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ACADEMIC PREDICTORS OF MENTAL HEALTH OUTCOMES
FOR CHILDREN AND YOUTH WITH EMOTIONAL DISTURBANCE

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DOCTOR OF PHILOSOPHY IN URBAN EDUCATION

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This paper is dedicated to my beloved wife and family.

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I would like to acknowledge the groundbreaking work of Dr. Nicholas Hobbs who shared the philosophy of Re-ED with the world. I would also like to acknowledge my friends and colleagues who work in service of creating better futures for troubled and troubling children at the Positive Education Program.

We start with the assumption that each day is of great importance to young people; when an hour is neglected, allowed to pass without reason and intent, teaching and learning go on nevertheless, and the child or adolescent may be the loser. In Re-ED, no one waits for a special therapeutic hour. We try, as best we can, to make all hours special. We strive for immediate and sustained involvement in purposeful and consequential living. (Hobbs, 1982, pp.242-432)

ACADEMIC PREDICTORS OF MENTAL HEALTH OUTCOMES
FOR CHILDREN AND YOUTH WITH EMOTIONAL DISTURBANCE

JOHN J. CALLAHAN

ABSTRACT

Research suggests a strong correlation linking academic achievement and mental health outcomes in children with emotional disturbance (ED) (Kauffman, 2005; U.S. Department of Education, 2006). However, the exact nature of this critical relationship remains unclear. This study used a series of regression analyses and Z-Tests to investigate the predictive relationship of measures of academic achievement in determining social-emotional function over time. Examined was a sample of 261 students receiving special education and mental health services at a treatment center. Academic, mental health and demographic information was gathered from a preexisting archive. Students were assessed annually using the KTEA-II in the areas of reading, writing, and mathematics. Assessment of students' day-to-day social-emotional functioning was measured using the Ohio Scales. Results indicated that, after a year's time, the predictive value of writing achievement in determining social-emotional functioning was statistically significant and the relationship strengthened with time. Implications of the study are explored.

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Chapter I

Statement of the Problem

Representing some of the most difficult students in America's schools, children and youth with emotional disturbance (ED) face multiple obstacles to successful living and learning (Wagner & Cameto, 2004). Children with ED frequently behave in ways that cause significant problems for themselves and others (Kauffman & Landrum, 2009). Among their general education peers, students with ED are often outcasts bearing the scars of familial strife, societal bane, and scholastic failure. These troubled and troubling children inspire negative emotions and destructive behavior throughout their ecology (Hobbs, 1982; Kauffman & Landrum, 2009). Considering the needs and impact of children and youth with ED, it is critical that research provide a vivid portrait of the connection between students' academic achievement and a standard measure of mental health outcomes, social-emotional function (Ogles, Melendez, Davis, & Lunnen, 2000).

An exploration of academic achievement and measures mental health among students with ED begins with a definition of the disorder. With the advent of Public Law 94-142 in 1975, the United States first legally acknowledged the

existence of ED as a disability (Kauffman & Landrum, 2009). Then recognized as severe emotional disturbance (SED), the disorder has been known under several different terms: severe behavioral handicap (SBH), serious emotional disturbance (SED), emotional and behavioral disorders (EBD), and broader designation - antisocial behavior (Walker, Ramsey, & Gresham, 2004); nevertheless, the current federal terminology is defined simply as “emotional disturbance” (IDEA, 2004). Emotional disturbance is defined as:

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 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 schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance. (IDEA, 2004; U.S. Department of Education, 2006, p.46756).

Now reauthorized in the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004), school districts continue to be required to meet the educational needs of children regardless of their disabling condition (Kauffman &

Landrum, 2009; U.S. Department of Education, 2006). For students with ED, disruption is merely a manifestation of their disorder, and their unique learning needs must be accommodated by their schools (IDEA, 2004; U.S. Department of Education, 2006).

For schools, classrooms, and educators, troubled and troubling children with ED present tremendous challenges. Fueled by unrestrained emotion, irrational opposition, and fiery defiance, disruption pervades their lives (Kauffman & Landrum, 2009; Reid, Gonzalez, Nordness, & Epstein, 2004). Students with ED struggle to understand and profit from academic experience (Reid, Gonzalez, Nordness, & Epstein, 2004). Argumentative, withdrawn, even violent behaviors may be part of the students' repertoire; ED can manifest itself across the full range of human expression (Kauffman & Landrum, 2009). While all students whose symptoms fall within the ED continuum are not dangerous, their impact on the learning environment can be considerable (Robinson, Smith, & Miller, 2002). When instructing such formidable students, the severity of opposition and defiance often compels teachers to lower expectations (Kauffman & Landrum, 2009). In time, these difficult students often wallow and stagnate in academic pools of frustration and meaningless tasks (Abrams, 2005).

Common sense asserts that students that demonstrate appropriate social-emotional skills will tend to academically outpace students with social-emotional skill deficits. Indeed numerous studies support the reasonable contention that students' social skills have a strong correlation with academic achievement (Miles & Stipek, 2006; Malecki & Elliot, 2002; DiPerna & Elliot, 1999; Wentzel, 1993;

Feshbach & Feshbach, 1987). As the federal definition of ED implies, the contra positive is also true. The federal definition of ED delineates a connection between social-emotional skill deficits and adverse effects on education. Research clearly demonstrates that students with ED perform at a significantly lower level in measures of academic achievement when compared to their typically developing counterparts (Kauffman & Landrum, 2009; Reid, Gonzalez, Nordness, & Epstein, 2004; Trout, Nordness, Pierce, & Epstein, 2003; U.S. Department of Education, 2006; Nelson, Benner, Lane, & Smith, 2004; Greenbaum et al, 1996). Students with ED often demonstrate academic difficulties in the primary grades that linger throughout their school experience (Lane, 2004; Nelson, Benner, Lane, & Smith, 2004; Greenbaum et al, 1996; Countinho, 1986; Wagner, 1995). As a result, students with ED tend to achieve one to two years behind their age and grade cohorts (Kauffman & Landrum, 2009; Reid, Gonzalez, Nordness, & Epstein, 2004; Trout, Nordness, Pierce, & Epstein, 2003). The tendency for students with ED to underperform in measures of academic achievement prompts researchers to further explore this troubling disorder and its connection to mental health outcomes, or more specifically, social-emotional skill deficits.

The manifestation and impact of ED often predicts negative outcomes that reach beyond the classroom. Research indicates a strong relationship between disruptive behavior and the “short- and long-term impact on students’ future outcomes” (Trout, Nordness, Pierce, & Epstein, 2003, p.198). Students with ED “have lower graduation rates, lower reading and arithmetic scores, and are less likely to attend postsecondary schools” (Trout, Nordness, Pierce, & Epstein,

2003, p.198). Greenbaum et al. (1996) writes that children with ED have the lowest graduation rate for all categories of special education students. Despite the pessimistic outcomes for students with ED, Mattison (2004) writes that “large numbers of children benefit from EBD [ED] services allowing them to re-enter general education programming and graduate from high school” (p. 171). While the damaging connection of troubling social-emotional function and academic under achievement is clear, little is understood about this troubling connection and its variance within the population of students with ED.

The population of ED also assumes a wide-ranging group of prognostic origins. Epstein et al. (2005) write that the “conditions under which the development of problem behavior and academic underachievement evolve vary considerably” (p. 453). Wagner (1995) notes the high rate of learning disabilities in students with ED. Mattison (2004) writes that children with ED often have “neuropsychological deficits” (p.173) such as difficulty with phonological processing and reading dysfunction. Many academic and social skill deficits - the tell-tale characteristics of ED - develop in high stress, “toxic family conditions” (Walker, Ramsey, & Gresham, 2004, p. 280; Mattison, 2004). While a clear causal connection remains elusive (Epstein, Nelson, Trout, & Mooney, 2005), studies strongly support the link between social-emotional skill deficits and academic underachievement.

Estimates of the percentage of the population with ED vary widely (Kauffman & Landrum, 2009). The United States Department of Education (2010) reports that in 2008, approximately .9% of the total population of students,

ages 3 to 21, enrolled in public schools, were served under the Individuals with Disabilities Education Act (IDEA). According to United States Department of Education (2010), students with ED represent 6.7% of all children and youth with disabilities served under IDEA. Kauffman (2009) writes that “reasonable estimates” (p.34) of American students with ED indicate the percentage to be in the range of “3 to 6%” (p.32). Since the United States lacks a comprehensive “strategic plan for identifying and providing services” (Quinn & Poirer, 2004, p. 82) for children with ED, accurate account of the population of troubled and troubling children (Hobbs, 1982) are obscured in the bureaucratic fog of education and mental health definitions and services.

The research is clear regarding characteristics of children and youth with ED. Without question, race, gender, income, and social mobility are important factors that seem to influence which students are identified with this troubling disorder. First, African American students are far more likely than non-African Americans to be identified as ED (Cullinan & Kauffman, 2005; U.S. Department of Education, 2002; Coutinho & Oswald, 1999; Sewartka, Deering, and Grant, 1995). According to US Department of Education (2002), black students make up 27% of students identified with ED, but African American students represent only 17% of the total population of students in the United States. These students with ED are often males (Cullinan, Osborne, & Epstein, 2004) from low-income families, whose education is frequently disrupted by moving from school to school (Malmgren & Gagnon, 2005). The research of Malmgren and Gagnon indicate that students with ED experienced high rates of school mobility with 89%

having changed schools at least once by the end of fifth grade. Without question, ED is a complex problem entangled in a vast array of biological, familial, cultural, and scholastic variables.

As noted previously, ED is a term designated by the United States Department of Education (U.S. Department of Education, 2006; IDEA, 2004). Under IDEA regulations, services for children and youth with ED are provided by a child's school district (IDEA, 2004). Funding includes federal and local education monies in effort to address their considerable academic and social skill needs. Nevertheless, Kauffman and Landrum (2009) indicate that many special educators serve students with ED that have been diagnosed with psychiatric diseases. Kauffman and Landrum (2009) emphasizes that psychiatric categories, such as those seen in the *Diagnostic and Statistical Manual of Mental Disorders IV-TR* (DSM-IV) (American Psychiatric Association, 2000), "are not aligned with eligibility criteria for special education" (p.110). While the No Child Left Behind Act of 2001 (NCLB) emphasizes improving academic achievement for all students, the intricacies of the law have made it difficult for mental health professionals to interface with schools (Daly, et al, 2006). Typical of the schism between the educational and mental health worlds, NCLB lacks specific funding and direction for students with mental health needs (Daly, et al, 2006). Considered "nonacademic barriers to learning" school mental health needs remain "a challenge in articulating common interpretations for allocating funds" (Daly, 2006, p.447).

From a mental health standpoint, children with psychiatric disorders bear distinct diagnostic labels and definitions (American Psychiatric Association, 2000). The manifestation of psychiatric disease typically affects the children's functioning in the home and community as well as in school (Kutash, Duchnowski, & Friedman, 2005). Recognizing the clear overlap of mental health and educational needs for troubled children, the National Association of State Mental Health Program Directors (NASMHPD) has strongly suggested a national strategy toward greater collaboration of service providers (NASMHPD, 2001). Nevertheless, mental health services and special education often remain two mutually exclusive entities baring discrete, deeply entrenched, and fiercely defended funding mechanisms.

Distribution of federal Medicaid funding for mental health services varies from state to state. (U.S. Department of Health & Human Services, 2008). While changes in state funding are imminent, mental health services for children are "financed largely through state funds and through fee-for-service mechanisms" (Kutash, Duchnowski, & Friedman, 2005, p. 6). While recent changes in mental health services for children place increased emphasis on aid provided by managed care systems, many organizations still rely on funding through the federal Medicaid program (Friedman, 2002). From the perspective of the federal Medicaid program, psychiatric disease is a medical condition requiring a medical treatment under the direction of a physician (U.S. Department of Health & Human Services, 2008). Medicaid mental health funds also must be provided in an

accredited psychiatric hospital or inpatient program (U.S. Department of Health and Human Services, 2008).

Quinn and Poirer (2004) write that children with ED are typical of all children and adolescents identified as needing mental health services. “In tandem with issues of under identification are issues of under service” (Daly, et al. 2006, Quinn & Poirer, 2004, p. 82.). Numerous studies document the inadequate mental health services provided for children and youth with mental health difficulties (Costello, Burns, Argold, & Leaf, 1993; McKay, Stoewe, McCadam, & Gonzales, 1998; Staudt, 2003). Little has changed since Costello, et al (1993) reported that of the estimated 20% of the population of students that have mental health difficulties, only 5% receive mental health services. Thus, with the exception of the fraction of the estimated total population of children with ED that are receiving mental health services, education agencies are the de facto mental health provider (Forness, 2004; Quinn and Poirer, 2004; Strein, Hoagwood, & Cohn, 2003; Hoagwood & Erwin, 1997; Burns, et al., 1995).

From an educational perspective, IDEA mandates that students with disabilities, including students with ED, must be served in their least restrictive environment (LRE) (IDEA, 2004; U.S. Department of Education, 2006). To meet the unique needs of all children with ED, federal law requires a continuum of services to be available. Kauffman and Landrum (2009) write that these services may be a general education classroom with educational supports such as an aide. Other students may require a “crisis or resource teacher” (Kauffman & Landrum, 2009, p. 53), available in a general education school, that consults periodically

with the student and classroom teachers. Still other students with ED may require self-contained special classes in general schools. This may include inclusion (Kauffman & Landrum, 2009) for part of the school day. For many students with ED, inclusion in general education setting is not possible. Students' severe symptoms may require home instruction or attendance at special day schools (Kauffman & Landrum, 2009). Some school districts share the extensive financial burden of such facilities by establishing cooperative or regional centers for students with ED. Day treatment or partial hospitalization programs may be necessary for students with intense supervision and support needs. On the most severe end of the treatment continuum are residential treatment and inpatient hospitals (Kauffman & Landrum, 2009). Students with ED that require hospitalization may include those who reside at home on weekends and attend classrooms in the community (Kauffman & Landrum, 2009). It is important to note that as students' educational needs increase, so does the extraordinary cost of services (Dymond, Renzaglia, & Chun, 2008).

Without question, juvenile justice facilities are among the settings that serve children with ED (Stenhjem, 2005; Quinn, et al, 2005; Quinn, Rutherford, & Leone, 2001; Burrell & Warboys 2000), and its costs are staggering. In 2009, Richard Mendel, writing for the Annie E. Casey Foundation, reported that "The average cost to build, finance and operate a single detention bed over its first twenty years is approximately \$1.5 million per bed" (p. 5). Researchers suggest that the population of children with ED among those detained in juvenile justice facilities to be disproportionately higher than the general population (Stenhjem,

2005; Quinn, et al, 2005; Quinn, Rutherford, & Leone, 2001; Burrell & Warboys 2000). Quinn, Rutherford, and Leone, (2001) conservatively estimates the population of incarcerated youth with ED to be 32% of all detained children. These children are overwhelmingly impoverished and often members of minority groups (Quinn, et al., 2005). According to the Center on Crime, Communities, and Culture (1997), a massive swath of incarcerated children are barely literate and have experienced school failure. According to Quinn, et al. (2005), many of these incarcerated children have severe educational, mental health, and social skill deficits whose special education needs are often neglected (Burrells & Warboys, 2000).

The implications for children and youth with ED are grave. According to Riley (1998), children with severe psychiatric disorders face a “twofold burden” (Riley, 1998, p.620). Riley suggests that children with ED “suffer the symptoms of the disorder and the disruption of developmentally appropriate social functioning” (Riley, 1998, p.620). Individuals with ED are more likely to be arrested, unemployed, abuse drugs, abuse alcohol, and participate in sexual activity at an early age (Wagner, 1995; Bullis, Walker, & Stieber, 1998; Kivirauma & Jahnukainen, 2001; Kauffman & Landrum, 2009; Quinn & Poirier, 2004). Considering the prevalence and deleterious effects of ED, the economic and social costs of ED are acutely troubling (Wagner, et al, 1995; Wagner & Cameto, 2004). The distressing outcomes for children and youth with ED compel researchers to further examine the disorder, clarify the connection between

academic achievement and measures of mental health, and provide educators and families a more hopeful future.

Purpose of the Study

The academic achievement of troubled children and youth has been studied for many years (Kauffman & Landrum, 2009; Trout, Nordness, Pierce, & Epstein, 2003; Bower, 1981; Rubin & Balow, 1978). Research clearly indicates that “low achievement and behavior problems go hand in hand” (Kauffman, 2005, p. 210). Kathleen Lane and her colleagues (2007) write emphatically: “Although the exact nature between achievement and behavior is yet to be determined, what is clear is that (a) a relationship does exist and (b) these variables should not be viewed or treated as mutually exclusive concerns” (p.216). Despite Lane’s assertion, much remains to be learned about academic achievement among students with ED. A gap exists in understanding the relationship between academic achievement and social-emotional functioning across the varied spectrum of children with ED. Thus, in effort to affect positive change toward the treatment of ED, the purpose of this study was to examine the predictive value of certain measures of academic achievement in regards to mental health outcomes among children and youth receiving services for ED in a partial hospital, day treatment center. More specifically, this study quantified the connection between measures of academic achievement and its predicative relationship with social-emotional functioning while considering the level of problem severity among children and youth with ED. Finally, this study examined the strength of the

predictive relationship between measures of academic achievement and social-emotional function as measured over a year's time.

Research Questions

The purpose of this study was to answer the following research questions:

1. Is there a predictive relationship between measures academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade?

2. Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of problem severity among students with moderate and severe impairment compared to students with minimal and mild impairment?

3. Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points?

Significance of the Study

For educators and mental health providers, standard measures of academic achievement and mental health may seem like incongruous assessment tools. However, decades of research has indicated that a strong correlation exists between academic achievement and mental health outcomes in children with ED (Kauffman, 2005; U.S. Department of Education, 2006). Still, mental health and special education in the United States remain two distinct domains of practice and care. Evidence indicating the existence of a predictive relationship between

measures of academic achievement and social-emotional function in students with ED, obtained through Question 1, provides caregivers with new information about the relationship between these two constructs at the point of entry into a day treatment program.. The existence of strong academic predictors of mental health outcomes may further trumpet the need for meaningful collaboration between childhood mental health providers and special educators. If no relationship is found at time of entry, this relationship is also examined at a second time point after treatment to determine whether there is a change in this relationship.

Under IDEA (2004), ED has a broad – even vague - definition (Forness & Kavale, 2001a; Reddy, 2001; Bates, 2001). Central to its definition is the adverse effects of ED on a child’s educational performance (U.S. Department of Education, 2006; Kauffman & Landrum, 2009). Children with ED demonstrate vast differences (Kauffman & Landrum, 2009). By further exploring the relationship in Question 2 between social-emotional functioning and academic achievement, as well as how this relationship might vary when considering problem severity, the study adds information that may provide families and educators with a better understanding of their children, their students, and this vexing disorder. It examines whether the potential relationship between academic achievement and social-emotional function differs due to varying levels of severity of the disability.

Improvements in understanding the nature of ED may positively affect service delivery and curriculum choices for troubled and troubling students. Epstein, Nelson, Trout, and Mooney (2005) report evidence that indicates that

“students with ED enter school underachieving in basic academic skills and fall further behind as time passes” (p.461). Thus, evidence of increasing sensitivity between measures of academic achievement and mental health among troubled and troubling children, explored in Question 3, may send a powerful message in support of those who seek more effective practices -- including the collaboration between mental health and scholastic services -- for a treatment resistant population.

Greater clarity in the relationship between social-emotional functioning and academic achievement may be of interest to educators and citizens that are concerned with their state’s and district’s reports on academic progress. As school data on student performance is required by the No Child Left Behind Act of 2001 (NCLB) (2002), states and districts are required to assess all students in mathematics and reading. NCLB requires 95% participation rates in statewide assessments for all groups of students, including those with disabilities (U.S. Department of Education, 2010). NCLB permits states to allow a scant 1% of students with the most significant cognitive disabilities to be counted as proficient based on alternative achievement assessments (U.S. Department of Education, 2010). Recent changes to NCLB in 2007 now permits states a third testing option – a modified assessment – for up to an additional 2% of students for whom the traditional and alternate assessments are not appropriate (U.S. Department of Education, 2010). However, most states have yet to implement the change.

For example, in the state of Ohio, school districts are assessed by the Ohio Department of Education (Ohio Department of Education, 2007) on their annual

yearly progress (AYP). Having yet to implement the 2007 amendment to NCLB, Ohio permits 1% of students with disabilities to be alternatively assessed. Ohio districts that fail to meet federal and state standards for AYP face penalties that range from replacing key district personnel to providing scholarships and transportation to district families that desire alternatives to their failing schools (Ohio Department of Education, 2007). With increased knowledge of academic performance in children with ED, school districts may be able to use strategies to help these students improve their academic performance and help districts avoid painful consequences of deteriorating AYP.

This research may bear the greatest significance for mental health and educational policy makers. As mentioned previously, leading researchers in the field of emotional disturbances, Kathleen Lane and her colleagues (2007) boldly assert that among children with ED, behavior and achievement must not be viewed as “mutually exclusive concerns” (p.216). In accordance with Lane (2007), the researcher believes that her assertion demands further examination and clarification. The addition of research supporting a relationship between achievement and social/emotional functioning, leads one to consider the possibility of collaboration among academic and mental health funding and service providers. With the existing federal mandate for the implementation of scientifically proven instruction for all students, evidence linking educational and mental health outcomes may force reconsideration of decades old approaches to health and education.

Definition of Terms

The terminology used throughout this document is as follows:

Emotional Disturbance

Emotional Disturbance (ED) is defined as:

“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 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” (i) The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (IDEA, 2004; U.S. Department of Education, 2006, p.46756).*Level of impairment*

Level of impairment refers to students’ performance as indicated by the Ohio Scales’ Problem Severity Score. The Ohio Scales suggests that the score, ranging from 1-100 be interpreted as such: <20 = Minimal Level of Severity; 20-30 = Mild Level of Severity; 31-50 = Moderate Level of Severity; > 50 = Severe Level of Severity (Ogles, Melendez, Davis, & Lunnen, 2000).

Measures of Academic Achievement

Measures of Academic Achievement refers to students’ performance on KTEA-II as measured by the raw scores on the following subtests: Reading

Comprehension, Written Expression, and Math Concepts and Applications subtests. These measures of academic achievement were selected by the researcher based on the report of the authors of the KTEA-II. Kaufman and Kaufman (2004) indicate that the smallest differences between children with ED and nonclinical groups occurred “on the subtests that are more conceptual in nature, such as Oral Expression, Listening Comprehension, Reading Comprehension, and Math Concepts and Applications” (p. 116).

Ohio Youth Problems, Functioning, and Satisfaction Scales (Ohio Scales)

The *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales) is a standard, practical, multi-source, multi-content measures of clinical outcome for use in applied settings with youth ages 5 to 18 (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, Lunnen, 2001). The parent and youth forms will not be used in this study.

Social-emotional functioning

Social-emotional function is the primary measure of mental health outcomes examined in the research study. Social-emotional functioning is a mental health term used by practitioners of The *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales) that quantifies the quality of the participants’ day-to-day interactions and emotional management. Social-emotional functioning is defined by the score on items 1-20 on the Ohio Scales. The Ohio Scales suggests that the score, ranging from 1-80 be interpreted as such: 55 = Higher Functioning Level; 45-54 = Moderate Functioning Level; 35-44 =

Low Functioning Level; < 35 = Impaired Functioning Level) (Ogles, Melendez, Davis, & Lunnen, 2000).

The Kaufman Test of Educational Achievement, Second Edition, (KTEA-II)

The Kaufman Test of Educational Achievement, Second Edition (KTEA-II) is an individually administered standardized assessment tool that measures achievement in reading, math, and written language, and oral language. (The oral language subscale was not used in this study).

Chapter II

Review of Literature

Conceptual Models and Causality

Characteristic of most scholarship in the field of special education and mental health, researchers, educators, families, and mental health service providers often possess competing models and approaches to ED and its treatment. Furthermore, schools, mental health systems and families operate within different philosophical and organizational cultures (NASMHPD, 2001). While it is unlikely that competent teachers, psychologists, and psychiatrists view children and youth through only one lens (Kauffman & Landrum, 2009), basic assumptions regarding ED and its origin drive their treatment (Kauffman & Landrum, 2009; Halgin, 2005). An examination of the relationship between academic achievement and measures of mental health in children and youth with ED requires a cursory outline of existing conceptual models of the disorder and causality.

The Behavioral Model. Behaviorism has been a powerful force in special education and mental health for over half a century. The behavioral model of understanding and treating ED is built upon the work of behavior psychologists

like Pavlov and Skinner (Drasgow, Yell, & Halle, 2009). For behaviorists, ED is the result of “faulty learning experiences” (Halgin, 2005, p. xxii). Focusing on observable antecedents and consequences to learning and actions, the behavioral model emphasizes precise definition, reliable measurement, and control of variables to manage and change maladaptive behaviors (Kauffman & Landrum, 2009; Yell, Meadows, Drasgow, & Shriner, 2009). Kauffman (2005) suggests that two assumptions precede the behavioral model of ED: “1. The essence of the problem is the behavior itself 2. Behavior is a function of environmental events” (Kauffman, 2005, p. 77). Thus, treatment focuses on shaping the environmental context of target behaviors (Kauffman & Landrum, 2009; Yell, Meadows, Drasgow, & Shriner, 2009). Behaviorists carefully alter antecedent and consequent events until consistent changes are produced in the target behaviors (Kauffman & Landrum, 2009; Yell, Meadows, Drasgow, and Shriner, 2009). Applied behavioral analysis (ABA) is an essential treatment methodology for behaviorists that utilizes manipulation of reinforcement, punishment, consequences, praise, and contingencies (Yell, Meadows, Drasgow, and Shriner, 2009).

The Medical Model. In stark contrast to the behavioral model, the medical model was long considered a derogatory term among most special educators for much of the last twenty years (Kauffman & Landrum, 2009; Forness & Kavale, 2001b). Nonetheless, board certified psychologist and professor at the University of Massachusetts- Amherst, Richard P. Halgin (2005) considers the medical model, “The most powerful force in mental health during the twentieth

century upon which many forms of intervention are based.” (p.xx). The medical model refers to the belief in a neurobiological etiology of ED (Frances, First, & Pincus, 2005; Sugden, Kile, & Hendren, 2006; Forness & Kavale, 2001b; Forness et al., 1998; Gresham et al, 1998). Thus, from a strict medical model perspective, “disturbances in emotions, behavior, and cognitive processes are viewed as being caused by abnormalities in the functioning of the body, such as the brain and nervous system or endocrine system” (Halgin, 2005, p. xxi). Two basic assumptions often accompany the medical model (Kauffman & Landrum, 2009). First, ED is the embodiment of a physiological defect (Kauffman & Landrum, 2009). Second, ED can be brought under control through physiological processes (Kauffman & Landrum, 2009).

Sometimes referred to the “biogenic approach” (Kauffman, 2005, pp. 75-76) or “biological perspective” (Halgin, 2005, p. xxi), the medical model gathers validity from recent developments in genetics (Solomon, Hessler, Chiu, Hagerman, & Hendren, 2007), brain imaging (Malhotra, 2006; Hendren, De Backer, & Pandina, 2000), and the success of medication in treating ED (Kauffman & Landrum, 2009; Forness & Kavale, 2001b). Similar to a medical doctor’s approach to physical illnesses, purveyors of the medical model diagnose symptoms and assign them a relatively discrete category of disease (American Psychiatric Association, 2000; Widiger & Samuel 2005). As many mental illnesses share symptoms, co-occurring indicators of disease are grouped into syndromes (Frances, First, & Pincus, 2005). A comprehensive categorical list of mental health symptoms and syndromes is outlined in *Diagnostic and Statistical*

Manual of Mental Disorders IV-TR (DSM-IV) (American Psychiatric Association, 2000).

While discovering a clear physiological pathology and categorical certainty may be the ethos of those whom subscribe to the medical model, clarity is rarely the case. Much debate revolves around the usefulness of a categorical approach to mental health diagnoses (Halgin, 2005; Widiger & Samuel 2005; Forness & Kavale, 2001b). The authors of the DSM-IV qualify its intended use: “There is no assumption that each category of mental disorder is a completely discrete entity with absolute boundaries dividing it from other mental disorders or from no mental disorder” (American Psychiatric Association, 2000, p. xxxi). Thus, many mental health practitioners struggle to neatly define their clients’ diseases. While most mental health professionals tend to view ED through the lens similar to that of organic medicine (Whittenhall, 2007), many also “agree that mental disorders appear to be the result of a complex interaction of an array of interacting biological vulnerabilities and dispositions and environmental, psychosocial events” (Widiger & Samuel 2005, p. 500).

The Ecological Model. A third conceptual model of understanding and treating ED is the ecological perspective. The ecological model of ED draws considerable influence from two main sources: community-based, European educators (Hobbs, 1982; Kauffman & Landrum, 2009) and Bronfenbrenner’s ecological systems theory (Hobbs, 1966, Hobbs, 1982, Kauffman & Landrum, 2009; Cantrell & Cantrell, 2007). In the United States, the ecological model was extended by Nicholas Hobbs and William Rhodes for treatment of children with

ED (Hobbs, 1982; Cantrell & Cantrell, 2007). Hobbs (1982) defined ecology as “the study of the complex interaction of energies in natural systems” (p. 189). For proponents of the ecological model, children and youth are “enmeshed in a complex social system” (Hobbs, 2005, p. 77) that includes “the child, family, school, neighborhood, and other community units” (Cantrell & Cantrell, 2007, p. 71). The ecological model suggests that each of these elements must be considered when exploring pathology and treatment (Cantrell & Cantrell, 2007). The ecological model stresses the interdependence of social systems’ members and their interaction with the environment (Cantrell & Cantrell, 2007). Thus, from an ecological perspective, ED does not reside exclusively in a troubled child (Cantrell & Cantrell, 2007, Cantrell, Cantrell, Valore, Jones, & Fescer, 1999). ED represents discord within the child and the members of the child’s social system (Cantrell & Cantrell, 2007). Treatments for children with ED in ecological programs tend “to emphasize behavioral and social learning concepts and the ways they can be used to alter an entire social system” (Kauffman, 2005, p.77).

Causality. In tandem with theoretical approaches to ED, research and service for children and youth with ED ultimately leads many to question the nature of causality in the disorder. Scores of researchers, including Nicholas Hobbs (1966) pondered this very point (Kauffman & Landrum, 2009; Hobbs, 1966; Epstein, Nelson, Trout, & Mooney, 2005). Researchers are consumed with a baffling array of co-occurring risk factors (Epstein, Nelson, Trout, and Mooney, 2005). For example, Kauffman (2005) reports that “disordered behavior apparently makes achievement less likely” (p.210). Yet other research suggests

that academic underachievement fosters social costs that are likely to produce inappropriate behavior (Petras, 2004; Bower, 1995; Walker, et al, 2004). Among this body of literature is Petras' (2004) startling work that demonstrated the significant prophetic value of first grade reading difficulties and later antisocial behavior among adolescents and young adults. Still others (McEvoy & Welker, 2000) suggest that ineffective schooling can be a cause and effect of violent or other antisocial behavior. Certainly direction of causality in ED remains pertinent to contemporary research and critical to developing intervention programs (Epstein, Nelson, Trout, & Mooney, 2005). Olweus (1983) provides a model to study the problem.

Olweus (1983) suggests four models to exploring the direction of causality. The first model suggests that academic failure drives emotional and behavioral problems for children (Olweus, 1983). Model 2 proposes the reverse: Emotional problems and social skill deficits cause scholastic difficulties (Olweus, 1983). Model 3 (Olweus, 1983) describes a reciprocal relationship where academic deficiency and emotional problems occur simultaneously. Finally, Model 4 (Olweus, 1983) indicates a spurious relationship where underlying etiological factors cause both academic underachievement and emotional disturbance (Olweus, 1983; Epstein, Nelson, Trout, & Mooney, 2005). While correlative research exists that can support each of these hypotheses, a conclusive causal pathway remains unclear (Kauffman & Landrum, 2009; Epstein, Nelson, Trout, and Mooney, 2005). Nevertheless, causal models remain influential in directing mental health policy, program design, and "making decisive rulings

about factors that may influence the phenomenon” (Epstein, Nelson, Trout, and Mooney, 2005, p. 453). Many researchers prefer the accessibility of studying risks factors and their “direct influence on the development of co-occurring underachievement and ED” (Epstein, Nelson, Trout, and Mooney, 2005, p. 453).

Treatment of Emotional Disturbance: History, Practice, & Law

The history of treatment and education of children and youth with ED has been largely directed by law rather than research and practice. Therefore, an examination of the relationship between social-emotional function and academic under achievement in children and youth with ED requires an acknowledgement of the legal realities that continue to shape the futures of students with ED. Tied to the struggle for civil rights, the history of treatment of children and youth with ED is fraught with exclusion, underfunding, and politics rather than evidence-based practice, pragmatism, and care.

While Americans may consider education a birthright, it is not mentioned in the United States Constitution (Yell, 2006). As powers not outlined in the Constitution are reserved for individual states, a series of state laws ignited the cause of compulsory education for all children (Yell, 2006). It was not until 1918 that compulsory public education was provided by the entire United States (Yell, 2006). While little data exists as to the fate of children and youth with ED before its recognition and treatment as a discrete psycho-educational phenomenon, it is assumed that the vast majority of troubled students were expelled, institutionalized, or incarcerated. Yell (2006) documents a series of court supported education laws enacted by individual states that excluded children with

disabilities from compulsory education. *Watson v. City of Cambridge*, 1893 allowed troublesome children to be expelled from public education (Yell, 2006). Again in 1919, *Beattie v. Board of Education* ruled that school officials could exclude children with disabilities (Yell, 2006). Even when courts recognized the conflict between compulsory education and exclusionary provisions, courts failed to interfere with school districts' practices of expelling children with disabilities (Yell, 2006). As recent as 1969, students designated as "mentally deficient" (Yell, 2006, p. 63) were legally excluded from a free and appropriate education. It seems that as the American consciousness progressed to address children with ED, so did treatment and research.

Although aberrant behavior in children and youth is hardly a new issue, it is only in the last sixty years that developmental research has been specifically targeted towards children with ED. Much of the current research springs from the innovative works of Skinner (1953) as well as Redl and Wineman (1951, 1952). While Skinner (1953) forged the behavioral approach to understanding the actions of children, it was Redl, a student of Anna Freud (Long, Wood, & Fecser, 2001), and Wineman (1952) who developed a detailed methodology to working with troubled children. Redl and Wineman (1951) placed great importance on the role of the peer group as the primary forum for therapeutic intervention among children with ED (Long, Wood, & Fecser, 2001). For Redl and Wineman, crises were an opportunity to develop and practice self-control (Redl & Wineman, 1952). Understanding the volatility of children with ED, Redl and Wineman suggested that adults, working in direct service with children, have the best

opportunity to intervene therapeutically during crises (Redl & Wineman, 1952). As an alternative to adult mental hospitals, Redl and Wineman (Long, Wood, & Fecser, 2001) championed the use of community based mental health, such as the Pioneer House in Detroit, Michigan (Long, Wood, & Fecser, 2001). It was settings such as Pioneer and Cumberland House that set a new course for service for children with ED (Cantrell & Cantrell, 2007; Redl & Wineman, 1952).

Ecologists like Hobbs seized upon the innovations developed by Redl and Wineman. Hobbs and his devotees suggested that careful attention and modification of “naturally occurring events” (Kauffman, 2005, p. 77), such as school activities, might improve instruction and behavior management for children and youth with ED. Proponents of the ecological approach proposed “less reliance on artificial interventions” (Kauffman, 2005, p. 77) such as hospitalization, as costly, intrusive, temporary, and unreliable (Kauffman, 2005; Hobbs 1982). In essence, Hobbs sought the integration of mental health interventions and scholarship through the use of multi-tooled and motivated teacher-counselors (Hobbs, 1975a). Hobbs recoiled at the formal practices and clinical language of hospitals (Hobbs, 1982, 1975a) in place of the therapeutic classroom. Hobbs (1982) writes that “research evidence validates our repeated observations that, for children with academic deficits, the mastery of basic learning skills is a prerequisite to overcoming emotional problems” (p.290). For Hobbs, academic learning *was* mental health therapy for children and youth with ED (Hobbs, 1982). Hobbs’ theory is often called the Competence Model (Hobbs,

1982) which suggests an interactive relationship between academic success and emotional control (Hobbs, 1982).

In the early 1960's, Hobbs' service model was realized in a pilot program funded by the National Institute for Mental Health (Cantrell & Cantrell, 2007). Hobbs vision featured the teacher-counselor as the "primary agent of change" (Cantrell & Cantrell, 2007, p. 500). Part teacher, part mental health provider, and part camp counselor, the teacher-counselor was designed as an inexpensive alternative to the traditional psychiatrist (Kauffman & Landrum, 2009; Cantrell & Cantrell, 2007; Hobbs, 1982). Hobbs imagined the teacher-counselor supported by trained mental health and education licensed specialists (Cantrell & Cantrell, 2007). Hobbs competence model featured a strength-based focus, built around a child's unique ecology (Cantrell & Cantrell, 2007; Hobbs, 1982). In partnership with parents and other natural support systems, Hobbs hoped that children might be served in as normal a setting as possible (Cantrell & Cantrell, 2007). Hobbs hoped his model would supplant the medical mental health model for a more effective and less expensive treatment for children and youth with ED.

Dubbed "Project Re-ED" (Cantrell & Cantrell, 2007, p. 501), Hobbs program demonstrated success and gathered momentum. Once merely a small program operated through Peabody College in Tennessee, the successful project grew beyond its original research scope. Having outlived its original funding, Project Re-ED sought funding through the federal Medicaid program operated by the Department of Mental Health (Cantrell & Cantrell, 2007). By the 1970's, the Medicaid funded Tennessee Re-ED programs were subsumed into the children's

units of their state psychiatric hospitals (Cantrell & Cantrell, 2007, p.502). While Medicaid funding allowed expansion of the program, it required extensive medical reporting and federal regulation. Re-Ed historian, William Clark Luster, notes that “requirements of mental health Medicaid funding proved to be antithetical to Re-ED practices—greatly increasing costs by substituting or adding staff with other credentials and emphasizing expensive medical model reporting” (Cantrell & Cantrell, 2007, p. 504). While flexibility was to be a defining characteristic of Hobb’s vision, accommodating Medicaid’s requirements eliminated critical elements, such as family-based interventions, from his service model (Cantrell & Cantrell, 2007).

Services for children and youth with ED that lived beyond the reach of innovative treatment and special education suffered exclusion from a free and appropriate public education (FAPE) before the passage of PL 94-142 (Cantrell & Cantrell, 2007). During the 1960’s and 1970’s, the United States began to recognize the need to educate children with disabilities, including those with ED (Kauffman & Landrum, 2009). Thankfully, the focus on services for children with ED grew dramatically in second half of the 20th century (Kauffman & Landrum, 2009).

Starting in the mid 1960’s, a series of federal legislative acts was enacted to address specific groups of students, including those with disabilities (Yell, 2006). Created as an essential element of President Johnson’s war on poverty, the Elementary and Secondary Education Act of 1965 provided funding for disadvantaged children, including students attending state schools for the visually

and hearing impaired as well as students with intellectual and developmental disabilities (Yell, 2006). A succession of legislation followed that expanded funding for children with disabilities (Yell, 2006). The Education of the Handicapped Act of 1970, Section 504 of the Rehabilitation Act of 1973, and the Education Amendments of 1974 assisted in consolidating federal funding programs, ensuring civil rights, and broadening educational opportunities for children with disabilities (Yell, 2006).

During this time, Hobbs (1975b) and Bower (Kaufman, 2005) were leaders in identifying and classifying the special education needs of children. In 1975, Public Law 94-142, known as The Education of All Children Act (EAHCA), recognized ED as a distinct disability (Kavale & Forness, 2000; Bower, 1982). PL 94-142 adopted Bower's definition of ED nearly word for word; nevertheless, the new law included an important caveat excluding children who were: "socially maladjusted" (SM) (U.S. Department of Education, 2006, p.46756). Heralded a triumph for the crusaders of children with disabilities, PL 94-142 required all children - regardless of their abilities - be provided an appropriate education in their least restricted environment (Kavale & Forness, 2000; Bower, 1982). No longer excluded from proper schooling, the educational rights of children with ED were protected under federal law (Kauffman & Landrum, 2009).

Ironically, the primary architect of the ED definition, Bower, distanced himself from the new federal designation (Bower, 1982). Deeply concerned with "socially maladjusted" clause (Bower, 1982; IDEA, 2004), Bower questioned its

purpose. Leery that the “maladjustment” clause was simply a means to deny children services, Bower railed against the direction of services for children with ED (Bower, 1982). Bower claimed that agencies and services for children with ED were already underfunded and under serving disproportionately poor and minority students (Bower, 1982). While Walker and his colleagues (2004, 2000), reported that “there were no statistical difference” (Walker, Gresham, & Ramsey, 2004, p. 7) between boys with ED and SM, school districts and agencies were given a legal right to withhold services for students with SM. Bower contended that the bureaucratic obstacles involved in special education labels, psychiatric classifications, and access to appropriate services for children with ED seemed designed to exclude as much as serve individuals with this troubling disorder (Bower, 1982).

During the decades that followed the passage of EAHCA, several federal legislative acts upheld and reauthorized its sweeping education reforms (Yell, 2006). In 1986, both the Handicapped Children’s Protection Act and the Infants and Toddlers with Disabilities Act refined definitions, funding, and service plans. In 1990, the Individuals with Disabilities Education Act (IDEA) and its amendments in 1997 and later in 2004 expanded and cemented the principles of EAHCA (Yell, 2006). A critical component of IDEA was the necessity of students’ individual education plans (IEP) (Yell, 2006; IDEA, 2004). The stated goal of mandating the IEP was the creation of a unique plan for parents, teachers and related administrators to cooperate in improving the educational results of the child (IDEA, 2004). The IEP includes the academic accommodations,

modifications, and supports provided to the child to address their unique educational needs (IDEA, 2004).

While effort was made to include all children in general education settings, the 1980's and 1990's found most children with ED - in highly restrictive classrooms disproportionately populated by poor and minority groups (Kauffman & Landrum, 2009; U.S. Department of Education, 2002; Coutinho & Oswald, 1999; Sewartka, Deering, & Grant, 1995). Captured in the 1993 *US News and World Report* article, "Separate and Unequal" (Shapiro, et al., 1993), too often, it seemed, that the special education designation – including ED - was used to separate rather than serve the children most in need. For the authors, funding, rather than service, lay at the heart of matter (Shapiro, et al, 1993). Walker et al (2004) writes:

The fiscal concerns raised by students with emotional and behavioral problems are regarded as very serious by school officials. If a student is certified as emotionally disturbed and then qualifies for special education services, the school and district are obligated to provide an appropriate education program for him or her. Failing that, parents and advocates have the right to sue the school district to absorb the costs of an out-of district placement, which can cost up to \$200,000 annually. This possibility creates a powerful incentive for school districts to deny students access to special education programs and services that could be instrumental in addressing their needs. (pp. 6-7)

Thus as educators, mental health practitioners, and policy makers entered the new century, identification, funding, and service for all students remained a distressing societal matter.

In 2001, President George W. Bush signed the No Child Left Behind Act (NCLB) (2002) into law. NCLB was created in effort to raise the performance for all students, including those with disabilities (NCLB, 2002). Seizing upon the broad political support for educational standards, testing, and accountability, NCLB aimed to close the achievement gap between white students and children of color (Hursh, 2007). Of NCLB's directives, the law includes an order to use scientifically based research to guide instruction (NCLB, 2001). Caught on the swinging pendulum of treatment focus, special educators were directed to address lagging achievement scores. District reporting of AYP and looming administrative actions depended on the achievement of nearly all students, regardless of special education status.

On December 3, 2004, President Bush signed the Individuals with Disabilities Improvement Act (IDEA, 2004; Yell, 2006). Adapted for compliance with NCLB, the updated legislation emphasized accountability for schools and districts serving children with disabilities (IDEA, 2004; Yell, 2006). The reauthorization also ordered the implementation of scientifically based practices for students with disabilities (IDEA, 2004; Yell, 2006). With additional accountability for students with disabilities also came the requirement for teachers to be highly qualified in their respective content areas of instruction (IDEA, 2004; Yell, 2006).

Social-Emotional Function and Emotional Disturbance: Assessment & Data

Children with ED demonstrate a wide range of social-emotional skill deficits that impact their lives (Kauffman & Landrum, 2009). This lack of “social competence” (Kavale, Mathur, & Mostert, 2004, p. 446) plays a significant role in social-emotional and academic development of children and youth with ED. A list of common troubling behaviors among children and youth with ED is extensive; these behaviors often include an inability to listen to others, take turns, greet others, participate in cooperative activities, and give compliments (Walker, Ramsey, & Gresham, 2004; Kauffman & Landrum, 2009). Data gathered from teachers’ perceptions of students with ED has produced reoccurring descriptors of their social competence:

- Has poor interpersonal relationships with peer and adults
- Demonstrates negative attention seeking behavior
- Often aggressive with peers
- Frequently noncompliant with instructions and directions
- Has few friends
- Tends to socially withdraw from the group

(Yell, Meadows, Drasgow, & Shriner, 2009; Kauffman & Landrum, 2009; Coleman & Gilliam, 1983).

Walker, Ramsey, and Gresham (2004) write that students with ED are considered the “least socially skilled, most socially rejected, and most problematic of all at-risk students” (p.200). At the center of the social-emotional dysfunction are interpersonal communication deficits (Kauffman & Landrum, 2009). Lacking

competence in communicating and interacting with others - social skills, children and youth with ED often fail to participate in adequate positive social interactions to reinforce appropriate behavior for increased social acceptance (Kavale, Mathur, & Mostert, 2004). According to Kavale, Mathur, and Mostert (2004), this troubling cycle of inadequate skills, poor interactions, and insufficient reinforcement results in a predictable and all-too-familiar series of negative social outcomes: mental health referrals, school failure, and delinquency.

The U.S. Department of Education (2006) indicates two defining areas of social skill deficits critical to studying ED: “Inability to build or maintain satisfactory interpersonal relationships with peers and teachers” (U.S. Department of Education, 2006, p.46756) as well as “inappropriate types of behavior or feelings under normal circumstances” (U.S. Department of Education, 2006, p.46756). Similar to the federal definition of ED are the social skill deficits outlined in the DSM-IV designation of conduct disorder, attention deficit disorder, and oppositional-defiant disorder (American Psychiatric Association, 2000; Walker, Ramsey, & Gresham, 2004). Social skill deficits seem to correlate with a host of special education and mental health concerns (Kavale, Mathur, & Mostert, 2004); therefore, social skills instruction has become a familiar tool in addressing the needs of children and youth with ED among special educators and mental health practitioners alike (Moreno, 1934; Gresham, 1986; Walker, Colvin, & Ramsey, 1995; Kavale, Mathur, & Mostert, 2004; Walker, Ramsey, & Gresham, 2004).

Careful consideration to the precise assessment and appropriate development of social-emotional function is imperative for children and youth with ED, yet researchers and practitioners have struggled to develop meaningful assessment tools, interventions, and measureable outcomes (Walker, Ramsey, & Gresham, 2004). Among school personnel and mental health providers, the measurement of social-emotional function in students with ED has involved four assessment measures: observation, behavior rating scales, socio-metric techniques, and self-report (Kavale, Mathur, & Mostert, 2004). While the social skill data is highly desirable for teachers, mental health practitioners, and researchers, means of assessment are often flawed with subjectivity and poor reliability (Kavale, Mathur, & Mostert, 2004). Furthermore, competing concepts, theories, approaches, and measures have produced problems of definition and implementation of social skill programs (Kavale, Mathur, & Mostert, 2004). Walker, Ramsey, and Gresham (2004) emphasize that careful screening of social skills among children and youth with ED is critical in developing effective interventions. Walker, Ramsey, and Gresham (2004) believe that “too often, systematic social skills training efforts are misguided and ineffective because these deficits are not carefully identified and tied directly to the instructional process” (p.200)

In a comprehensive review of social skill instruction, practice, and research for children and youth with ED, Kavale, Mathur, and Mostert (2004) discuss common difficulties of measuring and implementing social skill curricula. Social skill instruction begins with assessment. Central to the authors concerns is

the need for construct validity in measuring social competence (Kavale, Mathur, & Mostert, 2004). Similar to the development of measures of intelligence (Gould, 1996), developing effective measures of social skills requires confirmed logical correlates between the tested variables and the intended measure (Kavale, Mathur, & Mostert, 2004). In addition to content validity, Kavale, Mathur, and Mostert (2004) identify several other issues that thwart accurate assessment of social-emotional function: distinction of social skill deficits versus performance deficits, establishing social validity, and social skill process training (Kavale, Mathur, & Mostert, 2004). Criticism regarding accurate measurement of social-emotional function resulted in multi-method approaches to assessing social-emotional functioning. Multi-method assessment hopes to provide “a comprehensive base of information to obtain an aggregated picture of social functioning” (Kavale, Mathur, & Mostert, 2004, p. 448; Walker, et al, 1995). Nevertheless, Merrell and Gimpel (1998) caution that multiple assessments may increase the likelihood of error due to covariation of similar variables assessed by different procedures.

Riggs, Jahromi, Razza, Dillworth-Bart, and Mueller, (2006) emphasize the role of executive function in understanding and studying social-emotional function. The authors explain that the prefrontal cortex of the cerebrum is the “seat of the brain's self-control processes” (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006, p. 300). These brain functions are called executive processes (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). The brain’s executive function directs virtually every purposeful, goal-directed activity (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). Among the skills

associated with executive function are the ability to plan, control impulses, focus attention, begin tasks, and access working memory (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). The authors highlight the role of executive function in social-emotional skills necessary for appropriate participation in school such as impulse control, following directions, and attending to academic instruction (Riggs, Jahromi, Razza, Dillworth-Bart, Mueller, 2006). In addition to their role in social-emotional function is the role of executive function in behaviors and cognition necessary for scholarship. Development of the frontal lobes of the cerebrum, and subsequently, executive function “begins to rapidly advance at around the same time children are entering school” (Riggs, Jahromi, Razza, Dillworth-Bart, Mueller, 2006 p. 305).

Sometimes referred to as the neurobiological approach to school preparedness, the research of Blair (2002) and others (Blair, Zelazo, & Greenberg, 2005; Bierman, et al, 2008; Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006) posit executive function as the inextricable link between social-emotional function and academic achievement. The work of these researchers has focused on the social-emotional demands of preschool and kindergarten students (Blair, Zelazo, & Greenberg, 2005, Bierman, et al, 2008). Faced with the sudden change in social-emotional regulation required of school aged children, students exhibiting deficits in social-emotional readiness tend to demonstrate high rates of disruptive behavior that undermine school adjustment (Kaiser, Hancock, Cai, Foster, & Hester, 2000; Bierman, et al, 2008). Kaiser et al (2000) indicate that students raised in poverty are at particular risk of exhibiting deficits in social-

emotional readiness. Bierman et al (2008) write that over 40% of impoverished children demonstrate “delays in social competencies and communication abilities at school entry” (p. 1803). Therefore, in effort to prevent future school failure, Blair and Diamond (2008) advocate for explicit social-emotional skill instruction in addition to academic instruction for emerging students. Blair and Diamond (2008) write:

In sum, learning occurs through a process of engagement and participation in a relationship with a caring and trusted other who models the process of and provides opportunities for self-directed learning. In acquiring the capacity for self-regulated learning, social-emotional skills that foster the relationship and executive function skills that promote self-regulation are quite literally foundational for learning (p.908).

Academic Achievement and Emotional Disturbance

In her chapter of the *Handbook of Research in Emotional and Behavioral Disorders* (2004), Kathleen Lane states that children and youth with ED “exhibit moderate to severe, broad academic deficits” (p. 463) when compared to typically developing students in general education settings. Lane (2004) reports that not only do students with ED perform lower than their typically developing counterparts, but “evidence suggests that students with EBD [ED] may exhibit greater academic deficits relative to students with learning disabilities (LD) and mild mental retardation (MMR)” (p.463). The research of Nelson et al (Nelson, Benner, Lane, & Smith, 2004), gathered from a random sample of 155 students with ED, indicates that boys and girls, grades k-12, appear to experience similar

academic achievement deficits. The academic deficits among children and youth with ED often tend to broaden and worsen with time (Nelson, Benner, & Mooney, 2008; Lane, 2004; Mattison, Hooper, & Glassberg, 2002; Anderson, Kutash, & Duchnowski, 2001). Studies also indicate that students with ED consistently demonstrate low levels of academic engagement (Van Acker & Talbott, 1999) and under performance in core academic areas (Nelson, Benner, & Mooney, 2008; Mattison, Spitznagel, & Felix, 1998; Nelson, Benner, Lane, & Smith, 2004). The academic deficits suffered by children with ED “significantly affect school functioning and ultimately may negatively affect later life events” (Lane, 2004, p. 459). Pertinent to research regarding the academic achievement of students with ED, studies reflecting the reading, writing, and mathematic performance of students with ED are discussed. Research statistics regarding reading achievement among school aged children and youth with ED varies greatly; however, the reading performance results are universally negative. In a meta-analysis of research regarding academic achievement among students with ED, Epstein, Nelson, Trout, and Mooney (2005) describe a wide variance of reading performance data. The prevalence of under achievement in reading among students with ED exhibited a range 31% to 81% of the students sampled (Epstein, Nelson, Trout, & Mooney, 2005). The authors also indicate that magnitude varies greatly among students with ED, with some samples indicating an average half year to over two years behind their typically developing peers (Epstein, Nelson, Trout, & Mooney, 2005).

Research demonstrates that reading performance among students with ED remain stable at best, with many children presenting reading skills that deteriorate with time (Anderson, Kutash, & Duchnowski, 2001; Greenbaum et al, 1996; Nelson, Benner, Lane, & Smith, 2004). In 2007, Lane, Barton-Arwood, Rogers, and Robertson, reviewed 17 articles in effort to analyze trends in reading interventions among children and youth with ED. The authors (Lane, Barton-Arwood, Rogers, & Robertson, 2007) write: “Studies examining the impact of specific curricular programs improved literacy skills, increased on-task behavior, decreased disruptive classroom behavior, and improved social interactions in recreational settings” (p. 227). The authors qualified the findings by noting the same gains were not demonstrated among elementary students and junior high students, with adolescents demonstrating resistance to literacy interventions (Lane, Barton-Arwood, Rogers, and Robertson, 2007).

Greenbaum et al (1996) examined reading performance among students with ED as they entered treatment programs. In a longitudinal study spanning six states and several programs, Greenbaum and colleagues (1996) reported that the percentage of students with ED, ages 8-11, reading below grade level upon program entry was 54%. In four years, the percentage of students with ED, now ages 12-14, with reading deficiencies was 83%. Finally, seven years after entry into their respective treatment programs, the students with ED, ages 15-18, suffered a reading deficiency rate of 85%.

Greenbaum et al (1996) also examined mathematics performance among students with ED assessed as they entered treatment programs. Greenbaum and

colleagues (1996) reported that the percentage of students, ages 8-11, performing below grade level in mathematics upon program entry was 93%. In four years, the percentage of students, now ages 12-14, with math deficiencies was 97%. Lastly, seven years after entry into their particular treatment programs, the students, ages 15-18, suffered a mathematic deficiency rate of 94%. In the research of Nelson, Benner, Lane, and Smith, (2004) mathematics performance, in particular, tends to worsen over time among students with ED. The authors posit an explanation that may explain the acute differences in the mathematics achievement: Students with ED have a tendency to avoid participation in higher-level mathematics coursework in middle and high school years, a cost which may contribute to the spiral of negative outcomes beyond school (Nelson, Benner, Lane, & Smith, 2004).

Dixon, Isaacson, and Stein (2007) suggest that students with ED are among the most challenging population to teach writing, and the scant research literature supports their assertion (Nelson, Benner, & Mooney, 2007; Epstein, Nelson, Trout, & Mooney, 2005; Rosenblatt & Rosenblatt, 1999). In 2005, Epstein, Nelson, Trout, and Mooney write that, in regards to the research literature focusing on children and youth with ED, “Written expression has received much less attention than reading and arithmetic” (p.458). Nevertheless, the existing research consistently indicates lagging performance indicators when compared to their typically developing peers (Nelson, Benner, & Mooney, 2008; Epstein, Nelson, Trout, & Mooney, 2005; Rosenblatt & Rosenblatt, 1999). In Epstein, Nelson, Trout, and Mooney’s meta-analysis of studies evaluating the

writing performance of children and youth with ED, nearly half of the students had writing deficits.

Kaufman Test of Educational Achievement-Second Edition

This research study examines academic achievement data as measured by the *Kaufman Test of Educational Achievement-Second Edition* (KTEA-II). The KTEA-II is an individually administered measure of academic achievement for individuals ages 4.5 through 25 (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Created by Alan and Nadeen Kaufman, the comprehensive test form assesses achievement in the areas of reading, math, written language, and oral language (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). The KTEA-II produces both composite and subtest scores each of the four subject areas (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Test administrators of the KTEA-II have the option to assess phonological awareness, rapid naming, decoding, oral fluency, and reading fluency (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Test results provide age and grade-based standard scores, percentile rank, as well as stanines (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). According to Lichtenberger and Smith (2005), the KTEA-II has a multitude of uses including diagnosing and measuring academic achievement, identifying cognitive processing, error analysis, program planning, evaluating interventions, placement decisions, and research.

KTEA-II is widely used by psychologists and school personnel to examine the individual academic achievement of students in and diagnose learning

disabilities of students by comparing achievement to cognitive ability (Lichtenberger & Smith, 2005). While such performance discrepancies are no longer eligibility requirements for special education status (IDEA, 2004), the KTEA-II has demonstrated reliability in indicating reading, Math, and writing disabilities (Kaufman & Kaufman, 2004). The KTEA-II has also demonstrated reliability in measuring the performance deficits of students with attention deficit/hyperactivity disorder (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005).

Ohio Youth Problems, Functioning, and Satisfaction Scales

The defining characteristics of students with ED are broad and vaguely defined (Forness & Kavale, 2001a; Reddy, 2001; Bates, 2001). Children with ED present a wide spectrum of needs and abilities; therefore assessing the level of impairment in students with broad differences requires a complex diagnostic tool that encompasses a variety of behavioral and emotional needs (Bates, 2001). The *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales) is a psychometric assessment tool created as a practical and thorough measure of social-emotional function for children and youth receiving mental health services (Ogles, Melendez, Davis, & Lunnen, 2001). The Ohio Scales uses multiple sources of content and information to assess the severity of impairment in youth with emotional and behavioral difficulties (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001). The Ohio Scales was designed to track the effectiveness of mental health interventions for children and youth with emotional disturbance (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles,

Melendez, Davis, & Lunnen, 2001). With accurate assessment of the social-emotional function of children and youth at home, school, and in the community, mental health service providers may make treatment decisions.

The Ohio Scales is the standard instrument of mental health measures for children and youth receiving mental health services funded through the Ohio Department of Mental Health (ODMH) (Ohio Department of Mental Health, 2009). According to the ODMH, the Ohio Scales was developed in effort to monitor outcomes of mental health consumers (Ohio Department of Mental Health, 2009). The ODMH define consumer outcomes as “indicators of an individual’s or family’s health or well-being” (Ohio Department of Mental Health, 2009). ODMH stresses that “Outcomes are measured by statements or observed characteristics of a consumer and/or family – not by characteristics of the service system” (Ohio Department of Mental Health, 2009). Akin to methods required of rigorous scientific research, the primary purpose of gathering data through the Ohio Scales is “to improve the effectiveness or impact of services being delivered” (Ohio Department of Mental Health, 2009); nevertheless, Ohio Scales data has been widely used for research and is readily available through the ODMH Data Mart (Ohio Department of Mental Health, 2009).

Summary

The purpose of this study is to examine the predicative relationship between measures of academic and mental health outcomes among children and youth receiving services for ED in a partial hospital, day treatment center. Understanding the competing treatment approaches to the problem, academic data

and trends, as well as the historical and legal realities that have shaped service for children with ED provides context for the study. In the following chapter, the specific methods and instruments to be utilized in the research will be discussed in greater detail.

Chapter III

Research Methodology

Introduction

Research has repeatedly demonstrated that a relationship exists between academic achievement and level of social-emotional function (Kauffman & Landrum, 2009; Lane, 2004; Miles & Stipek, 2006; Malecki and Elliot, 2002; DiPerna & Elliot, 1999; Wentzel, 1993; Feshbach & Feshbach, 1987). However, a gap exists in literature regarding the actual quantitative nature of this relationship among children and youth with ED. This research study aimed to determine the value of measures of academic achievement in predicting changes in social-emotional function in school aged children with ED. The specific questions of the study are:

1. Is there a predictive relationship between measures academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade?
2. Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of

problem severity among students with moderate and severe impairment compared to students with minimal and mild impairment?

3. Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points?

This chapter will specifically outline the research design, data collection procedures, and data analysis to be utilized in the investigation.

Data Sources

This investigation utilized a total of three, archival, secondary data sets gathered from a computerized data base maintained by an urban, Midwestern treatment program that serves students with ED. The treatment program operates several day treatment centers that provide mental health and academic interventions and services for children and youth with ED. It is the treatment program's assessment practice to regularly evaluate its clients' progress in an effort to direct treatment decisions. The treatment program records and monitors the results of its assessments in a computerized data base.

For the purpose of this study, the researcher required mental health data used as dependent and independent variables. The information, used to measure both the social-emotional function, as well as level of impairment, were gathered from the first of three archived data sets derived from the results of the *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales; Ogles, Melendez, Davis, & Lunnen, 2000). The treatment program uses the Ohio Scales to establish baseline mental health data within 90 days of admission. The Ohio

Scales provides information regarding clients' degree of problem severity and social-emotional function. Clients are regularly assessed annually thereafter.

Results of the Ohio Scales tests are used by treatment program as a resource to inform and adjust treatment decisions. Data are gathered and by maintained by the agency's director of research. Until recently, the Ohio Scales data were previously required by the program's state mental health agency as the standardized assessment of mental health outcomes.

Ohio Scales data were collected by trained and licensed mental health service providers employed by the treatment program. While the Ohio Scales uses multiple sources of content and information to assess the severity of impairment in youth with emotional and behavioral difficulties (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001), this study will only examine data exclusively gathered using from the Ohio Scales—Worker Instrument (Short Form). Data includes children and youth enrolled in treatment program's day treatment facilities between July 1, 2004 and October 15, 2009. To ensure the anonymity of the clients, data included a unique research identifier linkable to each client's name that is held by treatment program's administrators independent of the researcher. Data includes the scores gathered from the Ohio Scales' Problem Severity and Functioning Scales.

Similar to treatment program's practice of measuring mental health outcomes, the agency employs the *Kaufman Test of Educational Achievement-Second Edition* (KTEA-II; Kaufman & Kaufman, 2004) to assess academic growth. The KTEA-II results serve as a second source of data as well as the

primary independent variables for the study. The treatment program's personnel are trained to test clients within 90 days of their admission into the program. Students are assessed annually from their admission in effort to measure growth and changes in reading, writing, and mathematics. The results of the test are used to create, adjust, and measure annual academic and curriculum goals and objectives. Similar to the Ohio Scales data, KTEA-II information is gathered and maintained by the agency's director of research. The treatment program also maintains individual KTEA-II data in each student's individual client record.

The second data source, containing the students' academic information, included scores gathered from students similarly enrolled in the program's day treatment facilities during the same six-year period, 2004-2009. KTEA-II data fields also include the unique research identifier as well as results of reading, writing, and math subtests. Data included, more specifically, the raw and standard scores gathered from the following subtests: reading component, reading comprehension, letter and word recognition, math component, math computation, math concepts and applications, written language component, written expression, and spelling.

A third, demographic data set, was gathered to supplement independent academic variables. The demographic information was organized by the unique research identifier similarly enrolled in the program's day treatment facilities during the common, six-year period, 2004-2009. Demographic information includes date of birth, gender, and race.

The Day Treatment Program

This study examined pre-existing data gathered from students served at a Midwestern, urban day treatment program. Inspired by the Re-Ed philosophy of Nicholas Hobbs (Hobbs, 1975a), the treatment program serves school-age children and youth who have been identified with ED. In the recent past, the treatment program benefited from the relationship between emotional health and academic achievement by integrating educational and mental health activities. Students are provided individualized and group instruction in both academic and social skills. The treatment program utilizes behavioral strategies and positive interventions in a highly structured, supervised environment. The organization also provides individual and group meetings, lessons, and activities are used to teach new ways of perceiving, thinking, feeling and behaving. Furthermore, the treatment program uses individualized programming that builds functional skills and academic competence that promote cognitive and social-emotional growth and development. The treatment program also employs an adventure-based, therapeutic camping program. A low student to teacher ratio allows the treatment program to employ individualized and differentiated instruction. While the treatment program adheres to state mandated academic standards, learning activities may be augmented to meet a child's developmental needs. The treatment program believes that developing effective social skills and emotional stability is inseparable from academic competencies.

Instruments

Kaufman Test of Educational Achievement-Second Edition.

The *Kaufman Test of Educational Achievement-Second Edition* (KTEA-II) is an individually administered measure of academic achievement for individuals ages 4.5 through 25 (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Created by Alan and Nadeen Kaufman, the comprehensive test form assesses achievement in the areas of reading, math, written language, and oral language (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). The KTEA-II produces both composite and subtest scores each of the four subject areas (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Test administrators of the KTEA-II have the option to assess phonological awareness, rapid naming, decoding, oral fluency, and reading fluency (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). Test results provide age and grade-based standard scores, percentile rank, as well as stanines (KTEA-II; Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005). According to Lichtenberger and Smith (2005), the KTEA-II has a multitude of uses including diagnosing and measuring academic achievement, identifying cognitive processing, error analysis, program planning, evaluating interventions, placement decisions, and research.

Extensive use of the KTEA-II is a testament to the test's technical adequacy. As the age norms do not preclude the examinees in prekindergarten, kindergarten, or high school graduates, The KTEA-II was standardized in regards to age and grade norms separately in 2001 (Vladescu, 2007). Both standardization

efforts included a norm sample in excess of 2,400 examinees (Vladescu, 2007). Some subtests utilized additional examinees to ensure that all areas of the test were normed to include 100-200 participants, with the exception of 19-year-olds, that used only 80 participants. When the KTEA-II was calibrated for age and grade norms, the test sample was crafted to reflect the 2001 U.S. Bureau of the Census data in terms of sex, parent education, ethnicity, and educational status of examinees (Vladescu, 2007). While critics of the KTEA-II are concerned with age and grade norms that fail to adequately reflect individuals from rural and urban areas (Vladescu, 2007), the test is “quite representative” (p. 95) of U.S. students across the broad expanse of geographic regions (Vladescu, 2007). In his review of the KTEA-II, Vladescu (2007), indicates that Kaufman and Kaufman included examinees with “special disability classifications” (p.95) including students with ED, attention deficit/hyperactivity disorder, specific learning disability, speech/language impairment, mental retardation, and gifted and talented in the standardization samples.

The reliability of the KTEA-II in making critical educational decisions for students was evaluated by Salvia and Ysseldyke in 2004. As the KTEA-II subtests includes the seven areas considered for determining the presence of a learning disability (Kaufman & Kaufman, 2004; Salvia & Ysseldyke, 2004), the results of Salvia and Ysseldyke (2004) support the use of the KTEA-II in making such eligibility decisions. To assess the reliability of the KTEA-II, Salvia and Ysseldyke (2004) administered the KTEA-II twice to 221 students from three grade ranges. Half of the tested students alternated the use of KTEA-II forms A

and B in successive examinations with an average retest interval of 3.5 weeks (Salvia & Ysseldyke, 2004). Salvia and Ysseldyke (2004) suggested a minimum correlation of .90 for reliability when making important educational decisions for students.

Vladescu (2005) writes that the Kaufman and Kaufman “went to considerable effort to ensure the validity of items on the KTEA-II” (p.96). The KTEA-II has demonstrated validity in relation to other academic achievement assessment instruments with strong overall correlations ranging .84 to .94 (Vladescu, 2005). Vladescu’s validity data (2005) included comparisons to results from the Wechsler Individual Achievement Test–Second Edition (WIAT-II; Wechsler, 2001), the Woodcock-Johnson Tests of Achievement–Third Edition (WJIII ACH; Woodcock, McGrew, & Mather, 2001), and the Peabody Individual Achievement Test–Revised, Normative Update (PIAT-R/NU; Markwardt, 1998).

As mentioned previously, the KTEA-II is widely used by psychologists and school personnel to examine the individual academic achievement of students in and diagnose learning disabilities of students by comparing achievement to cognitive ability (Lichtenberger & Smith, 2005). While such performance discrepancies are no longer eligibility requirements for special education status (IDEA, 2004), the KTEA-II has demonstrated reliability in indicating reading, math, and writing disabilities (Kaufman & Kaufman, 2004). The KTEA-II has also demonstrated reliability in measuring the performance deficits of students with attention deficit/hyperactivity disorder (Kaufman & Kaufman, 2004; Lichtenberger & Smith, 2005).

The authors of the KTEA-II provide detailed tables of correlations among its subtests (Kaufman & Kaufman, 2004). As this study employed the raw scores gathered from the reading comprehension, written expression, and math concepts & applications subtests in a predictive model of measures of mental health outcomes, cognizance of the strength of these relationships is necessary in understanding the effect of collinearity on the research model. The following tables (Tables 1-3) display the correlations of subtest scores gathered from the KTEA-II normative sample (Kaufman & Kaufman, 2004).

Table 1

KTEA-II Subtest Correlations Ages 6-8

Subtest	Reading	Written Exp	Math Concepts
Reading Comprehension	—	0.68	0.70
Written Expression	0.68	—	0.63
Math Concepts	0.70	0.63	—

Table 2

KTEA-II Subtest Correlations Ages 9-12

Subtest	Reading	Written Exp	Math Concepts
Reading Comprehension	—	0.60	0.64
Written Expression	0.60	—	0.59
Math Concepts	0.64	0.59	—

Table 3

KTEA-II Subtest Correlations Ages 13-18

Subtest	Reading	Written Exp	Math Concepts
Reading Comprehension	—	0.60	0.65
Written Expression	0.60	—	0.64
Math Concepts	0.65	0.64	—

Ohio Youth Problems, Functioning, and Satisfaction Scales.

The defining characteristics of students with ED are broad and vaguely defined (Forness & Kavale, 2001a; Reddy, 2001; Bates, 2001). Children with ED present a wide spectrum of needs and abilities; therefore assessing the level of impairment in students with broad differences requires a complex diagnostic tool that encompasses a variety of behavioral and emotional needs (Bates, 2001). The *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales) is a psychometric assessment tool created as a practical and thorough measure of social-emotional function for children and youth receiving mental health services (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001). The Ohio Scales uses multiple sources of content and information to assess the severity of impairment in youth with emotional and behavioral difficulties (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001). The Ohio Scales was designed to track the effectiveness of mental health interventions for children and youth with emotional disturbance (Ogles, Melendez, Davis, & Lunnen, 2001). With accurate assessment of the social-

emotional function of children and youth at home, school, and in the community, mental health service providers may make treatment decisions.

While no longer required, the Ohio Scales remains is the standard instrument of mental health measures for children and youth receiving mental health services funded through the Ohio Department of Mental Health (ODMH) (Ohio Department of Mental Health, 2009). According to the ODMH, the Ohio Scales was developed in effort to monitor outcomes of mental health consumers (Ohio Department of Mental Health, 2009). The ODMH define consumer outcomes as “indicators of an individual’s or family’s health or well-being” (Ohio Department of Mental Health, 2009). ODMH stresses that “Outcomes are measured by statements or observed characteristics of a consumer and/or family – not by characteristics of the service system” (Ohio Department of Mental Health, 2009). Akin to methods required of rigorous scientific research, the primary purpose of gathering data through the Ohio Scales is “to improve the effectiveness or impact of services being delivered” (Ohio Department of Mental Health, 2009). Nevertheless, Ohio Scales data has been widely used for research and is readily available through the ODMH Data Mart (Ohio Department of Mental Health, 2009).

As mentioned previously, the Ohio Scales are a multi-source, multi-content measures of clinical outcomes (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001). Designed for use in mental health settings with children and youth ages 5 to 18, the Ohio Scales gathers data through the completion of three corresponding assessment forms. The forms are

rated by the youth's primary caregiver, the youth's agency worker, and, if age 12 or older, the youths themselves (Ogles, Melendez, Davis, & Lunnen, 2000; Ogles, Melendez, Davis, & Lunnen, 2001).

Four domains or content areas of assessment were selected: problem severity, functioning, hopefulness, and satisfaction with mental health services. The parent, youth, and agency worker rate the problem severity and functioning scales. The youth and parent rate the hopefulness and satisfaction scales. Youth rate their own hopefulness about life and their satisfaction with services. Parents rate their hopefulness about caring for the identified child and their satisfaction with services. According to the authors of the Ohio Scales, the choices of information sources as well as test content areas were selected after considering several sources (Ogles, Melendez, Davis, & Lunnen, 2001). The authors of the Ohio Scales conducted a comprehensive review of categorical schemes for evaluating outcomes for children receiving mental health services (Ogles, Melendez, Davis, & Lunnen, 2001). The authors (Ogles, Melendez, Davis, & Lunnen, 2001) reviewed the diagnostic criteria for children and youth with emotional and behavioral disorders outlined in the DSM-IV (American Psychiatric Association, 2000). Ogles, Melendez, Davis, and Lunnen (2001) also reported that they consulted the Cuyahoga County (Ohio) mental health board for common presenting problems among children referred for mental health services for emotional and behavioral problems.

Since the stated purpose for the creation of the Ohio Scales was to develop a timely, practical, multisource, psychometrically sound measure of mental health

outcomes, the authors of the test created an alternate (Ogles, Melendez, Davis, & Lunnen, 2001). While the initial validation studies of the Ohio Scales featured an instrument with a scant 72 questions, users criticized its length and complexity (Ogles, Melendez, Davis, & Lunnen, 2001). The authors created an optional Short Form that features fewer test items and more accessible vocabulary (Ogles, Melendez, Davis, & Lunnen, 2001). As this study utilizes data exclusively gathered using the Problem Severity and Functioning Scales of the Short Form, the following description of test items and scales, provided by the Ohio Department of Mental Health, (2009), does not represent the features of the test's long version.

The "Problem Severity Scale" is made of 20 items. The test items examine common problems reported by youth who receive services for behavioral health. Each item is rated for frequency and severity. A total score is calculated by summing the ratings for all items (Ohio Department of Mental Health, 2009).

The "Functioning Scale" is comprised of 20 items designed to rate the youth's level of functioning in a variety of areas of daily activity including interpersonal relationships, recreation, self-direction and motivation. Each item is rated on a five-point scale. In an effort to allow scorers to report areas of strength, the functioning scale provides a broad range of ratings including "OK" and "Doing very well". A total functioning score is calculated by summing the ratings for all 20 items. Higher scores are indicative of better functioning (Ohio Department of Mental Health, 2009).

Procedures

A total of three data sets were requested by the researcher for the study. The treatment program's internal review board authorized the request for data including outcome data generated from the *Ohio Youth Problems, Functioning, and Satisfaction Scales* (Ohio Scales), the *Kaufman Test of Educational Achievement-Second Edition* (KTEA-II), as well as corresponding demographic information for clients assessed while receiving care within the treatment program. Care was taken to examine client assessment results with at least two data points for both the Ohio Scales and the KTEA-II. Data were selected based on (a) at least one KTEA-II and Ohio Scales administration date that was within 90 days of each other; (b) profiles had corresponding KTEA-II and Ohio Scales administration dates 365 days later, +/- 90 days; (c) The student profiles did not have any missing data. Data sets were delivered as Microsoft Excel format spread sheets.

Baseline and annual data for all participants was assessed using the Ohio Scales and the KTEA-II. The Ohio Scales provided systematic measure of severity of impairment and social-emotional function at intake, six months, one year, and annually thereafter for the children enrolled in the treatment program. The Ohio Scales was administered by trained raters that consider all available information to assess the severity of impairment. It is also the policy of the treatment program to assess students' academic achievement within 90 days of admission annually thereafter with the KTEA-II. Students are tested in reading, writing, and math from the following subtests: reading component, reading

comprehension, letter and word recognition, math component, math computation, math concepts and applications, written language component, written expression, and spelling.

For the purposes of this study, the researcher selected the following raw scores gathered from the following KTEA-II subtests: reading comprehension, written expression, and math concepts and applications. These measures of academic achievement were selected by the researcher based on the report of the authors of the KTEA-II in the *KTEA-II Comprehensive Form Manual* (Kaufman & Kaufman, 2004). The authors indicate that the smallest difference between children with ED and nonclinical groups occurred “on the subtests that are more conceptual in nature, such as oral expression, listening comprehension, reading comprehension, and math concepts and applications” (p. 116).

Institutional Review Board Approval

Institutional Review Board approval was sought and received on two levels for this study: Cleveland State University and the treatment program. In order to obtain data, the treatment program, in concert with federal human subject regulations and standards, required the researcher to ensure the protection and ethical treatment of the participants. These guidelines include conducting the study with an absence of coercion, informed participant consent, absolute privacy and confidentiality, as well as no client risk of harm, including the communication and dissemination of research information and findings. Participant consent to participate in continuous academic and mental health assessment was obtained upon entry into the treatment program. As previously stated, to ensure the

anonymity of the clients, archival data included a unique research identifier linkable to each client's name that is held by treatment program's administrators independent of the researcher. Furthermore, demographic data does not include information linkable to individual participants. The investigation was conducted with the strict adherence to the guidelines of the Institutional Review Board of both the treatment program and Cleveland State University.

Data Analysis Procedures

Research Question 1: Is there a predictive relationship between measures academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade? The purpose of the question was to determine the predictive value of certain measures of academic achievement as well as selected demographic variables in determining the level of social-emotional function in students with ED. This question was answered using multiple linear regression analysis. The independent variables were: gender and grade, as well as reading comprehension, written expression, and math concepts and applications subtest raw scores. The dependent variable was social-emotional function. Including gender and grade as independent variables allowed for an investigation of the relationship between measures of academic achievement and social-emotional function, above and beyond differences based on gender and grade level.

Research Question 2: Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of problem severity among students with moderate and severe impairment compared to students with minimal and mild impairment? For purposes of comparing these two groups, problem severity was dummy-coded to divide participants into two categories: moderate/severe, with scores ranging from 51-100, and minimal/mild, with scores ranging from 1-50.

Table 4

Research Question 2 Summary

Sub Question Variables	Data Used
(2a) Independent variables	Reading raw score time point 1 Problem severity Interaction term (reading*problem severity)
Dependent variable	Social-emotional function
(2b) Independent variables	Writing raw score time point 1 Problem severity Interaction term (writing*problem severity)
Dependent variable	Social-emotional function
(2c) Independent variables	Math raw score time point 1 Problem severity Interaction term (math*problem severity)
Dependent variable	Social-emotional function

An interaction term was created by multiplying each individual measure of academic achievement (reading comprehension, written expression, and math concepts and applications subtest raw scores) by problem severity. Then a multiple regression analysis was conducted using the independent variables: reading comprehension, written expression, and math concepts and applications subtest raw scores, problem severity, and the interaction term and dependent

variable social-emotional function. This allowed for a comparison of the two groups, based on whether or not the interaction term is statistically significant.

Table 4 summarizes the variables and procedures.

Research Question 3: Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points? To answer this question, the researcher conducted multiple linear regression analyses for each of the measures of academic achievement at two time points (One year, +/- 90 days). Each used the same model, where each measure of academic achievement (reading comprehension, written expression, and math concepts and applications subtest raw scores), gender, and grade were the independent variables and social-emotional function was the dependent variable. Using the beta coefficients and standard errors of the three regression analyses at both time points, the researcher then conducted a series of z-tests (Clogg, Petkova & Haritou, 1995; Paternoster, Brame, Mazerolle, & Piquero, 1998) to determine if a significant difference exists in the predictive value of reading comprehension, written expression, and math concepts and applications subtest raw scores, given $p < .05$, after one year of treatment. The z-tests employed the following equation (Clogg, Petkova & Haritou, 1995; Paternoster, Brame, Mazerolle, & Piquero, 1998):

$$z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}$$

This study examined academic achievement and social-emotional function data observed over a seven-year period (2004–2009). The use of the z-test to

compare regression coefficients allowed the strength of relationship between measures of students’ academic achievement and social-emotional functioning to be investigated over time. This analysis determined if this model may be used to predict future students’ social-emotional function. Of supreme importance, however, this research model may suggest that academic instruction, such as that provided at the treatment program, has therapeutic, mental health value among the challenging, treatment resistant population of students receiving services for ED.

Figure 1 provides a summary of the analyses used for each question. The alpha level will be set for .05 for all analyses.

Figure 1 Summary of Research Questions and Analyses	
Question	Analysis
QUESTION 1	
Is there a predictive relationship between measures academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade?	Multiple regression analysis (Independent variables: gender, grade, and reading comprehension, written expression, and math concepts & applications raw scores. Dependent variable: social-emotional function)
QUESTION 2	
Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of problem severity among students with moderate and severe impairment compared to students with minimal and mild impairment?	Series of multiple regression analysis (Independent variables: reading comprehension, written expression, and math concepts & applications raw scores, problem severity, and the interaction term – individual achievement measures*problem severity. dependent variable: social-emotional function)
QUESTION 3	
Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points (one year, +/- 90 days)?	Multiple regression analysis for each time point (Independent variables: gender, grade, and individual measures of academic achievement. Dependent variable: social-emotional function). Z-test to compare results

Chapter IV

Research Findings

The purpose of this chapter is to provide the results of the analyses that were conducted to investigate the predictive value of measures of academic achievement in determining social-emotional function over time in children and youth with emotional disturbance (ED) served in a partial hospital setting.

Participants

The research archive provided a data sample that originally included testing and demographic information of 1721 students who attended the treatment program from 2004-2009. After preparation for investigation, the final data sample consisted of 261 usable KTEA-II, Ohio Scales, and corresponding demographic profiles. The scores used in the study are gathered from both boys and girls with ED, ages 5-18. The gender composition of the profile sample was 199 males and 62 females. The age range of the profile sample was 5 through 18. The average age at the first administration was 13.54 years old ($SD = 4.36$). The majority of the profile sample was African American, 62.5%, with Caucasian representing 33.3%, Hispanic 3.4%, and .8% Asian. A summary of the participants' demographic information is found on Table 5.

Table 5

Descriptive Statistics of Participants

Characteristics	N	%
Total Participants	261	-
Gender		
Female	62	76.2%
Male	199	23.8%
Race		
African American	163	62.5%
Caucasian	87	33.3%
Hispanic	9	3.4%
Asian	2	.8%

All participants received both educational and mental health services through the agency's day treatment program. All of the participants had been identified with clinically diagnosed DSM-IV, mental health disorders that may include but are not limited to: conduct disorder, depression, bi-polar disorder, attention deficit disorder, psychotic disorder not otherwise specified, and borderline personality disorder - excluding some with acute disorders such as cognitive disabilities (mental retardation) and profound communicative disorders (autism) that prevented reasonable standardized testing conditions. Each participant also was identified for special education services outlined in an individualized education plan (IEP).

Research Variables

Critical to the study were the independent variables used as the measures of academic achievement. The academic data were gathered from the archived results of the *Kauffman Test of Educational Achievement, Second Edition* (KTEA-II; Kaufman & Kaufman, 2004). The variables included the raw scores of reading, writing, and math subtests. These independent variables are specifically the reading comprehension, written expression, and math concepts and applications subtest raw scores. Other independent variables included demographic information such as gender and grade. Independent variables were examined at two time points, separated within ninety days of one year. Histograms shown in figures 2-4 provide a representation of the relative normal distribution of the three primary independent variables, the KTEA-II raw scores reading comprehension, written expression, math concepts and applications, on the first administration of the KTEA-II.

Figure 2

Histogram: Distribution of Math Raw Scores, KTEA-II, Time Point One

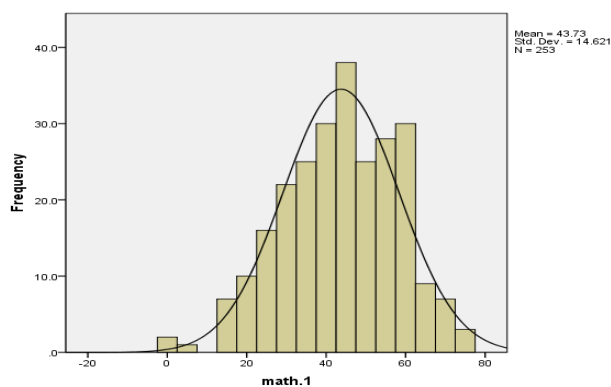


Figure 3

Histogram: Distribution of Reading Scores, KTEA-II, Time Point One

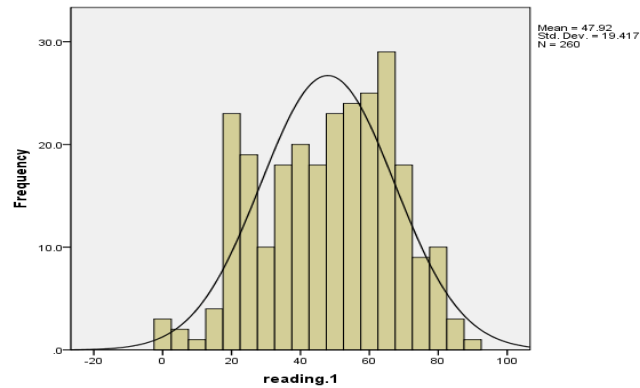
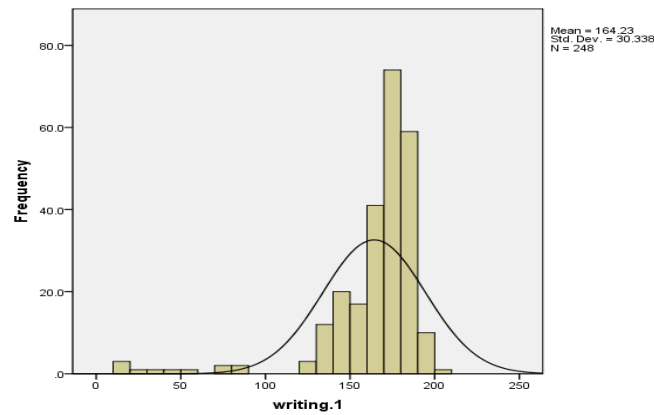


Figure 4

Histogram: Distribution of Writing Raw Scores, KTEA-II, Time Point One



Tables 6 and 7 provide descriptive information regarding the three primary independent variables, reading comprehension, written expression, math concepts, as well as the mean and standard deviations of the Ohio Scales' problem severity scores recorded at each time point. Among the participants, ages 5-18, the greatest variance is shown in the measure of problem severity with a standard deviation of 62.05. Math concepts and applications had the least variance, with a standard deviation of 14.62.

Table 6

Descriptive Statistics of Independent Variables at Time Point One

Independent Variable	Mean	SD
Reading comprehension	47.92	19.497
Written expression	164.23	30.338
Math concepts and applications	43.73	14.621
Problem severity	28.95	62.055

Table 7

Descriptive Statistics of Independent Variables at Time Point Two

Independent Variable	Mean	SD
Reading comprehension	52.37	19.083
Written expression	175.52	14.573
Math concepts and applications	48.76	12.743

Tables 8 and 9 provide a display of correlations between the independent variables at the two administration points. While all of the independent variables were seen to be significant ($p < 0.01$), post hoc analyses examining the correlations, especially that between math and reading, later revealed little effect on the individual predictors.

Table 8

Correlations of Independent Variables at Time Point One

Measure	Grade	Reading	Math	Writing
Grade	1	.641**	.670**	.347**
Reading	.641**	1	.822**	.539**
Math	.670**	.822**	1	.575**
Writing	.347**	.539**	.575**	1

** Correlation is significant at the 0.01 level (2-tailed).

Table 9

Correlations of Independent Variables at Time Point Two

Measure	Grade	Reading	Math	Writing
Grade	1	.334**	.630**	.540**
Reading	.334**	1	.706**	.764**
Math	.630**	.706**	1	.739**
Writing	.540**	.764**	.739**	1

** Correlation is significant $p < 0.01$ level (2-tailed).

The primary dependent variable, a standard measure of mental health outcomes, was social-emotional function. Social-emotional function refers to the score measured by the *Ohio Youth Problems, Functioning, and Satisfaction Scales*

(Ohio Scales) (Ogles, Melendez, Davis, & Lunnen, 2000) that quantifies the quality of the participants' day-to-day interactions and emotional management. Table 5 provides an examination of the descriptive statistics of the Ohio Scales' mental health outcome data, indicating a slight increase in the mean score after one year in the treatment program. The modest decrease in the standard deviation at the second time point (14.75) table 10 also indicates a slight increase in the relative strength of the mean measure of social-emotional function after one year in the treatment program.

Table 10

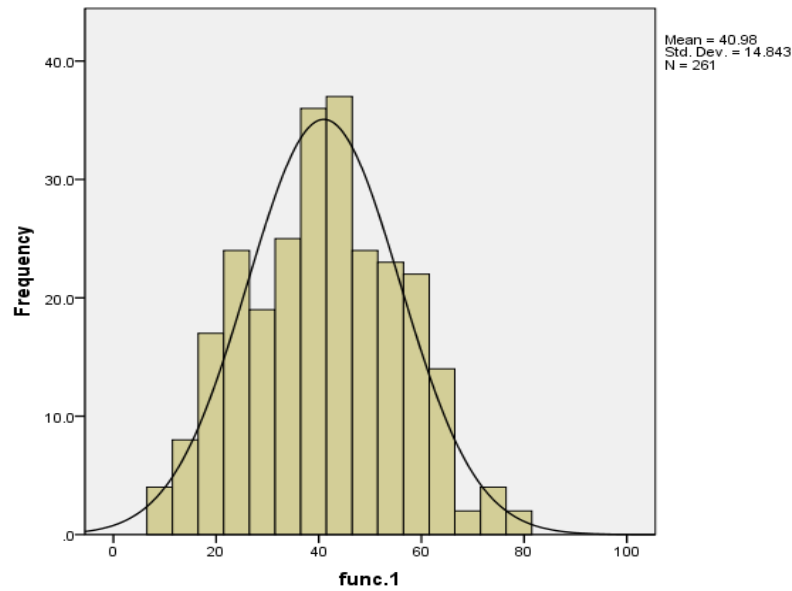
Descriptive Statistics of Dependent Variable at Time Points One and Two

Dependent Variable	Mean	SD
Social-emotional function, time 1	40.98	14.843
Social-emotional function, time 2	41.17	14.725

The histogram pictured in figure 4.4 demonstrates that the dependent variables were relatively normally distributed, a critical necessity to conducting multiple regression analyses.

Figure 5

Histogram: Distribution of Ohio Scales Data



Analyses Results

Research Question 1: Is there a predictive relationship between measures academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade? As mentioned previously, research question 1 was answered using a multiple linear regression analysis to investigate the predictive value of measures of academic achievement in determining the social-emotional function of school-aged children with ED. The academic data was specifically the reading comprehension, written expression, and math concepts and applications subtest raw scores. Each of these scores was used as an independent variable in addition to students' grade and gender.

Table 11

Regression Model with Collinearity Statistics at Time Point One

Grade and Gender Removed

Predictor	B	Std. Error	β	Sig.	Tolerance	VIF
Reading	-.091	.087	-.120	.297	.315	3.174
Writing	-.001	.039	-.002	.982	.657	1.522
Math	.119	.119	.118	.320	.296	3.375

* significant $p < 0.05$ level.

The results of the multiple regression for question 1 indicated that the four predictors explained less than one percent of the variance with no significant predictors of social-emotional function ($R^2 = .007$, $F = .343$, $p < .05$). In addition, gender was shown to be the least significant predictor of social emotional function, and it was removed from the model ($\beta = -.628$, $p = .780$). The regression analysis was conducted again, yielding similar results with no significant predictors of social-emotional function. The beta values ranged from .297 for reading to .987 for writing, with the beta value for math at the .320 level. None of these showed statistical significance. The results suggest that at the first time point, most likely taken at admission into the treatment program, academic achievement was not related to social emotional functioning, as measured by the Ohio Scales. The results are displayed in Table 11.

During the analysis, the influence of multicollinearity between independent variables was a concern. First, tolerance and VIF values were examined. As the math raw scores had both a tolerance value of less than .3 (2.96) and VIF greater than 3 (3.375), it was clear that a significant correlation was present at the first time period, primarily between the reading comprehension and math applications & concepts raw scores. Second, several additional analyses were conducted to examine how the predictive value of the model would change if each independent variable was removed. During this portion of the analysis, gender and grade, both highly insignificant independent variables, were also removed. This further examination determined that multicollinearity existed at an acceptable level since the correlations did not change the overall results of the regression model when it each independent variable was removed. The results indicated both the reading comprehension ($\beta = -.034$, $p = .657$) and math applications and concepts ($\beta = .026$, $p = .746$) data were slightly less influential to the final results; furthermore, the three primary independent variables remained poor predictors of initial level of social emotional function of the participants. In sum, multicollinearity among the independent variables, while present, did not inflate the significance of the analysis results.

Research Question 2: Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of problem severity among students with moderate and severe impairment compared to students with minimal and mild impairment? As you may recall, for question 2, the problem severity of each

participant was dummy-coded into one of two groups: moderate /severe impairment or minimal/mild impairment. Next, each measure of academic achievement -- the raw scores generated from the reading comprehension, written expression, and math concepts and applications subtests -- was multiplied by the dummy-coded problem severity to create an interaction term. Finally, a series of regression analyses were conducted to determine the predictive value of students' level of problem severity in determining their social-emotional function.

Question 2 further examined the relationship between measures of academic achievement and social emotional function at the first time point, and whether this relationship changed when considering the measure of the participants' problem severity. The results of question 2 indicated that the relationship between measures of academic achievement and social emotional function was the same for students with minimal/mild problem severity as it is for those with moderate/severe impairment. The results are displayed in Table 12.

Table 12

Predictors of Social-Emotional Function Considering Problem Severity

Predictor	B	Std. Error	β	Sig.
Reading with problem severity	.018	.229	.018	.938
Written with problem severity	-.094	.325	.100	.759
<u>Math with problem severity</u>	<u>.019</u>	<u>.354</u>	<u>-.018</u>	<u>.960</u>

* significant $p < 0.05$ level.

Research Question 3: Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points? Once again, the statistical methodology for question 3 used the beta values and standard error generated from the linear regression model of question 1, where the measures of academic achievement and grade were independent variables, and social-emotional function was a dependent variable. Next, the same regression model was used, employing the measures of academic achievement at the second time point. Given the passage of time and subsequent missing data, the number of usable participant profiles fell from 261 to 102. Similar to the first model, gender was removed as an independent variable.

Table 13

Regression Model with Collinearity Statistics at Time Point Two Grade and Gender Removed

Predictor	B	Std. Error	β	Sig.	Tolerance	VIF
Reading	-.133	.125	-.175	.287	.412	2.428
Writing	.535	.172	.535	.003**	.370	2.700
Math	-.228	.205	-.199	.271	.342	2.923

**Significant at $p < .01$

The results of the multiple regression at time point two indicated that the four predictors explained 13.6 percent of the variance ($R^2 = .136$, $F = 3.117$, $p < .01$).

The analysis also indicated that, unlike reading and math, written expression was

a significant predictor of social-emotional function ($\beta=.493$, $SE=.182$, $p<.01$). The results of regression analysis for the second time point are displayed in Table 13.

As mentioned prior, the analysis included an examination of the influence of collinearity on the regression model. At the second time point, the independent variables, reading comprehension and math concepts & applications, remained significantly correlated; therefore, additional analyses were conducted to examine how the predictive value of the model would change if each independent variable was removed. Similar to the procedures in the analysis of research question 1, gender and grade, both highly insignificant independent variables, were also removed during the post-hoc analysis. The individual removal of either math concepts and applications or reading comprehension had very little influence on the significance of the regression model. Written expression remained a significant predictor ($\beta = .437$, $p = .004$) of level of social-emotional function at the second time point when the math data was removed from the model. Furthermore, written expression was also a significant predictor ($\beta = .473$, $p = .0054$) of level of social-emotional function at the second time point when the independent variable, reading comprehension was removed from the model. In sum, multicollinearity was not an issue that altered, magnified, or interfered with the regression model.

Finally a series of z-tests were conducted for each of the subtests, reading comprehension, written expression, and math concepts and applications. The z-tests provided an examination of the relationships between of the beta values and standard error measures from the regression analyses at time points one and two.

The z-test results determine whether the relationship between the measures of achievement and social-emotional function was significantly different at time point two than at time point one. The z-tests also provided an indicator of strength in the predictive relationship of each of the measures of academic achievement and social-emotional function within ninety days of one year after the initial test date.

The results of the z-tests, shown in Table 14, indicated that the relationship between reading comprehension and social-emotional function does not change over time spent in the program ($z = .9894$).

Table 14

Z-Test Formulae and Results

Test	β_1	SE ₁	β_2	SE ₂	Results
Reading z-test	-.146	.143	-.074	.091	$z = .9894$
Writing z-test	.493	.182	-.003	.039	$z = 2.3583^*$
Math z-test	-.198	.216	.144	.126	$z = -3.2489$

*Significant at $p < .01$

Likewise, results of the multiple regression analysis and z-test indicated that the relationship between math concepts and applications and social-emotional function also does not change with time in the program ($z = -3.2489$). However, the writing achievement z score, $z = 2.3583$, was significant at $p < .01$. The results of the z-test indicated that the relationship between writing achievement and social-emotional strengthens with time in the program. The results of the analyses suggests that not only is written expression a significant statistical predictor of

social-emotional function after a year of instruction in the treatment program, but that the relationship between writing and social-emotional function, for better or worse, strengthens with time in the day treatment program.

Effect Size Observed

The overall weighted mean effect size in the final regression analysis from research question 3 was $d=.1574$. An effect size of this magnitude indicates a medium effect for the value of measures of written expression in predicting social emotional function after one year, according to Cohen's (1992) guidelines. Cohen established the medium effect size to be one that was large enough that social consumers would be able to notice the effect in everyday life (Cohen, 1992). In this way, an effect size of .1574 suggests that changes in measures of academic achievement (reading comprehension, written expression, and math concepts and applications raw scores) are related to noticeable differences in the social-emotional function of students with ED.

Summary

While initial measures of academic achievement in reading, writing, and mathematics were not significant predictors of social-emotional functioning, regardless of problem severity, one year after initial testing, writing achievement proved to have significant, prophetic value in determining measures of children's mental health outcomes. The relationship between writing achievement and social-emotional function became significantly stronger with time in the treatment program. Chapter five will discuss these findings, their implications, and the limitations in greater depth.

Chapter V

Discussion

The tendency for children and youth with Emotional Disturbance (ED) to underperform in measures of academic achievement has been established and confirmed by educational and mental health researchers for decades (Kaufman & Landrum, 2009; Nelson, Benner, Lane, & Smith, 2004; Anderson, Kutash, & Duchnowski, 2001; Greenbaum et al, 1996; Hobbs, 1982). The dreadful outcomes indicated by countless researchers indicates that students with ED consistently score one to two years behind their typically developing peers (Kauffman & Landrum, 2009; Reid, Gonzalez, Nordness, & Epstein, 2004; Trout, Nordness, Pierce, & Epstein, 2003). Compounding the problem, the poor scholastic performance of students with ED also tends to broaden and worsen with time (Nelson, Benner, & Mooney, 2008; Lane, 2004; Mattison, Hooper, & Glassberg, 2002; Anderson, Kutash, & Duchnowski, 2001). The trend of students with ED to fail in academic measures is but a warning of future “rotten outcomes” (Schorr, 1988, p. 1): dropout, early pregnancy, unemployment, and incarceration (Wagner, 1995; Bullis, Walker, & Stieber, 1998; Kivirauma & Jahnukainen, 2001; Kauffman & Landrum, 2009; Quinn & Poirier, 2004). With less than one

percent of students with ED in the U.S. receiving special education services under IDEA (United States Department of Education, 2010) and the well-documented underservice of children and youth with mental health difficulties (Costello, Burns, Argold, & Leaf, 1993; McKay, Stoewe, McCadam, & Gonzales, 1998; Staudt, 2003) the social and economic costs associated with the continual failure of students with ED, some 7% of the population, are staggering.

While these facts have remained unchanged for over half a century, the mental health and educational machinery has also remained resistant to integrating an effort to change the futures of so many children at risk. It was this troubling trend that propelled Nicholas Hobbs (1968, 1975a, 1975b, 1982) to pursue a new course of the treatment for troubled and troubling children that focused on successful living, scholastic and emotional, seamless and inseparable. It was also the impetus of this research study.

Several assumptions predicated the study. Given the continual rate of failure among students with ED (Kaufman & Landrum, 2009; Nelson, Benner, Lane, & Smith, 2004; Anderson, Kutash, & Duchnowski, 2001; Greenbaum et al, 1996; Hobbs, 1982), academic instruction alone is ineffective in treating the disorder. Also, social skills instruction, counseling, hospitalization, and similar Medicaid approved mental health practices seem to be moderate at best in stemming the failure of students with ED (Cowan, 2011; Kavale, Mathur, & Mostert, 2004; Walker, Ramsey, and Gresham, 2004). This researcher sought to test the hypothesis that measures of academic instruction might predict changes in standard measures of mental health outcomes. This hypothesis runs contrary to

conventional mental health and special education practices. Furthermore, evidence supporting the existence of a relationship between measures of academic achievement and mental health outcomes might suggest the need for further causal-comparative investigation. The results require further explanation and discussion of its theoretical, clinical and practical significance (American Psychological Association, 2009).

Chapter 5 will conclude the research study with a discussion of each of the research questions, implications, limitations, and suggestions for future research.

Discussion of Results

The review of literature suggests that children and youth with ED generally score poorly in measures of academic achievement and social skills (Nelson, Benner, & Mooney, 2008; Mattison, Spitznagel, & Felix, 1998; Nelson, Benner, Lane, & Smith, 2004) and that these deficits worsen with time (Nelson, Benner, & Mooney, 2008; Lane, 2004; Mattison, Hooper, & Glassberg, 2002; Anderson, Kutash, & Duchnowski, 2001). The research regarding the more specific academic performance of students with ED in the areas of reading (Epstein, Nelson, Trout, & Mooney, 2005), mathematics (Nelson, Benner, Lane, & Smith, 2004; Greenbaum, et al, 1996), and writing (Nelson, Benner, & Mooney, 2007; Epstein, Nelson, Trout, & Mooney, 2005; Rosenblatt & Rosenblatt, 1999), also indicate universal underperformance that generally deepens over time. Given the strong correlations among the subtests of the KTEA-II (Kaufman & Kaufman, 2004), reported by both the test's authors and indicated by the research data, one might predict that changes in academic

performance would occur uniformly across subject areas. Yet close examination of the results of this study indicate that this was not the case.

Research Question 1: Is there a predictive relationship between measures of academic achievement and social-emotional function in students with ED being served in a partial hospital day treatment center, above and beyond any differences in gender and grade? Research question 1 sought to examine the predictive value of measures of academic achievement gathered from the KTEA-II on the measure of social-emotional function as measured by the Ohio Scales data gathered from children and youth with ED served in a partial hospital, day treatment center. It was assumed that the vast majority of this data was gathered within 90 days of admission into the treatment program. The results indicated that none of the primary independent variables, reading comprehension, math concepts and applications, and written expression were significant predictors of social-emotional function at this – the initial, time point. This researcher was surprised by these results, assuming that both of the measures of academic achievement and mental health, while tending to score lower than their typically developing counterparts, would indicate strong, positive correlations. Alas, this was not the case.

Upon first glance, the failure of the independent variables, measures of academic achievement, to predict measures of social-emotional function may support the assumption that school-based learning and mental health are discrete, statistically unrelated phenomena. While this may be a possible explanation, another could be simply the absence of effective interventions in addressing the

many needs of children and youth with ED. It may be safe to assume that, prior to referral to a partial-hospital, day treatment center, attempts at addressing problems, such as lagging achievement, chronic absenteeism, and persistent disruption, failed. Therefore, it would be expected that measures of academic achievement and mental health would be broadly distributed, a condition making strong correlations improbable.

Research Question 2: Does the predictive relationship between measures of academic achievement and social-emotional function differ based on the level of problem severity among students with moderate and severe impairment compared to students with minimal and mild

impairment? Question 2 further explored the predictive value of measures of academic achievement in determining social-emotional function at the initial, time point. However, a new model was constructed that considered students' level of problem severity. Recall that IDEA (2004) defines ED as a condition where poor interpersonal relationships, inappropriate behavior, and pervasive, unhappy moods "adversely affect educational performance" (IDEA, 2004; U.S. Department of Education, 2006, p.46756). It was this researcher's hypothesis that, contrary to conventional thinking, a stronger relationship between academic achievement and social emotional functioning would exist for student who have more severe emotional disturbance as compared to those with more mild emotional impairment. As a logical extension of the well-known correlation between social skills and academic achievement (Miles & Stipek, 2006; Malecki & Elliot, 2002; DiPerna & Elliot, 1999; Wentzel, 1993; Feshbach & Feshbach,

1987), the researcher believed that as measures of academic achievement deteriorated, so might measures of social-emotional function. The results of question 2 indicated that students' problem severity did not significantly influence the relationship between the academic and mental health data at the first time point. The failure of students' problem severity to influence the statistical prediction of a measure of mental health further cemented the utility of conventional thinking on the nature of ED: dysfunction prevents learning (IDEA, 2004). However, as stated previously, the likely narrow distribution of KTEA-II and Ohio Scale's data, gathered from students upon admission into an intensive partial-hospital, day treatment program, may have also made significant correlations based on problem severity improbable.

Research Question 3: Does the predictive relationship between measures of academic achievement and social-emotional function strengthen over time as measured at two time points? The third research question examined measures of academic achievement as predictors of mental health outcomes following one year of treatment. While math ($\beta=-.199$, $SE=.205$, $p>.05$) and reading ($\beta=-.175$, $SE=.125$, $p>.05$) remained insignificant predictors of social-emotional function, written expression ($\beta=.493$, $se=.182$, $p<.01$) emerged as a statistically significant predictor of social-emotional function – after one year of treatment. Furthermore, the findings of the study suggest that, given increased time in treatment, the predictive relationship between written expression and social-emotional function among the participants, strengthens. The researcher believes that the strengthening statistical association between these two

measures was likely due to the effectiveness of academic interventions – and the therapy imbued in nurturing competence - of addressing nagging deficits in written expression. More specifically, the researcher believes that the therapy is a result of an unconditional therapeutic relationship between teacher-counselor (Hobbs, 1982) and the struggling student.

Question synthesis discussion. This research study did not investigate cause and effect. The researcher created a series of regression models with social-emotional function as the dependent variable. In inferential statistics, as well as in actual service delivery, the opposite may have been equally true: social-emotional function may have just as easily “predicted” the measure of written expression. Regardless of cause and effect, evidence of increasing sensitivity between a measure of academic achievement – specifically, written expression - and a standard measure of mental health, confirms that the unmistakable overlapping interests between educators and mental health providers grows with time in treatment. It was by design that the researcher selected two seemingly incongruous assessment tools. One, the KTEA-II, is a standardized measure of academic achievement, widely used as an indispensable tool for assessing the needs of children, especially those in special education (Lichtenberger & Smith, 2005). The second, the Ohio Scales, is employed as a primary assessment tool for measuring mental health outcomes for the Ohio Department of Mental Health (Ohio Department of Mental Health, 2009). Yet now it is clear that, at least for writing, not only does this measure of academic achievement and mental health correlate, their intersecting outcomes strengthen with time in treatment. And in

the case of this research study, treatment was provided for a difficult and treatment resistant sample of children for whom rotten futures remain a looming certainty.

It is critical that the demographic characteristics of the students selected in the data sample be considered when interpreting the results of the research study. Recall that the sample included 199 males and 62 females with the average age of 13.5. The majority of the profile sample was African American, 62.5%. While not provided in the demographic information, most students likely met the federal poverty guidelines issued by the Department of Health and Human Services (US Department of Agriculture, 2009). Characteristic of the student sample provided for the study was a history of academic disengagement and resistance (Kauffman & Landrum, 2009). However, provided in treatment was curb-to-curb transportation, regardless of social mobility. With dependable transportation, the treatment program intended to affect positive change in scholarship and emotional health through increased time on task, an obvious impossibility for the truant or tardy student. Since providing a culturally congruent curriculum, immersed in values of students and their families (Delpit, 1995), is far more likely of overcoming cultural bias imbued in many standardized tests (Jencks & Phillips, 1998), the treatment agency also championed the use of instructional methods that honor and motivate African American students. Furthermore, it was the practice of the agency to provide unconditional positive regard for each student and their family. Each student received breakfast and lunch daily, and families were offered resource support for home and community needs with

dignity and respect. Without question, these services and guidelines were influential in addressing the needs of students and their families – as well as factors that were likely reflected in the results of the research study, especially after one year of treatment.

The loss of usable data from the first time point to the second was a factor that likely influenced the results of the research study. Recall that the researcher sought both KTEA-II and Ohio Scales data, administered within 90 days of each other, as well as corresponding test data gathered some 365 days later. Despite that the average 2.5 year enrollment in the treatment program, truancy and mobility likely contributed to the loss of data. While it is impossible to determine which of these features caused each case of attrition, consumers of this research should consider possible cultural, racial, personal and familial characteristics of those students whose data were included in the second time point.

Beyond the intersection of stringent inclusion guidelines and the difficulties of serving and assessing students with ED (Kauffman & Landrum, 2009), test bias, inherent in serving a marginalized population such as students from involuntary minorities represented in the sample data (Jencks & Phillips, 1998; Ogbu, 2003) may have also have influenced the results throughout the study. While the research compared the unstandardized, raw scores to each student's own scores, the simple use of a standardized measure of academic achievement among a sample of disproportionately low income, African-American students immediately mutes the growth demonstrated through one year of academic and mental health treatment. Surely, cultural and racial factors,

manifested in test bias, should be considered when interpreting the results of this research study.

In addition to factors that may have influenced the results, alternative explanations must also be considered. As the student participants received both academic and mental health interventions during the research timeframe, an obvious, possible alternative explanation is the assumption of twin, positive trajectories of change in both measures, KTEA-II and Ohio Scales. Given this point, it is also important to note that the vast majority of the student participants received instruction in reading, math, and writing prior to their referral to enrollment in the treatment program. The students, however, continued to struggle in educational and behavioral performances prior to placement in the treatment program. This simple fact suggests that changes in written expression may be an effect rather than a cause of changes in social-emotional function, and, that the actual agents of change were indeed the effectiveness of the mental health interventions provided in the treatment program. Furthermore, this study cannot rule out the possibility of the existence of another untested, “hidden” variable that influenced both written expression and social-emotional function.

Why did changes in measures of written expression emerge as the sole significant predictor of social emotional function among the participants? The results of the research indicate that changes, which are presumed to be growth, in written expression, are quantitatively different than changes in reading comprehension and math concepts and applications. The implications of the study

require further explanation of the *qualitative* differences in developing mastery in writing among children and youth with ED.

Central to the social-emotional dysfunction common among children and youth with ED are interpersonal communication deficits (Kauffman & Landrum, 2009). As mentioned previously, students with ED lack the social skills - competence in communicating and interacting with others – necessary to participate in adequate positive social interactions to reinforce appropriate behavior for increased social acceptance, especially in school (Kavale, Mathur, & Mostert, 2004). Inadequate communication skills, poor interactions, and inadequate reinforcement of appropriate skills results in negative social outcomes including mental health referrals, delinquency, and school failure (Kavale, Mathur, & Mostert, 2004).

The body of research investigating school failure among students with ED, has generally focused on reading and mathematics, yet written composition, as this study has demonstrated, remains a critically essential area for our struggling students (Regan, Mastropieri & Scruggs, 2005; Lane, 2004). All too often, when children and youth with ED are faced with academic tasks that require writing, glaring academic and social skill deficits lead to avoidance and disruption (Regan, Mastropieri & Scruggs, 2005; Landrum, Tankersley, & Kauffman, 2003; Nelson, Benner, Lane, & Smith, 2004). Yet written expression is directly related to competence in communicating and interacting with others (Regan, Mastropieri & Scruggs, 2005). The qualitative difference between competence in writing as opposed to reading and mathematics may be simply summarized in the word,

“expression”. Developing writing empowers students to acquire the skills to competently express their thoughts, feelings, and needs - a glaring need among children and youth with ED (Kauffman & Landrum, 2009).

Although the current study does not show a causal relationship between writing success and social-emotional functioning, this researcher believes that the increased awareness of the importance of writing achievement as a predictor of mental health among students with ED punctuates the need for greater emphasis on blended mental health and academic service that focus on nurturing competent writers. In recent years, sporadic studies have offered research and insight into effective practices for improving writing among students with ED. These methods include focusing on the writing process over mechanics (Gersten & Baker, 2001), interactive writing opportunities (Hallenback, 2002), developing self-regulation strategies through writing (Graham & Harris, 2003), and dialogue journals (Regan, Mastropieri & Scruggs, 2005). In the treatment program, where the participants were enrolled, the curricula vary from classroom to classroom, but writing interventions often utilize step-by-step formulae for sentence and paragraph development (Cosner, J, 1996) as well as other comprehensive, leveled writing programs.

Implications

This research study may have implications for those seeking greater clarity in understanding the nature of ED, improved delivery of special education and mental health services, and legislative and administrative policies that drive such practices.

It is important to recall that that many special educators serve students with ED that have psychiatric diseases (Kauffman & Landrum, 2009), yet difficulties persist that prevent mental health professionals to interface with schools (Daly, et al, 2006). For example, the psychiatric diseases, such as those seen in the DSM-IV (American Psychiatric Association, 2000), are assigned into discrete categories, that are not in alignment for services in special education (Kauffman and Landrum, 2009). Despite the emphasis of the No Child Left Behind Act of 2001 (NCLB) and the decades-old wisdom of educational pioneers like Hobbs (1968, 1975a, 1975b, 1982), little has changed to streamline the integration of mental health and special education funds and services.

Hobbs posited that the relationship between measures of academic achievement and mental health outcomes was interactional (Hobbs, 1982). Hobbs (1982) wrote:

Research evidence today underscores the importance of academic competence in a child's achievement of personal integration and social effectiveness, and it contradicts the long-held assumption that the seriously disturbed child must be treated for his illness before he can be an effective learner. All of our experience suggests that the causal direction of the relationship between emotional disturbance and learning competence may be, for many children, the reverse of the traditionally posited. The most probable relationship is interactional, so that early and continuing address to both adjustment and learning problems is indicated (p.23).

Now nearly thirty years hence since Hobbs published his remarks, the theoretical underpinnings of the disorder, as well as common practices in treating the disorder, remain resistant to change. The results of this research study indicate that only after time spent in treatment, measures of written expression are statistical predictors of mental health outcomes, namely the Ohio Scales' measure of social-emotional function. Yet, the social and political machinery appears to remain firmly in place that trades fiscal convenience for the futures of our most vulnerable and underserved students. This research study begs the reader to consider how many more decades shall pass until educational and mental health professionals consistently collaborate to promote success for students with ED.

Wehby, Lane, and Falk (2003) suggest the academic needs of children with ED suffer due to myopic approaches to treating the disorder. Instead children with ED continue to demonstrate “extremely poor outcomes, including high rates of absenteeism, low grade point averages, course failure, and unacceptable levels of school dropout” (p.194). The authors indicate that the general approach to serving children with ED has been to address the disruptive behavior before academic needs. The authors posit four hypotheses that explain the ongoing academic failure:

1. Behavior problems prevent teachers from implementing high quality instruction.
2. Students with ED influence the behavior of teachers.
3. Teacher training for those serving ED children focuses on behavior, not academics.

4. Limited empirical research is available on effective methods for ED students.

The observations of Wehby, Lane, and Falk (2003) and the results of the current research study may provide practical direction for teachers and mental health providers that feel the frustration of serving such a difficult population. To rephrase the observations of Nicholas Hobbs (1982), competence in written expression matters for children and youth with ED.

The results may also have significance for Medicaid eligible mental health clinicians and policy makers. You may recall that Ohio, similar to many states, utilizes a “fee for services” (Kutash, Duchnowski, & Friedman, 2005, p. 6) mechanism for funding mental health treatment through the federal Medicaid Program. The Ohio Department of Mental Health (ODMH), in accordance with the federal guidelines, provides rules for Medicaid reimbursement. Current state and federal Medicaid language is explicit in its definition of billable services. Furthermore, each state creates a unique Medicaid plan for reimbursing agencies for specific, named, mental health services that do not meet the design criteria for specific mental health treatment (U.S. Department of Health and Human Services, 2008).

As manifestations of the medical model of mental health, Medicaid and ODMH rigidly define partial hospital services, such as those provided in the treatment program where the participants were enrolled. Medicaid eligible partial hospital services must meet the standards of an accredited psychiatric hospital or inpatient program (U.S. Department of Health and Human Services, 2008). In

states such as Ohio, these include the separation of education and mental health services.

The Ohio Administrative Code, outlined in Medicaid Rule 51013-27-02 (2011) defines the coverage and limitations of community mental health Medicaid eligible services. Ohio Department of Mental Health rules prohibit Medicaid reimbursement for nontherapeutic academic activities that include “high school classes, computer skills, math skills, or other trade skills” (Ohio Administrative Code, 2011). Current interpretation of Medicaid rule 51013-27-02 (Ohio Administrative Code, 2011) requires clear separation of academic and mental health activities during Medicaid eligible therapy sessions. Thus mental health therapies, employed during academic instruction periods are neither legitimate nor eligible for Medicaid reimbursement. This absurdly suggests, for example, that the mental health interventions, provided for a child experiencing a sudden mental health crisis during an academic period, would not be eligible for Medicaid reimbursement. According to Medicaid rule 51013-27-02 (Ohio Administrative Code, 2011), the lively nature of changing mental health needs among troubled children and youth, must wait for the “therapeutic hour” (Hobbs, 1982, p. 243) to be considered a Medicaid eligible and reimbursable therapy.

Although the details of “why” cannot be known from this study, this researcher believes, in accordance with Lane and her colleagues (2007) that the appearance of a correlational relationship between written expression and social-emotional function after time in treatment occurs because mental health and academic achievement are intrinsically inseparable variables. If this is the case, it

is unfortunate that Medicaid has rules prohibiting billing for academic activities. It is the researcher's opinion that this billing practice may simply be a relic of fiscal convenience rather than an actual, researched, therapeutic guideline. If so, separation of billable mental health and academic activities for children and youth with ED may require review.

Limitations

While the study did provide results that may be of interest to members of the mental health and education communities, the research presents limitations that must be explored. Limitations discussed include: researcher and rater bias, test instruments, participant characteristics, research timeframe, and research design.

The design of the Ohio Scales worker form, similar to many instruments that employ observer rating scales, is subject to observer bias (Hill, O'Grady, & Price, 1988). Given the scope of the data retrieval, across five years and several day treatment centers, the raters were not the same for each administration. While the raters had reasonable training and experience in the administration of the test, in each case, the administrators were familiar with the child's case as well as access to previous test administrations.

The Ohio Scales was designed as "tripartite model" (p. 4, Ogles, Melendez, Davis, & Lunnen, 2000) where multiple stakeholders - parent, youth, and worker - would provide input into the measurement of treatment success. Given the vast number of missing scores as well as obvious parent and youth rater bias, the researcher limited Ohio Scales data to that provided by the Worker

Form. While this decision is not in concert with the original design of the instrument, inclusion of the parent and youth data, was seen as more challenging limitation with its inclusion.

The study examined a narrow band of children that received treatment and services for ED. As mentioned in chapter one, ED is broadly defined (Forness & Kavale, 2001a; Reddy, 2001; Bates, 2001; U.S. Department of Education, 2006; Kauffman & Landrum, 2009) with children with ED falling on a wide continuum of need (Kauffman & Landrum, 2009, IDEA, 2004; U.S. Department of Education, 2006). The day treatment program providing service for the participants, however, serves children with intense emotional and behavioral needs that transcend the services provided by their regular education counterparts. Since the participants of the study fall on the more severe end of the treatment continuum, it may be necessary to qualify the generalization of the results to similar populations.

The investigation timeframe was limited to approximately one year, with the possibility of some observation periods to be as short as 275 days. With estimates of the average length of treatment in the day treatment program being 2.5 years, a longer time frame may have allowed for closer investigation of the patterns of change over the course of treatment.

Common to correlational research in education (Gay & Airasian, 2000), the purpose of the study was to further examine the relationship between measures of academic achievement and mental health outcomes. A limitation of the design is the lack of control groups to determine precise causality. The results

merely hint at the direction of the relationship between the independent and dependent variables.

Great care was taken to ensure the accuracy and balance in the retrieval, selection, analysis, and interpretation of the research data, several sources of potential bias must be addressed. While the researcher's work, views, and opinions are in no way those of the day treatment program in which the participants were enrolled, it must be noted that the researcher is a veteran employee of the program and a supporter of the Re-ED approach to helping troubled children.

Suggestions for Future Research

Finally, the simple mantra of many science, math, and statistics instructors is "correlation is not causation". Studies have shown that the existence of statistical regressors may only be evidence of other, unmeasured predictors (Glymour, 2009). Furthermore, simply conducting similar regression analyses on a larger set of variables may compound rather than remedy the problem (Glymour, 2009). Therefore, in response to the possibility of the "Cum hoc, ergo propter hoc" false cause fallacy, the researcher suggests future research in explaining the direction of causality when considering the measures of academic achievement, namely written expression, and measures of mental health outcomes among children and youth with ED.

Further research, possibly qualitative, that explores the best practices and pedagogy of effective instruction in written expression among children and youth with ED is desperately needed. Without question, students with ED are among

the most challenging population to teach writing (Dixon, Isaacson, & Stein, 2007). Still, the limited research, which overwhelmingly indicates lagging performance, remains. (Nelson, Benner, & Mooney, 2007; Epstein, Nelson, Trout, & Mooney, 2005; Rosenblatt & Rosenblatt, 1999). It remains the sincere hope of the researcher that, given greater knowledge of the best practices for improving scholarship, care providers may soon predict optimism and hope for our troubled and troubling children.

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Appendix

Figure A1-Possible Theoretical Models Linking ED and Academic Achievement ¹

Model	Hypothesis	Directionality of Influence
1	Poor grades-aggression	Poor grades → Aggression
2	Aggression- poor grades	Aggression → Poor grades
3	Reciprocal causation	Academic failure ↔ ED
4	Spurious relationship	Underlying factors → ED and Academic failure

¹ From: Epstein, M., Nelson, J., Trout, A., & Mooney, P. (2005). Achievement and emotional disturbance: Academic Status and Intervention Research: In M.H. Epstein, K. Kutash, & A.J. Duchnowski (Eds.) *Outcomes for children and youth with emotional and behavioral disorders and their families: Programs and evaluation best practices* (2nd ed.) Austin, TX: PRO-ED.