Menomonie, WI, 54751, phone (715) 232-9413 or Dr. Denise Maricle, research advisor, 413 EHS University of Wisconsin-Stout, Menomonie, WI, 54751, phone (715) 232-2229. For further concerns contact Dr. Ted Knous, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 11 HH, UW-Stout, Menomonie, WI, 54751, phone (715) 232-1126.

I attest that I have read and understand the above description, including potential risks, benefits, and my rights as a participant, and that all of my questions about the study have been answered to my satisfaction. I hereby give my informed consent for me/my child to participate in this research study.

Parent/Guardian Signature_____ Date_____

Student Signature_____ Date_____