

MENTAL HEALTH SCREENING WITHIN A TIERED MODEL: INVESTIGATION  
OF A STRENGTH-BASED APPROACH

by

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A DISSERTATION

Presented to the Department of Special Education and Clinical Sciences  
and the Graduate School of the University of Oregon  
in partial fulfillment of the requirements  
for the degree of  
Doctor of Philosophy

June 2012

DISSERTATION APPROVAL PAGE

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Title: Mental Health Screening within a Tiered Model: Investigation of a Strength-Based Approach

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## DISSERTATION ABSTRACT

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Doctor of Philosophy

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June 2012

Title: Mental Health Screening within a Tiered Model: Investigation of a Strength-Based Approach

This study examined the utility of a brief, strength-based approach to mental health screening. A strength-based based approach to mental health screening focuses on the social and emotional competencies taught and supported by the school context. As such, a strength-based approach to mental health screening is aligned with a three-tiered response to intervention model aimed at maximizing the effectiveness of universal supports and early detection of students who may benefit from additional intervention.

This study was conducted in two phases. During Phase I of the study, students ( $n = 1,176$ ) completed a brief, strength-based mental health screener, the Social-Emotional Assets and Resilience Scales (student short forms) (SEARS-SF). During Phase II, data were gathered on a subsample of students ( $n = 106$ ) who had been classified as being At-Risk or Not At-Risk based on the results of the mental health screener.

Analyses included descriptive statistics about the students identified At-Risk and Not At-Risk, the classification accuracy of the proposed approach to universal mental health screening, and if there were meaningful differences between groups. Cross-informant reliability and discriminant validity were analyzed as well. The odds of a child being identified At-Risk using the strength-based approach under investigation was positively related to well-established measures of social-behavioral problems. Students

identified as being At-Risk and Not At-Risk differed on grade point average and broad-band self-report and teacher reported measures of social, behavioral, and emotional functioning; the Youth Self-Report (YSR) and the Behavioral and Emotional Screening System (BESS). The two groups did not differ on standardized measures of academic performance, disability status, office discipline referrals, gender, or absences. Cross-informant reliability of the SEARS-SF indicated relatively weak correlations between teacher reports and child self-reports ( $r = .32$ ). Discriminant validity between the SEARS-SF (student, self-report) and the YSR (student, self-report) and the BESS (teacher report) indicated moderate negative correlations ( $r = -.48$  to  $-.70$ ). Responses to social validity questions suggested that students and teachers support the integration of school-based mental health supports including universal screening procedures.

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Romer, N., Tom, K.M., Ravitch, N. K., Wesley, K., & Merrell, K. W. (2011). Gender differences in positive social and emotional functioning. *Psychology in the Schools*, 48, 931 – 1075.

## ACKNOWLEDGMENTS

I am deeply grateful for the kindness, generosity, and unwavering support of my previous advisor and mentor, the late Dr. Kenneth Merrell, whose influence I cherish and is reflected throughout this dissertation and in my thinking. I know I have only begun to realize how much he has taught me.

I wish to extend my sincere appreciation to my dissertation committee members, Drs. Cynthia Anderson, Robert Horner, Jeffrey Sprague, and Lynn Kahle, for their enthusiasm, guidance, and support throughout this dissertation and my doctoral studies. I am especially thankful for my committee chair and current advisor, Dr. Cynthia Anderson, for her ongoing support, confidence in me, and her important role in helping me complete this dissertation. This study would not have been possible without the collaboration and tremendous effort of the participating school district. I want to thank the participating school district for their interest in this work, commitment to the mental wellness of their students, and flexibility throughout the research process. I appreciate Dr. Kevin Kupzyk sharing his statistical expertise with me and responding to my many follow-up questions. This dissertation was funded by the Wing Institute as well as the Wes Becker and Clare Wilkins Chamberlin Memorial Award and Scholarship. I want to thank the Wing Institute, University of Oregon College of Education, and the scholarship donors for supporting my research.

I want to extend a big thank you to the Oregon Resiliency Project (ORP) research team members. Katie Ravitch, Kara Tom, Sarah Felver, Rhonda Nese, Erin Doerner, Nicole Kaye, Michael Schwartz, and Josh Felver spent numerous hours helping me



conduct this study. Most of all, I treasure the memories of ORP hikes, long laughs, and good discussions.

I have been blessed with the laughter and love my family and friends. I cherish the support and love of my parents, particularly my father, who has always encouraged me to ask questions. I am grateful to have met Christopher Vatland while at the University of Oregon. I want to thank my dear friend Ravit Stein for her inspiration and friendship, especially while I was completing this program.

For my mentor, Dr. Kenneth W. Merrell.

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# CHAPTER I

## INTRODUCTION

Schools are the ideal setting for systemic programming aimed at preventing and ameliorating the staggering rates of childhood mental health problems. This aim may be accomplished by creating positive learning environments and teaching students the social and emotional competencies that foster resilience (Doll & Cummings, 2008; Greenberg et al., 2003; Rones & Hoagwood, 2000). Social and emotional competencies are associated with positive student outcomes, including academic achievement, and school-based mental health promotion (Doll & Cummings, 2008; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Payton et al., 2008).

In the United States, approximately one in five children has a diagnosable mental health problem, and one in ten children experience problems so severe as to impact their daily functioning (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Doll, 1996; Department of Health and Human Services, 1999). Even more concerning is that less than half of these children diagnosed with a disorder receive the therapeutic services they require (Ries Merikangas, He, Brody, Fisher, Bourdon, & Korte, 2010). As a result, schools often function as “de facto” mental health systems for children and adolescents attempting to meet the unmet mental health needs of students and their families (Farmer & Farmer, 1999; Rones & Hoagwood, 2000). Fortunately, schools are well suited to integrate and coordinate mental health services (Doll & Cummings, 2008).

Positive student outcomes achieved via school-based mental health interventions include improved academic skills, attendance, and social behavior (Fleming et al., 2005; Zins, Bloodworth, Weissberg, & Walberg, 2004). In addition, school-based mental

health services can be linked to a reduction in special education referrals, improved aspects of school climate, and a decline in discipline referrals, suspensions, and grade retentions (Burns, Walrath, Glass-Siegel, & Weist, 2004; Knoff, 2004). Conversely, failure to prevent mental health problems is linked to increased school drop-out rates, costs associated with intensive mental health care, and an increased number of children entering the juvenile justice system (Fruedenberg & Ruglis, 2007; Hu, 2004; Wasserman, et al., 2004). In order to minimize these costs and improve student outcomes, primary interventions within schools need to begin early through active mental health promotion so that children and their families are provided the support they require prior to problems developing (Greenberg, Domitrovitch, & Brumbarger, 2001). Unfortunately, most students are identified with emotional and behavioral disorders after opportunities for early intervention have been missed, and the myriad of poor school-related outcomes have already begun to transpire (Rones & Hoagwood, 2000; Wagner, Kutash, Duchnowski, & Epstein, 2005).

### **Three-Tiered Approaches to Providing School-Based Mental Health Services**

A focus on the prevention of mental illness and the promotion of factors associated with resilience within schools provides a promising approach to improving student outcomes and reducing emotional and behavior problems among children and adolescents. Three-tiered models of intervention such as response to intervention provide a framework for an integrated continuum of supports that promote mental wellness and, thereby, prevent the onset of behavioral, social, and emotional problems (Adleman & Taylor, 2000; Doll & Cummings, 2008; Merrell & Gueldner, 2008).

If schools are to respond to the call of public and mental health experts to support the mental wellbeing of children and their families, the infrastructure for systemic, coordinated, and integrated approaches to mental health programming must be considered (Adelman & Taylor, 2008; Nastasi, 2004). A public health perspective implies a conceptualization of mental health service delivery as a continuum of care ranging from mental health promotion to the treatment of identified mental health disorders across settings within a community, including schools. Doll and Cummings (2008) identified four goals for population-based mental health services: “(a) promote the psychological well-being of all students so that they can achieve developmental competence, (b) promote caretaking environments that nurture students and allow them to overcome minor risks and challenges, (c) provide protective support to students at high risk for developmental failures, and (d) remediate social emotional and behavioral disturbances so that students can develop competence” (p.3). Integrating mental health supports such as social and emotional learning into three-tiered prevention models has been recommended as a means for achieving these goals (Doll & Cummings, 2008; Gresham, 2005; Merrell & Guelder, 2010).

At the universal level of support, prevention efforts involve school-wide approaches focusing not only on reducing children’s aggressive, disruptive, and withdrawn behavior, but also on developing children’s social and emotional competence (Osher et al., 2008). Similar to three-tiered approaches that have been applied to academics and social behavior, such a model requires not only prevention and early intervention supports, but also a means of identifying students who have not responded to universal practices (Greenwood, Horner, & Kratochwill, 2008). Thus, methods for

universal mental health screening are needed to identify students who could benefit from more intensive supports. Although some approaches to universal screening for mental health and internalizing problems have been recommended (Doll & Cummings, 2008; Levitt & Merrell, 2009), there is a pressing need for research to investigate the validity and outcomes associated with these approaches, as well as research and development of new assessment tools (Levitt, Saka, Romanelli, & Hoagwood, 2007).

### **Universal Mental Health Screening**

As prevention programs target skills and competencies aimed at modifying risk factors, measures are needed to identify the positive skills and assets associated with resilience (Greenberg, Domitrovich, & Bumbarger, 2001). Universal voluntary school-based mental health screening has been identified as a means for accomplishing this goal (e.g., New Freedom Commission on Mental Health, 2003); however, research is needed on the use of strength-based measures for the purpose of mental health screening (Dowdy, Furlong, Eklund, Saeki, & Ritchey, 2010; Levitt, Saka, Romanelli, & Hoagwood, 2007). Of existing comprehensive, research-based mental health screeners for schools most focus on measuring the presence of social or emotional concerns (i.e., deficits) (Drummond, 1994; Kamphaus & Reynolds, 2007; Walker & Severson, 1992). This may be problematic, because it cannot be assumed that the absence of symptoms related to psychopathology alone implies that a student is mentally well or well adjusted (Suldo & Shaffer, 2008). Strength-based self-report measures show promise as a viable and socially acceptable approach to measuring individual characteristics and skills associated with resilience.

## **Strength-Based Assessment**

Behavior rating scales and self-report measures provide an efficient approach to assessing students' behavioral, social, and emotional functioning (Merrell, 2008). Although traditional deficit-based assessment measures are useful for identifying disabilities, these methods do not take into account ecological variables, nor are they likely to inform intervention planning (Jimerson, Sharkey, Nyborg & Furlong, 2004). Recently developed strength-based approaches to assessment, however, focus on social and emotional skills, competencies, and resources within and around the child (Beaver, 2008; Epstein, 1999). Epstein and Sharma's (1998) commonly-cited definition of strength-based assessment is: "the measurement of those emotional and behavioral skills, competencies, and characteristics that create a sense of personal accomplishment, contribute to satisfying relationships with family members, peers, and adults; enhance one's ability to deal with adversity, and promote one's personal, social, and academic development" (p. 3).

Strength-based assessment practices have evolved from the field of positive psychology, which focuses on the development of human strengths and virtues, as well as the prevention of problems (Seligman & Csikszentmihalyi, 2000). These approaches are aligned with the current shift in best practice towards models that emphasize solutions to problems rather than assessment for the purpose of identification or eligibility (Merrell, Ervin, & Gimpel, 2006; Tilly, 2008).

These measures provide parents and educators with information on student skills, knowledge, and competence, which may be better suited for evaluating the outcomes of intervention programs and universal screening. In addition, a strength-based approach to

mental health screening may be more socially acceptable and increase motivation for change compared to problem focused approaches to assessment (Jimerson, Sharkey, Nyborg, & Furlong, 2004).

### **Study Purpose**

The purpose of this study was to evaluate the classification accuracy and other forms of validity of a universal screening approach using a very brief (12 items) strength-based self-report measure, the *Social-Emotional Assets and Resilience Scales (student short forms)* (SEARS; Merrell, 2011), in identifying middle school students who are at-risk or in need of intensive social-behavioral and mental health intervention.

Specifically, this study addressed the following research questions:

1. Do reported levels of internalizing and externalizing symptoms on the Youth Self-Report (YRS; Achenbach & Rescorla, 2001) effectively and accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening?
2. Do scores from the Behavioral and Emotional Screening System Teacher Version (BESS; Kamphaus & Reynolds, 2007) effectively and accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening?
3. What is the degree of similarity between student and teacher ratings of a given student using respective versions of a strength-based rating scale (SEARS-Short Forms; Merrell, 2011)?
4. What is the degree of difference between strength-based rating scale scores (SEARS-Short Forms; Merrell, 2011) and primarily problem-based rating

scale scores (BESS; Kamphaus & Reynolds, 2007; YSR; Achenbach & Rescorla, 2001)?

5. Are there significant group differences between the At-Risk and Not-At Risk group according to academic functioning, number of absences, number of office discipline referrals (ODR), gender, and disability status?



## CHAPTER II

### LITERATURE REVIEW

This review of the literature focuses on several important topics related to school-based mental health promotion. This section begins by reviewing prevalence rates associated with mental illness among children and adolescents, and continues with an overview of key concepts supported by developmental resilience research relevant to school-based mental health promotion and the prevention of mental illness. Social and emotional learning is described and several research reviews are summarized to highlight findings of a large body of research evaluating prevention and intervention programs. Next, a three-tiered approach to mental health promotion within schools is summarized, including the importance of universal mental health screening procedures and measures. Strength-based assessment is defined and a rationale for investigating a strength-based approach for universal mental health screening is provided, and considerations relating to measurement issues when using self-report measures are discussed. The review of the literature concludes by articulating the potential contributions of the proposed study. Articles and book chapters for the literature review were obtained through PsycINFO, ERIC, and ancestral reviews. This review is not intended to be exhaustive, but to provide a foundation for the proposed study.

#### **Mental Illness during Childhood and Adolescence**

In the United States, the most common reason that adolescents report for seeking out mental health services is feeling depressed, and approximately 8.5% of adolescents have a major depressive episode each year (SAMHSA, 2008). Epidemiological studies have shown that anxiety disorders are among the most common mental health problems

to occur during childhood and adolescence (Doll, 1996; SAMSA, 2008). In addition, adolescence is a time during which students are more likely to engage in high-risk behaviors such as substance use, risky sexual behavior, and violence (Greenberg et al., 2003). The scope of these problems may be even larger than epidemiological studies suggest, as problems that do not meet diagnostic criteria are often not captured in these types of studies. For example, many adolescents have elevated but subclinical levels of depressive symptoms that impact their functioning and warrant intervention (Gotlib, Lewinsohn, & Seeley, 1995). Anxiety or depressive disorders during this developmental period are particularly concerning, because most adult disorders are preceded by an internalizing disorder experienced during adolescence (Pine, Cohen, Gurley, Brook, & Ma, 1998). The impact of mental health problems faced by many adolescents is far reaching and schools are recognizing the call for integrated, systemic interventions to reduce the negative impact of these problems, and that students and their families are not just seeking interventions that reduce levels of depression, anxiety, or problem behaviors, but interventions aimed at mental well-being and an opportunity to fully engage in academic and social experiences (Beaver, 2008).

### **School-Based Mental Health Services**

School is, next to home, the second most frequented setting for most children, and therefore provides a potential resource to strategically prevent and intervene when students are at risk of developing mental health disorders. This may be best achieved through effective mental health promotion aimed at bolstering student resilience. In other words, schools must provide students with the right conditions and the right supports so that they develop the social, behavioral, and emotional competencies integral to learning

and progress at school (Zins, et al., 2004). School-based mental health promotion also affords all students access to mental health services and is aligned with public health efforts to address the staggering rates of childhood and adolescent mental illness.

The World Health Organization (WHO) defines mental health promotion as a process of “increasing psychological well-being, competence and resilience, and by creating supportive living conditions and environments” (WHO, 2004, p.18). Benefits specific to school-based mental health programs include: (a) easing the accessibility of care, (b) reducing the stigma associated with mental health support, (c) increased opportunities for generalization and maintenance, and (d) opportunities for universal mental health promotion and targeted prevention efforts (Adelman & Taylor, 1998; Knoff, 2007; Stephan, Weist, Katoaka, Adelsheim, & Mills, 2007). Population-based mental health service delivery models provide a strategic approach to embedding mental health services into the schools and assume that mental wellness is a precondition for learning (Doll & Cummings, 2008).

Unfortunately, coordinated mental health supports within schools are often limited to students identified as having an identified disability. This type of service delivery model is problematic, not only because it is reactive rather than preventative, but it is focused on student shortcomings, such as failing grades, suspensions, or impairments (Individuals with Disabilities Education Improvement Act (IDEIA; 2004), while ignoring many important aspects of a student well-being. A shift towards a prevention-based approach to mental health service delivery requires that mental health standards are embedded throughout the school and support all students through practices that

emphasize positive aspects of development (Greenberg et al., 2003; Merrell & Gueldner, 2010).

### **Developmental Resilience**

Developmental resilience research has provided important insights into what approaches and types of interventions will be effective in ameliorating risks and bolstering resilience. Research on resiliency has identified underlying individual processes, contextual characteristics, and internal assets that are linked to resilience by studying how children develop into competent adults despite adverse circumstances (Doll & Lyon, 1998). Protective processes within children and their environments (e.g., self-regulation, social competence, relationships with caring adults, attending effective schools; Masten & Coatsworth, 1998) can off-set risk factors such as exposure to domestic violence, natural disasters, and poverty (Masten, Best, & Garmezy, 1990). Schools provide a setting where skills associated with resilience can be taught (e.g., literacy, pro-social behavior, stress management skills), and the impact of risk factors that children might be facing (e.g., poverty, stressful life events) can be minimized.

Research on indicators of adult psychological wellness such as resilience, interpersonal relationships, positive emotions, and education has been emerging for over fifty years (Bonanno, 2004; Cowen, 1994; Fredrickson & Joiner, 2002; Luo & Waite, 2008; Veroff, Douvan, & Kulka, 1982). Bolstering resilience and increasing resources that enhance psychological wellness have become an important focus of prevention science, as have preventative programs across the life course that reduce the risk of mental health problems (Durlak & Wells, 1997). The Collaborative for Academic, Social and Emotional Learning (CASEL, 2003) has identified six research-based competencies

linked to well-being and positive school adjustment, which include: Self-awareness, social awareness, self-management, responsible decision making, and relationship skills. By teaching these competencies and supporting the protective factors impacting students and educators have the potential to increase student learning and positive development into adulthood.

### **Social and Emotional Learning**

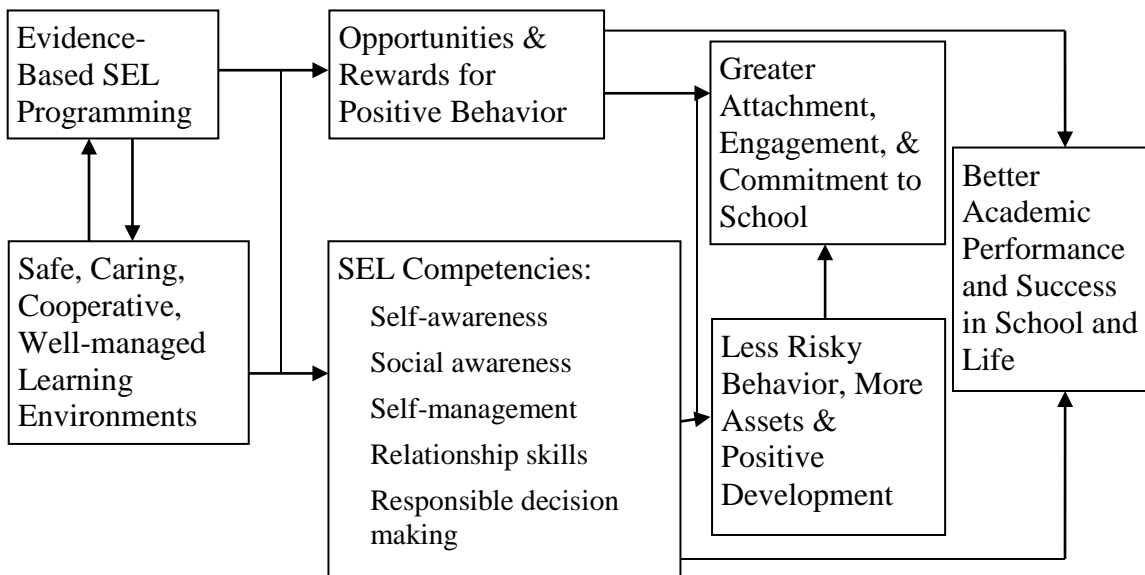
Social emotional learning (SEL) is a very broad term that encompasses techniques used to teach social and emotional competence in order to meet inter- and intrapersonal goals (CASEL, 2003; Elias, Parker, & Rosenblatt, 2005; Greenberg, et al., 2003). Specifically, SEL interventions help students develop skills and acquire knowledge that facilitate optimal emotional processing and interacting within social contexts (Elias, Parker, & Rosenblatt, 2005). SEL is based on the premise that social-emotional competencies can be enhanced through the use of systemic instructional approaches in the classroom and that skill building and environmental changes that address underlying causes to problems (e.g., a social skill or emotion regulation deficit) result in a range of positive measurable outcomes (Greenberg et al., 2003; Zins et al., 2004).

### **Social Emotional Learning and Student Outcomes**

Elias, Zins, Gracyk, and Weissberg (2003) proposed a theoretical model to depict how social and emotional learning practices and the school environment function together to improve student outcomes (see Figure 1). In this model, SEL programming occurs within a nurturing, well-managed classroom environment. This context produces opportunities to reinforce students' social and emotional competencies, which in turn leads to positive youth development and a reduction of problem behaviors. This

increases student engagement and commitment to school, thereby allowing students to achieve better academic outcomes. Essentially, when students develop social and emotional competencies within caring, safe, and well-managed learning environments this leads to a series of interactions that result in positive student outcomes. Multiple meta-analyses provide empirical support for the implementation of SEL programs, noting that these programs can also be linked to improvements in academic outcomes (e.g., Durlak, et al., 2011; Durlak & Wells, 1997; Greenberg, et al.,2001; Zins, et al., 2004).

**Figure 1.** Relationship between Social and Emotional Learning, Learning Environments, and Student Outcomes



The relationship between social-emotional skills and academic outcomes. Adapted from “Implementation, Sustainability, and Scaling Up of Social-Emotional and Academic Innovations in Public Schools,” by M. J. Elias, J. E. Zins, P. A. Graczyk, and R. P. Weissberg, 2003, *School Psychology Review*, 32, p. 307. Copyright 2003 by the National Association of School Psychologists.

Most recently, Durlak, et al. (2011) investigated the effects of 213 school-based universal SEL programs implemented in kindergarten through high school ( $n = 270,034$ ).

Only studies that were written in English, published by December 31, 2007, focused on

one or more SEL skills, targeted students between the ages of five and 18 without any identified adjustment or learning disability, included a control group, and had enough information to calculate effect sizes were included. The review focused on several outcomes including social and emotional skills, attitudes toward self and others, positive social behaviors, conduct problems, emotional distress, and academic performance. Results suggested that compared to controls, student outcomes across all categories improved. Students displayed increased social and emotional skills ( $ES = .57$ ), improved attitudes towards themselves and others ( $ES = .23$ ), demonstrated positive social behaviors ( $ES = .24$ ), decreased levels of conduct problems ( $ES = .22$ ) and emotional distress ( $ES = .24$ ), and had higher academic scores ( $ES = .27$ ), compared to students who did not participate in an SEL program. Fifteen percent of the studies collected follow up data at least six months after the intervention ended with an average of 92 weeks ( $Mdn = 52$ ) and follow-up effect sizes remained significant across all student outcomes. SEL interventions implemented by school personnel resulted in positive effects across all six student outcomes, whereas interventions implemented by non-school personnel only had positive effects across three student outcomes (improved SEL skills, prosocial attitudes, and reduced conduct problems). The authors also note that that academic performance only improved when school personnel implemented the programs.

Payton et al., (2008) summarized the findings from three large scale reviews that focused on: (a) universal school-based SEL interventions (180 school-based studies), (b) students displaying early signs of behavioral and emotional problems (80 studies), and (c) after-school programs (57 studies). Studies included 324,303 children in kindergarten through eighth grade. Each included a control group and sufficient information to

calculate effect sizes. All three reviews grouped student outcomes into six categories when conducting their analyses: (1) social and emotional skills, (2) attitudes toward self, school, and others, (3) positive social behaviors, (4) conduct problems, (5) emotional distress, and (6) school performance. Results included positive effects for students in SEL programs across all six categories, though the effect sizes were generally small; increased academic performance ( $ES = 0.28$ ), attitudes towards self and others ( $ES = .23$ ) and positive social behavior ( $ES = .24$ ), and decreased conduct problems ( $ES = .23$ ) and emotional distress ( $ES = .23$ ). Increased SEL skills had a medium mean effect size of .60. In regard to academic outcomes, Payton et al., (2008) reported that SEL programming produced a positive outcome on school grades and standardized achievement tests with an average gain of 11 to 17 percentile points on test scores.

These reviews suggest that SEL programs generally result in small but meaningful effect sizes and that specific program features contribute to effectiveness. In short, effective programs use systematic instruction, program for generalization, involve communities and families, are implemented within caring and engaging classrooms/schools, use developmentally and culturally appropriate instruction, have organizational supports to ensure high quality program implementation, use data-based decision making, and provide staff with quality professional development (Greenberg et al., 2003). Embedding these features of prevention programs and mental health services into schools requires systemic change aimed at prevention.

### **Public Health Model and a Three-Tiered Approach to Intervention**

Aligned with the paradigm shift from traditional medical models to public health models, there has been a trend of systemic reform aimed at meeting the mental health



needs of children and adolescents through prevention based-approaches (e.g., Doll & Cummings, 2008; Nastasi & Varjas, 2008). To this end, three-tiered approaches have provided the framework for effectively and efficiently meeting the mental health needs of all students through a continuum of systematic and coordinated services (e.g., Merrell, Levitt, & Gueldner, 2010; Osher, Dwyer, & Jackson, 2004). In a prototypic school using the most common RTI model, 80% of students will respond to universal, Tier I, interventions, 15%-20% will benefit from Tier II interventions, and 1%-5% from Tier III interventions (Reschly, 2008; Tilly, 2008).

Mental health programming at the universal level (Tier I) involves teaching social and emotional competence through a core social and emotional learning curriculum and planning around ecological factors that impact learning, such as utilizing effective instructional practices, creating supportive relationships, maintaining high expectations, and establishing safe environments (Osher et. al., 2008). At Tier I, interventions aim to prevent mental illness as well as promote mental health by teaching the social and emotional competencies that have been associated with resilience and by creating positive learning environments that increase the likelihood that students practice prosocial and emotional skills and experience protective factors (e.g., positive peer and teacher relationships). At Tier II, interventions aim to reduce risk-factors and increase protective factors in order to prevent the onset of significant emotional and behavioral problems. Thus, selected mental health interventions are typically aimed at a group of students at-risk of developing social or emotional problems and who might benefit from similar interventions. Lastly, Tier III interventions target students who require

individualized supports and often involve the delivery of coordinated services within the school and partnerships with outside community-based agencies.

As discussed previously, SEL programming is aligned with the goals of mental health promotion (Greenberg, Domitrovich, & Bumbarger, 2001; Greenberg et al., 2003) and is a logical extension of current three-tiered prevention models focused on prosocial and academic behavior being implemented within schools (Merrell & Gueldner, 2010). However, effective implementation of a three-tiered model based on response to intervention logic requires not only a tiered service delivery model, but also a problem solving process and data-based decision making at each tier of service delivery (NASDSE, 2006).

Across all tiers, data are collected and used to determine which students might benefit from additional interventions, whether any individual student is making adequate progress, and to evaluate the effectiveness of current intervention practices. Assessment within a problem-solving model is used to identify students at risk for social, behavioral and emotional problems, make data-based decisions, and evaluate Tier I supports. Historically, behavioral assessment has included nominations (by teacher and/or students), direct observation, extant data (attendance records, office discipline referrals), and behavior rating scales (Merrell, 2008). Currently, there is no agreed upon general outcome measure that can be used as an indicator of emotional and behavioral functioning (i.e., for formative assessment purposes); however, advances are being made in the area of behavior assessment that is psychometrically defensible and has the utility to be used within school-based problem solving model (Chafouleas, Volpe, Gresham, & Cook, 2010).

Although behavior rating scales are one of the most commonly used measures of social-emotional behavior, such measures were traditionally developed for diagnostic purposes (i.e., measuring existing symptoms of a diagnosable disorder) rather than for identifying future risk, an important aim of universal mental health screening (Albers, Glover, & Kratochwill, 2007). Universal mental health screening is necessary if schools plan to make data-based decisions about the effectiveness of their available supports and to proactively meet the mental health needs of all students. Until new formative social behavioral formative measures or procedures are developed, current approaches to mental health screening are utilizing traditional measures for this purpose.

### **Mental Health Screening**

Universal screening provides schools with important information about the prevalence and severity of the social and emotional health problems of students within a school (Ikeda, Neesen, & Witt, 2008). Although schools are afforded a unique opportunity to systematically identify and provide support services for students with emotional and behavioral problems, based on a survey study of 1,402 school professionals (selected from 2000 public schools drawn from the Common Core Data Public Elementary/Secondary School Universe 2002-2003) deemed most knowledgeable about mental health services at their schools suggests that only about 2% of schools in the United States implement universal screening efforts and that this often occurs in a haphazard manner (Romer & McIntosh, 2005). This may be in part the result of limited research and training on school-based mental health screening measures and procedures (Dowdy, Furlong, Eklund, Saeki, & Ritchey, 2010).

There are considerations unique to selecting a measure for the purpose of mental health screening. For example, measures need to be short and easy to administer to an entire school, and data should be easy to manage and interpret. Glover and Albers (2007) suggest that educators consider the following when choosing a mental health screener: (a) contextual appropriateness - service delivery needs matched to interventions, research-base, as well as the constructs of interest, (b) the technical features - psychometric properties of the measure, and (c) usability - feasibility, acceptability, costs versus benefits, and social acceptability. In addition, it is important that universal mental health screening measures address a range of mental health problems, including internalizing symptoms, as these students generally receive fewer services than those students with externalizing symptoms, possibly because students experiencing internalizing symptoms are more likely to go unnoticed (Bradshaw, Buckley, & Ialongo, 2008).

There are many research-based behavior rating scales and self-report measures of social, emotional, and behavioral problems and competencies that schools could choose to use as a universal mental health screener (Levitt, Saka, Romanelli, & Hoagwood, 2007; Merrell, 2008). However, most of these measures were developed for the purpose of determining if children and adolescents meet the diagnostic criteria of a disorder rather than detecting the presence of risk (Glover & Albers, 2007). If schools are interested in comprehensive broad-band mental health screener that identifies students at-risk of a variety of mental health related problems, the list of research-based mental health screening measures designed and researched with school populations is quite short. The social emotional screeners included in Table 1 are intended to be used in schools for the purpose of universal screening of both internalizing and externalizing social and

emotional behaviors, easily available either commercially or free via the web, and have multiple studies (at least three) investigating the validity of the measure as a universal screener with school populations.

Table 1

*Research-Based Social Emotional Screening Instruments*

Screener	Author(s)	Procedure	Age or grade range	Number of items or approximate administration time
Behavioral and Emotional Screening System	Kamphaus & Reynolds, 2007	Parent, teacher, self-report forms	Preschool to 12 <sup>th</sup> grade	25-30 items
Pediatric Symptom Checklist	Jellinek, et al., 1988; Pagano et al., 2000	Parent, self-report forms	Ages 4 to 16	35 items
Student Risk Screening Scale <sup>a</sup>	Drummond, 1994	Teacher report form	Kindergarten to 6 <sup>th</sup> grade	7 items
Systematic Screening for Behavior Disorders <sup>a</sup>	Walker & Severson, 1992	3-stage multiple gate screening process: Stage 1 - Teacher ranking Stage 2 - Teacher rates six highest ranked students on brief behavior rating scale Stage 3 - Systemic observations across multiple settings	Kindergarten to 6 <sup>th</sup> grade	Stages 1 and 2: 45 to 90 minutes per class Stage 3: 80 minutes per student
Strengths and Difficulties Questionnaire	Goodman, 1997	Parent, teacher and self-report form	Ages 3 to 17	25 items

Note. <sup>a</sup> For these measures there is emerging evidence of validity and reliability at the middle and high school levels.

Although some of the currently available school-based mental health screeners have strength-based components (e.g., Goodman, 1997; Kamphaus & Reynolds, 2007), the majority of items across these scales are deficit-based and measure problem behaviors and symptoms associated with psychopathology. This is less than ideal because universal screening should be aligned with instruction, or in the case of mental health promotion, the development of social and emotional skills and competencies. Universal screening is also not intended to be diagnostic, but only an indicator of a problem (Ikeda, Neesen, & Witt, 2008), so a solely strength-based universal screener may be sufficient for identifying students *at-risk* for internalizing and externalizing behavior problems. Universal screeners are not intended to provide sufficient information for an individualized behavior plan, nor are such measures intended to replace problem-based assessments. Instead they are intended to provide information about the overall mental health of the school and identify which students at-risk and may benefit from additional support (Doll & Cummings, 2008; Levitt et al., 2007). Finally, strength-based measures may provide a less-stigmatizing measure for the purpose of mental health screening and are aligned with efforts to address the stigma associated with children and adolescents getting early treatment for mental health problems (Penn et al., 2005).

### **Strength-Based Assessment and Universal Mental Health Screening**

Aligned with the paradigm shift towards a positive approach to psychology (Seligman & Csikszentmihalyi, 2000), a strength-based perspective of assessment focuses on the unique skills, resources, life experiences, talents, and needs of children and their families (Tedeschi & Kilmer, 2005). There are several important underlying assumptions for using a strength-based approach to assessment, which include: “(a) all

children have strengths, (b) focusing on children strengths instead of weaknesses may result in enhanced motivation and improved performance, (c) failure to demonstrate a skill should first be viewed as an opportunity to learn the skill as opposed to a problem, and (d) service plans that begin with a focus on strengths are more likely to involve families and children in treatment” (Epstein, et al., 2003, p. 286). A strength-based approach identifies those resources and protective factors within and around an individual that can be used to enhance existing skills and competencies to promote mental health.

Strength-based assessment provides a means for embedding a strength-based perspective into the identification of students’ needs and service delivery. The importance of this technology cannot be overstated, as traditional assessment practices have focused on deficits rather than conceptualizations of students’ needs based on levels of skills and competence. In particular, behavior rating scales have generally been comprised of negative items that provide little if any information on desired behaviors, and as such, their utility for monitoring positive change or growth is also limited (Hosp, Howell, & Hosp, 2003). The limitations of deficit-based measures are not unique to practice, but have been noted by researchers as well. For example, intervention research on programs for children at-risk or identified with an emotional disturbance tend to use methodologies consisting of primarily deficit-based assessment and treatment approaches (i.e., reductions in problem behavior) (Reddy, DeThomas, Newman, & Chun, 2008).

A strength-based approach to assessment is also presumed to benefit rapport and encourage beliefs that positive change may occur. A focus on individual and family values and strengths may empower children and their families to share critical information and engage in interventions, and thereby, lead to more positive outcomes.



Similarly, educators (who typically serve as prime interventionists) may be more apt to believe that positive change may occur by examining strengths and competencies rather than focusing on problems (Jimerson, Sharkey, Nyborg, & Furlong, 2004). In addition, by identifying competencies and resources, strength-based assessment provides a more holistic view of the individual being assessed (Tedeschi & Kilmer, 2005).

The importance of identifying and building upon strengths has been an important feature of many educational practices and models focused on intervention planning and solutions to problems (Merrell, Ervin, & Gimpel, 2006; Tilly, 2008). Particularity relevant to strength-based assessment is the notion that assessment informs intervention aimed at increasing students' competencies (Batsche, Castillo, Dixon, & Forde, 2008). Yet, to date, there are few comprehensive, psychometrically sound, multi-rater strength-based assessment instruments available (e.g., Epstein & Sharma, 1998; LeBuffe, Shapiro, & Naglieri, 2008; Merrell, 2008). There are even fewer short-form versions of strength-based measures that may be best suited for the purpose of universal screening (e.g., Merrell, 2011; Naglieri, LeBuffe, & Shapiro, 2011; Prince-Embury, 2005), and research is needed to determine the utility of these measures specifically for universal screening purposes.

A brief strength-based measure may be sufficient for identifying students at-risk and for evaluating universal interventions. Several features of strength-based assessment support further investigation of a strength-based approach for universal mental health screening. First, strength-based assessment provides information about students' social and emotional competencies and skills, which is particularly relevant for evaluating the effectiveness of universal interventions (Batsche, Castillo, Dixon, & Forde, 2008).

Second, strength-based behavior rating scales measure internal as well as external behaviors associated with resilience and positive student outcomes and are, therefore, relevant to designing interventions and possibly measuring growth. Third, strength-based rating scales maybe less stigmatizing than pathology-based measures. And finally, resilience measures have been shown to be a predictor of developing psychiatric symptoms when exposed to stressful events (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006).

### **Measurement Issues in Student Self-Report**

The universal screening approach in this study involved having middle school students complete a short strength-based self-report form. By early adolescence, students are able to complete self-report measures (Merrell, 2008), which for the purpose of universal screening, provides an efficient method for gathering information on students' social and emotional functioning. Adolescents not only have the skills required to complete self-report forms, but this method may be especially relevant for identifying students with internalizing problems. In addition, by middle school students have different teachers over the course of the day, so there are few adults that observe any student in more than one setting.

Although it is considered best practice for individual social and emotional assessment to include information obtained from multiple raters (Merrell, 2008), for the purpose of mental health screening this may be too cumbersome and unnecessary. Even if it were feasible to gather information from multiple informants, correlations between adolescents, parents, and teachers on some of the most widely used behavior rating systems have generally been low, ranging from .20 (self-report and teacher report) to .38 (parent report and teacher report) (Achenbach, McConaughy, & Howell, 1987). Initial

evidence on cross-informant correlations on strength-based assessments between students and teachers are only slightly higher ( $r = .37$ ) on the SEARS (Cohn, 2010; Merrell, 2011) and cross-informant agreement between parents and youth range from .50 to .63 on the Behavioral and Emotional Rating Scale-2 (BERS-2; Synhorst, Buckley, Reid, Eptein, & Ryser, 2005). More research is needed to determine how these differences in ratings between students and teacher impact universal mental health screening.

Another reason to have adolescents complete a mental screener is that many youth report significantly more problems than their parents and teachers (Achenbach, Dumenci, & Recorla, 2002). Not only should youth's perceptions of their own problems be taken seriously by educators, but universal screening should err on the side of false-positives (i.e., identifying students as being at-risk who in actually do not require any additional supports; Levitt & Merrell, 2009; Merrell, 2008). Self-report measures are arguably the method of choice for mental health screening in secondary grades, however; several limitations of this type of assessment need to be noted.

Despite advancements in the test-development of self-report measures, several limitations remain. Merrell (2008) defines an objective self-report test as, "one in which the targets or participants respond to various items or questions about their own social-emotional behavior in a standardized manner, wherein responses are compared with those of a normative group, and evidence is provided as to the psychometric properties (reliability and validity) of the measure" (p. 202). This study utilized several behavior rating and self-report measures, all of which were developed using factor analytic approaches and that meet psychometric standards. Yet, it should be noted that reliability coefficients, measuring stability over time, on measures of behavior tend to be quite low,

possibly because the constructs that are being measured are more variable, and situational factors may be more likely to impact self-ratings compared to direct tests of ability (Merrell, 2008). The SEARS generally has relatively high reliability coefficients up to an eight week period of time (Romer & Merrell, in press).

The use of self-report measures warrants consideration for potential response bias that can increase error variance (i.e., variation in response patterns that do not match the construct of interest) (Merrell, 2008). Such response bias can occur as a result of response patterns emerging based on how items are presented, raters attempting to respond in a socially desirable manner, or raters purposefully faking responses. Relying on student and teacher reports of behavior is not a very direct approach to assessment and subject to response bias; however, it may be the best indicator of a students' global social and emotional functioning.

The quality and standards for the development and proper use of psychological tests are quite stringent (AERA, APA, & NCME, 1999) and the use of self-report measures to assess social and emotional functioning for adolescents is well accepted. It remains to be seen to what extent some of the limitations of deficit-based measures apply to strength-based assessment (e.g., is there less response bias when reporting on skills and strengths?). Lastly, although psychometric indicators of reliability and validity are important, they alone do not determine good practice (Good & Jefferson, 1998; Messick) or treatment validity (Hayes, Nelson, & Jarrett, 1987).

### **Social Validity**

A myriad of considerations beyond the technical adequacy of a mental health screener impact a school's decision to adopt universal mental health screening

procedures. Pragmatic issues include, but are not limited to, the length, cost, intrusiveness, and time of mental health screening procedures (Flanagan, Bierman, & Kam, 2003). Then there are questions related to how the screening procedure will be integrated into the service delivery model of the school, which takes into account data collection and management, and ultimately, how data from the universal mental health screener are used to inform intervention. Schools must consider the availability of staff and other resources to conduct the screening, the availability of mental health service providers to provide services to children identified as requiring additional support, technical assistance in system development, including parent consent and student assent, and integration of assessment into a continuum of support (Weist, Rubin, Moore, Adelsheim, & Worbel, 2007).

There are also ethical considerations associated with adoption and implementation of universal screening practices in schools. These include family rights such as privacy, the acceptability and stigma associated with mental health services and screening, and the responsibility of supporting the students identified as needing additional support, while potentially exceeding the school's resources or how supports are provided (Chafouleas, Kilgus, & Wallach, 2011). Ethical and legal issues include confidentiality and consent. For example, Chafouleas, et al. (2011) draw attention to the Protection of Pupil Rights Amendment, which is applied to programs funded by the United States Department of Education, and requires parental consent prior to students' completing surveys on "mental or psychological problems of the student or student's family" (p. 247).

A strength-based approach to mental health screening provides an approach that is focused on the contextual factors related to solving problems (i.e., teaching skills and

changing contingencies) that are aligned with the aims of school-based mental health promotion, and thus, may be more socially valid and less constrained by ethical and legal considerations than traditional diagnostic measures associated with mental illness. Schools must consider how to effectively address concerns related to ethical dilemmas and social validity by working with families and demonstrating how mental health screening procedures improve access to supports for students and improved student outcomes. A strength-based approach to mental health screening may not only reduce some of these barriers, but may shift the focus away from mental health problems and towards solutions that schools are more motivated and capable of addressing (Dowdy, et al., 2010).

### **Contributions of the Current Study**

The present study was designed to extend current research on school-based universal mental health screening in several ways:

1. This was the first study to investigate the use of a solely strength-based approach to mental health screening.
2. This study focused on early adolescents - a population at especially high-risk of developing various mental health problems.
3. This study was conducted within a school system that has developed an infrastructure for providing social-behavioral support and identified the addition of a mental health screener as a logical extension to the school's current model, noting that it would be especially useful in identifying students who would benefit from supports that target internalizing problems.

4. The three-tiered approach to universal screening under investigation is aligned with a basic assumption of three-tiered models and groups students according to the three-tiered model. In sum, the purpose of this study is to validate the use of a strength-based measure within a three-tiered approach to mental health screening.

## CHAPTER III

### PHASE I

The study consisted of two phases. During Phase I of the study, student participants completed a brief strength-based mental health screener. In Phase II, we collected additional data with a subsample of students and their teachers. The two phases of the study are described in the following two chapters. This chapter focuses on Phase I, and describes study participants, recruitment efforts, measures, and procedures specific to the first phase of the study. The chapter concludes with results and a brief discussion for Phase I. Chapter IV details Phase II of the study following the same format used in this chapter. The final chapter provides a summary of major findings, limitations, and future directions.

#### **Method**

##### **Setting**

Data were collected in a mid-sized (approximately 6,000 students), suburban school district surrounding the University of Oregon (NCES, 2010). After receiving approval from both the University of Oregon's Internal Review Board and the district in which this study took place, the four middle schools in this district volunteered to participate.

Common Core Data from the National Center for Education Statistics indicates that 54.5% of the total student population across these four schools were eligible for free or reduced priced lunch. Student attendance rates at the participating schools during the 2010-2011 school year ranged from 93.3% to 95.9%, according to publicly available data through the Oregon Department of Education. All schools met AYP criteria for student



participation and attendance. All subgroups represented at School 1 met state standards for annual yearly progress (AYP) based on the Oregon Statewide Assessment for English Language Arts (ELA). One of the five subgroups represented at School 1 met state standards for AYP criteria based on the Oregon Statewide Assessment for math. With the exception of Students with Disabilities, all subgroups represented at School 2 met state standards for AYP in both ELA and math. At Schools 3 and 4, all represented subgroups met state standards for AYP in ELA and all represented subgroups, with the exception of Students with Disabilities, met state standards for AYP in Math.

The four participating schools had been implementing Tier I of school wide positive behavior support (SWPBS) for at least two years, as evidenced by scores greater than 80% on the Benchmarks of Quality scores (Kincaid, Childs, & George, 2005). The Benchmarks of Quality is a valid and reliable instrument (Kincaid, Childs, & George, 2005) and scores of 70% or higher are indicative of full implementation of Tier I of SWPBS (Cohen, Kincaid, & Childs, 2007). In these schools, Tier I of SWPBS consisted of school-wide expectations that were defined operationally for specific settings. Expectations were visibly posted throughout each building and taught to students throughout the school year. School staff acknowledged students demonstrating prosocial behaviors aligned with their school's expectations with praise and "tokens" that were entered into school raffles or could be exchanged for prizes. Each middle schools had also developed a continuum of consequences for various types of problem behaviors. Office discipline referral data were collected through the School-Wide Information System (SWIS; May et al., 2006) and data were reviewed regularly by the school-based teams as well as the district-level team to refine Tier I intervention.

## Participants

Participants were 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade students and their teachers. Recruitment of participants began with 1,324 students' parents receiving a passive consent letter informing them of the study and a letter of support from a district administrator in the mail. If parents did not want their son or daughter to complete the mental health screener, they were instructed to call the building principal to opt their child out of the study.

Demographic information provided by Phase I participants is provided in Table 2.

Table 2

*Student Characteristics as a Percentage of Each School's Population*

Variable	School 1 ( <i>n</i> = 417)	School 2 ( <i>n</i> = 318)	School 3 ( <i>n</i> = 200)	School 4 ( <i>n</i> = 241)
Gender				
Female	48.0	54.7	45.5	48.5
Male	49.9	43.7	51.5	50.6
Not Reported	2.2	1.6	3.0	0.8
Grade				
Sixth	33.3	32.7	28.5	32.4
Seventh	33.3	37.4	37.5	32.0
Eight	30.7	29.6	32.0	35.3
Not Reported	2.6	0.3	2.0	0.4

Table 2 (continued)

Age				
Ten	0.0	0.0	0.0	0.4
Eleven	28.5	27.4	22.0	26.1
Twelve	31.7	34.9	40.0	33.2
Thirteen	32.1	31.8	32.5	31.5
Fourteen	6.0	5.3	4.5	7.5
Fifteen	0.0	0.0	0.0	0.8
Not Reported	1.7	0.6	1.5	0.4
Ethnicity				
White/Caucasian	65.7	56.0	77.5	62.7
Hispanic/Latino	9.4	14.2	5.5	17.0
Black/African American	1.7	2.2	1.5	3.3
Asian/Pacific Islander	3.4	0.9	4.5	2.5
American Indian/ Native American	2.9	3.1	1.5	2.9
Multiracial (2+)	10.3	20.1	3.5	9.5
Other	3.1	2.5	4.0	1.7
Not Reported	3.6	0.9	2.0	0.4

## Instrumentation

**Social-emotional assets and resilience scales - short form.** The Social-Emotional Assets and Resilience Scales (SEARS; Merrell, 2011) is a strength-based assessment system designed to measure positive social-emotional attributes and skills (e.g., self-regulation, social and emotional knowledge and competence, problem solving skills, empathy) of children and adolescents in grades kindergarten to 12. The SEARS multi-informant system includes short-form versions (SEARS-SF) consisting of 12 items for each of the respective versions (Merrell, 2011). In this study the child and adolescent

short form versions of the SEARS were used as the mental health screener. In addition, teachers completed the teacher version of the SEARS-SF on the subsample of students who participated in Phase II. SEARS are scored using a 4-point scale from 0 (never) to 4 (almost always). A higher score indicates a higher level of perceived social emotional strength and resilience.

The SEARS assessment system was developed with a sample selected to approximate 2009 U.S. Census distributions for ethnic groups with some oversampling of minority groups (Merrell, 2011). SEARS short forms are highly correlated with each of their respective full-length versions of the SEARS (SEARS-C = .93, SEARS-A = .94, SEARS-T = .98; Merrell, 2011; Nese et al., in press). SEARS short forms have adequate internal consistency ( $\alpha = .85$  for SEARS-C, .83 for SEARS-A, and .93 for SEARS-T) and two week test re-test reliability ( $r = .74$  for the SEARS-C, .84 for the SEARS-A, and .91 for the SEARS-T).

Pearson product-moment correlations between SEARS short forms and the other strength-based rating scales indicate that SEARS short forms are measuring the social and emotional constructs that the measure was designed to assess (Nese, et al., in press). The SEARS-T has been shown to be significantly correlated to with the Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990) and the Peer Relations scale of the School Social Behavior Scales (SSBS-2; Merrell, 2002) with Pearson correlation coefficients ranging from .79 and .89. The SEARS-C is significantly correlated with the SSRS subscale and the total scores (Pearson correlation coefficients: .62 to .78) and significantly negatively correlated (-.47) with the Internalizing Symptoms Scale for Children Positive Affect subscale (Merrell & Walters, 1998). The SEARS-A SF is

significantly correlated with the SSRS subscale and total scores (Pearson correlation coefficients: .67 to .72) and moderately correlated (.44) with the Students' Life Satisfaction Scale (Huebner, 1991; .44).

SEARS short forms take three to five minutes to complete and require about a third grade reading level. During phase one of the study the self-report versions of the SEARS short-forms were used as the Tier I mental health screener; the child form (SEARS-C) was completed by sixth grade students and the adolescent version (SEARS-A) was completed by seventh and eighth grade students. During phase two, participating students and their teachers completed respective versions of the SEARS short forms.

**Social validity measure.** A brief researcher-developed social validity assessment about perceptions of mental health screening was administered to teachers during the fall. Teachers were asked to rate four items about the importance of mental health screening, student-self report, the acceptability of administering a short, mental health screener, and their preference for type of rating scale (i.e., strength or deficit-based). A copy of the social validity items are included in Appendix A.

## **Procedures**

Throughout the study, we were in frequent communication with district and building administrators and assistants, seeking input on how to best adapt the procedures to the context of their schools. Three staff members from the district assisted with the coordination and data management of this project. Well-coordinated record keeping was particularly important, because student identities remained anonymous to us, the researchers, until parents returned an active consent form for their son or daughter to

participate in Phase II of the study. All district staff that assisted with this study reviewed and signed a data management agreement.

Materials for this study were prepared at the University of Oregon and delivered to the respective research sites. For each mailing, we prepared Spanish and English versions of all materials. Although every mailing included families who received school communications in Spanish, all participating students were English proficient. All consent forms were mailed from the district office in district envelopes.

We trained several school psychology graduate students to assist with presentations, administration, and coding of measures. An overview of the study and brief training on the administration procedure for the mental health screener was presented by the researchers at each of the participating schools' faculty meetings, at which time teachers also consented to participate and responded to four social validity questions. Across the four schools, 49 teachers administered the mental health screener to the students in their classes.

Administration packets containing a copy of the administration procedures, a script to read to students, and copies of the mental health screener (i.e., SEARS-SF) were prepared for each classroom. We used a computerized random numbers generator to assign a number to each mental health screener. The generated number was written on the top of the form, which also had a space for the student's name. At the bottom of the form, only the generated number was recorded. Teachers set aside forms from students who declined to participate and from students who did not record their names accurately. Teachers collected the forms and brought them in a sealed envelope to their building administrator, who returned the forms to the district office. At the district office, staff

removed the top portion of the form with the students name and ID number and created a master list of students' names and assigned study identification numbers. This master list remained in a secured location at the district office and was only accessible to two district staff members assisting with the study. Students who were absent on the day that the mental health screener was administered at their school were not included in the study, as there were no make-up days.

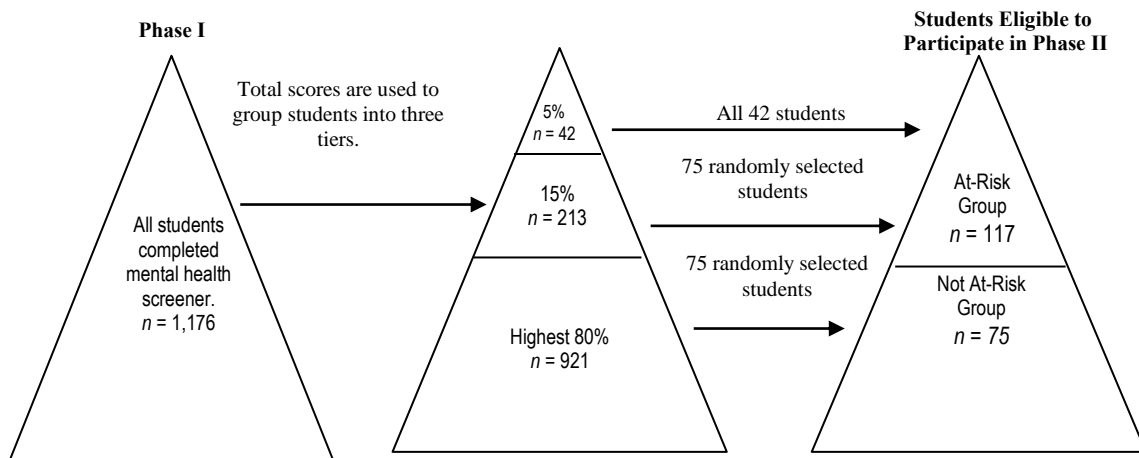
One thousand, one hundred and ninety-two students (90%) of the 1,324 enrolled students completed the SEARS-SF. These were the students who were present, eligible to participate (i.e., their parents had not called the school to opt them out of the study), and agreed to complete the mental health screener on the administration day. Participants were excluded from the study if they left more than one of the 12 items on the mental health screener blank or there was a clearly visible response pattern suggesting that the form was invalid (e.g., the same response was circled for every item). The final sample for Phase I included 1,176 students (response rate = 88.8%).

Trained research assistants entered the data from the mental health screener into SPSS. To ensure accuracy of data entry, 20% of the participants' data were randomly selected and checked for accuracy by having a second coder independently enter the data and checking for agreement. Agreement was over 99% across all variables entered.

Once the data from Phase I were entered, students were assigned to one of three tiers (Tier I, Tier II and Tier III) using cut scores from the SEARS assessment system's national norming sample (Merrell, 2011). Students whose scores fell in the top 80%, the middle 15%, and the bottom 5% were assigned to Tiers I, II, and III respectively (i.e., students were assigned to tiers based on the percentile rank of their score on the SEARS-

SF). Tiers II and III were then collapsed to create one at-risk group, which is aligned with prior research indicating that about 20% of children in the U.S. have a behavioral and/or emotional problem and are in need of services (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). The percentage and number of students from the participating district assigned to each tier are presented in Figure 2.

**Figure 2.** Sample Selection Procedure and Size for Each Phase of the Study



Sample selection procedure used to group students into two groups (At-Risk and Not At-Risk) for Phase II of the study.

Percentiles from the national norming sample were used for two primary reasons. First, the purpose of this study was to investigate a strength-based *approach* to mental health screening that could be easily replicated in other school settings and the norms of the SEARS (Merrell, 2011) are available to anyone purchasing the measure. The percentiles from the norming sample are more also more stable and provide a common metric across different versions of the measure. The participating school was also comparable to the national norming sample in regard to the demographics of the sample. Table 3 depicts the number and percentage of students assigned to each tier, how many



students were selected to be invited to participate in Phase II of the study, and group classifications.

Table 3

*Participants Assigned to Each Tier*

Group	Tier I	Tier II	Tier III
Phase I participants ( $n = 1,176$ )	921 (78.3%)	213 (18.1%)	42 (3.6%)
Students selected for Phase II	75	75	42
Group classification	Not At-Risk	At-Risk	At-Risk

### **Results and Discussion**

Results obtained from the mental health screener (SEARS-SF) completed by middle school students during Phase I are described next. All analyses were conducted using SPSS 18.0 Grad Pack (SPSS, 2009).

#### **Missing Data**

As noted previously, any SEARS-SFs with more than one of 12 items incomplete were considered invalid and not included in the final sample. Of the 1,176 student participants, 42 students left one item blank. Missing data appeared to be random and missing data were replaced with mode imputations. Though imputations can falsely increase or decrease the sample mean, this method is commonly used in research (Chen & Astebro, 2003), including during the development of the SEARS-SF (Merrell, 2011).

#### **Descriptive Statistics**

Sixth grade students completed the child version of the SEARS-SF and students in seventh and eighth grade completed the adolescent version of the SEARS-SF. Mean total scores and standard deviations across tiers are presented in Table 4. Mean scores

demonstrated a downward trend across tiers as would be expected given that tiers were assigned using total scores.

Table 4

*Descriptive Statistics for the SEARS-C and SEARS-A Short Forms from Phase I*

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<b>SEARS-C-SF</b>				
Tier III ( <i>n</i> = 19)	8.95	2.01	4	11
Tier II ( <i>n</i> = 65)	14.54	1.28	12	16
Tier I ( <i>n</i> = 300)	22.79	3.74	17	33
<b>SEARS-A-SF</b>				
Tier III ( <i>n</i> = 23)	9.09	2.30	6	12
Tier II ( <i>n</i> = 148)	15.51	1.30	13	17
Tier I ( <i>n</i> = 621)	23.27	3.72	18	32

*Note.* *Min* = Minimum reported score; *Max* = Maximum reported score.

Data presented in Table 5 show the percentage and number of students from each school assigned to the three tiers. Table 5 also demonstrates that the participating schools had a similar percentage of students assigned to each tier as the national norming sample of the SEARS.

Table 5

*Percentage of Students Assigned to Each Tier*

	School 1 ( <i>n</i> = 417)	School 2 ( <i>n</i> = 318)	School 3 ( <i>n</i> = 200)	*School 4 ( <i>n</i> = 241)	Total ( <i>n</i> = 1,176)
Tier III	2.4% ( <i>n</i> = 10)	4.1% ( <i>n</i> = 13)	5.5% ( <i>n</i> = 11)	3.3% ( <i>n</i> = 8)	3.6% ( <i>n</i> = 42)
Tier II	17.5% (73)	20.1% ( <i>n</i> = 64)	16.5% ( <i>n</i> = 33)	17.8% ( <i>n</i> = 43)	18.1% ( <i>n</i> = 213)
Tier I	80.1% ( <i>n</i> = 334)	75.8% ( <i>n</i> = 241)	78.0% ( <i>n</i> = 156)	78.8% ( <i>n</i> = 190)	78.3% ( <i>n</i> = 921)

*Note.* \*School 4 was not included in the final sample.

**Internal Consistency Reliability**

We used Cronbach's alpha procedure to calculate internal consistency on the total score of the SEARS-SF. Reliability coefficients are presented in Table 6. Alpha levels of internal consistency of this sample were similar to alpha coefficients of the national norming sample (i.e., SEARS-C = .85 and SEARS-A = .83; Nese et al., in press).

Table 6

*Cronbach's Alpha Coefficients of the SEARS-C and SEARS-A Short-Forms*

Scale	# of items	$\alpha$
SEARS-C-SF	12	.81
SEARS-A-SF	12	.80

## Social Validity

Forty-six of the 49 participating teachers completed a four question social validity survey. All teachers completed questions one, two, and three, and one teacher left the fourth question blank.

Teachers were instructed to rate the first three items on a Likert scale ranging from one to five with one indicating “not at all,” three “somewhat,” and five “very important or very good.” Table 7 summarizes the responses to questions one, two, and three.

Table 7

### *Descriptive Statistics for Items 1 to 3 on Teacher Social Validity Survey*

Questions	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>Mdn</i>	<i>Mode</i>
Q1. How important do you think a universal screening procedure is to identify students in need of mental health interventions?	1	5	3.98	4	5
Q2. To what extent do you think students are able to rate themselves on their own social and emotional strengths and assets?	2	5	3.22	3	3
Q3. How acceptable do you think it is to have students spend about 5 minutes during the school day to complete a short self-report form about their social and emotional well-being?	1	5	3.93	4	4

*Note.* *Min* = Minimum reported score; *Max* = Maximum reported score.

Results indicated that overall the teachers in this sample viewed mental health screening as quite important and an acceptable use of class time, which are important pragmatic issues for schools to consider (Flanagan, Bierman, & Kam, 2003). Current trends in school-based mental health promotion are moving towards building capacity by using the ‘indigenous resources’ within the context of schools (i.e., regular school staff

implementing evidence-based practices that support student wellbeing) to move beyond schools buying prevention and intervention programs that often times are never implemented, let alone sustainable (Kataoka, Rowan, Eaton Hoagwood, 2009). As such, teachers play an important role in teaching and supporting the development of students' social and emotional skills and competence (Jennings & Greenberg, 2009), and their buy-in into universal mental health screening is a critical component of developing a systematic, coordinated approach to supporting student mental wellness.

Teachers rated students as somewhat able to rate themselves on their own social and emotional competencies. This observation is consistent with generally low cross-informant correlations across student and teacher ratings on commonly used behavior-rating scales, including those used in this study (Achenbach & Rescorla, 2002; Kamphaus & Reynolds, 2007; Merrell, 2011). These differences may be attributed to teachers only rating students based on behaviors demonstrated within the context of the classroom compared to students rating their behavior throughout the day and across settings. It may also be the case that these differences are accounted for developmental differences in how social, behavioral, and emotional competencies are perceived by adults as compared to young adolescents.

The fourth question on the social validity survey asked teachers to choose which type of behavior rating scale they would prefer: strength-based, deficit-based, and no preference. Although not included a choice, several teachers marked or wrote in that would prefer a scale assessing both strengths and deficits. Results are presented in Table 8.

Table 8

*Descriptive Statistics for Item 4 on Teacher Social Validity Survey*

Responses to “Which type of behavior rating scale would you prefer to complete?”	Percent	Frequency
Strength-based: These scales ask you to evaluate the students’ skills and personal assets. Example items include: “Is kind towards others.” “Identifies own feelings.” “Asks for help.” “Uses anger management skills.”	33.3	15
Deficit-based: Items on these scales ask you to evaluate students on various types of problem behavior. Example items include “Fidgets.” “Breaks school rules.” “Too fearful or anxious.” “Teases a lot.”	4.4	2
No preference	46.7	21
*Combined: Scales that include both strength and deficit-based items.	15.6	7

*Note.* \*This response was written in by seven participants completing the survey.

Almost half of the respondents indicated that they had ‘no preference’, 5% preferred a deficit-based measure, and 33% a strength-based measure. There was no choice listed for a measure of both strengths and deficits, yet seven teachers (16%) wrote in that a measure of both strengths and deficits would be their preference. Teacher responses may have been influenced by their past experiences completing behavior rating scales, which often assess problem as well as adaptive behavior. In addition, teachers may have had concerns that an exclusively strength-based (or deficit-based) scale would not yield sufficient information. Future research might explore this finding further to determine whether teachers would prefer a combined scale and if so, why.

## CHAPTER IV

### PHASE II

The focus of this chapter is Phase II of this study, during which additional data (student self-report measures, teacher behavior rating scales, and data from student records) were collected from a subsample of 106 students. This chapter describes Phase II participants, recruitment efforts, measures, and procedures. Results and brief discussion from Phase II of the study are presented in order of the primary research questions. The following, and final chapter, discusses major findings, limitations, and future directions.

#### Method

##### Participants

A total of 192 students, comprised of 75 randomly selected students from Tiers I and II, plus all 42 students from Tier III, were invited to participate in Phase II of the study. Table 9 summarizes the number of participants who participated in Phase I and the subsample of participants who participated in Phase II.

Table 9

*Distribution of Participants across Tiers and Risk Classification*

	Tier I	Tier II	Tier II
Participants in Phase I ( <i>n</i> )	921	231	41
Group classification	Not at-risk	At-risk	
Participants in Phase II ( <i>n</i> )	61	45	

Phase II of the study required active consent from eligible student participants' parents. A variety of strategies were employed from November to late March to secure a sufficient sample size. Table 10 summarizes the data collection timeline for the implementation of the entire study, including participant recruitment efforts for Phase II.

Table 10

*Data Collection Timeline*

Time	Activity
August, 2010	Presented study to district and building administrators.
September, 2010	Met with building administrators. Mailed passive consent letter to the parents of 6 <sup>th</sup> , 7 <sup>th</sup> , and 8 <sup>th</sup> grade students.
October, 2010	Attended faculty meetings at each of the participating schools. Teachers administered mental health screener during homeroom. Identified subsample eligible to participate in Phase II.
November, 2010	Sent first mailing to parents of eligible participants for Phase II. Total consent forms returned = 14
December, 2011	Second mailing. Included entry into a raffle for \$25 gift card. One week later, mailed reminder postcard with a link to website. 29 additional consent forms returned (total = 43)
January, 2011	Consulted about recruitment efforts with building principals, district administrators, and university faculty members.
February, 2011	Third mailing. Included a separate raffle for each of the participating schools (\$100 gift card to a local store) and a letter of support from each school's respective building principal. 11 additional consent forms returned (total = 54)
March, 2011	Targeted recruitment effort at one middle school. Included staff member calling students parents, sending letters home with students, and collecting returned consent forms. Students received a can of iced tea or candy, and were entered into a raffle for an iPod.



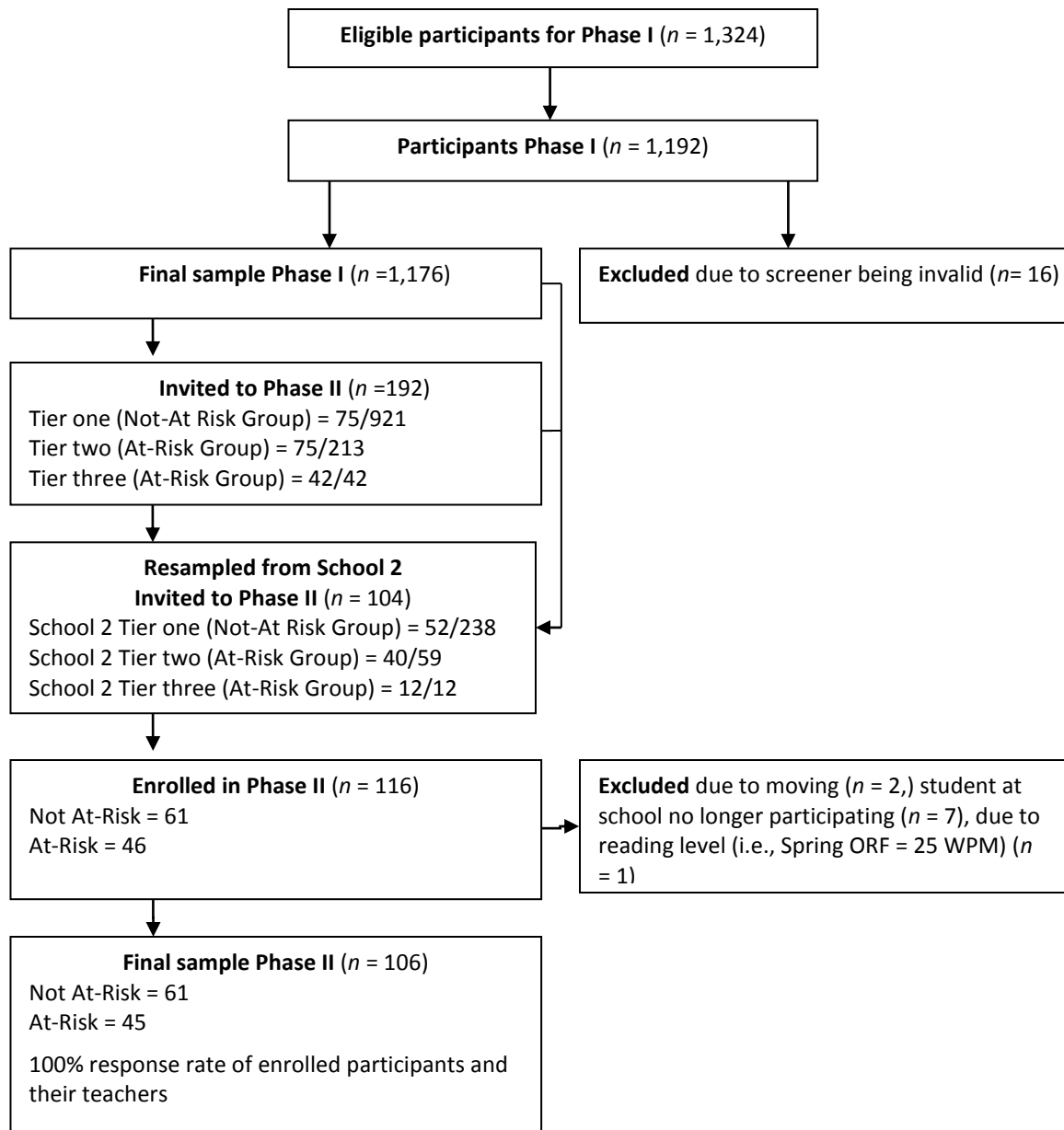
Table 10 (continued)

April, 2011	Administered Phase II measures to participating students (SEARS-SF, YSR, social validity question) and teachers (SEARS-T SF, BESS).
May, 2011	Finished data collection. Sent thank you cards and distributed tokens of appreciation.
July, 2011	Obtained data from students' records through end of school year.

Mailings to parents of students invited to participate in Phase II included a letter from the researchers, a letter of support from a district administrator, the consent form, and a prepaid and addressed return envelope to the University of Oregon. Parents who returned consent forms were entered into raffles for gift cards for returning the form regardless of whether they consented to their son or daughter's participation in the study. After three mailings to recruit participants for Phase II, researchers and district administrators agreed to try a more targeted approach to recruiting Phase II participants at one of the four middle schools. From the selected middle school, 104 students were resampled and invited to participate in Phase II of the study (i.e., 52 students from Tier I and 52 students from Tiers II and III).

In the spring, the fourth school chose not to participate in Phase II due to other commitments on teacher time. See Figure 3 for a summary of how participants were selected and excluded from participating.

**Figure 3.** Flow of Participants in Mental Health Screening Study



Participant flow chart and outline of the sampling procedures used to obtain final study sample.

Participants in Phase II included a sub-sample of 106 students and their teachers. These students were eligible to participate based on a selection procedure using their scores on the mental health screener from the first phase of the study. Of the 106

students that participated in Phase II, 79 were from School 2, 17 from School 1, and 10 from School 3. The demographic characteristics of the student participants from Phase II of the study are summarized in Table 11.

Table 11

*Characteristics of Phase II Participants*

Variable	% of Sample
<b>Risk status</b>	
At-risk (Tiers II and III)	42.5
Not at-risk (Tier I)	57.5
<b>Gender</b>	
Female	46.2
Male	53.8
<b>Grade</b>	
Sixth	34.0
Seventh	37.7
Eight	28.3
<b>Special education status</b>	
No special education	84.0
Special education	16.0
<b>English as a second language</b>	
Not eligible	100.0
Eligible	0.0
<b>Free and reduced lunch eligible</b>	
Eligible	66.0
Not eligible	34.0

Table 11 (continued)

Ethnicity	
White	69.8
Hispanic	20.8
Black/African American	4.7
American Indian/ Alaskan Native	3.9
Multiple	0.9

During Phase II of the study, teachers completed behavior rating scales for participating students. Participating teachers' years of experience in education ranged from one to 33 years of experience ( $M = 13$ ). Fifty-six percent of the behavior rating scales were completed by female teachers and 44% by male teachers. The majority of teachers reported teaching in general education classrooms (89.7%), followed by other setting (2.8%), special education classroom (0.9%), and another setting (e.g., reading, gifted program) (0.9%). Of the participating teachers, 5.6% did not specify a setting.

### **Instrumentation**

**Youth self-report form.** The Youth Self-Report (YSR; Achenbach & Rescorla, 2001) is one component of a multi-axial behavioral assessment procedure, the Achenbach System of Empirically Based Assessment. The YSR is a self-report measure for children and adolescents between the ages of 11 – 18 and consists of 112 items rated on a 3-point Likert scale (0 = Not True, 1 = Somewhat or Sometimes True, and 2 = Very True or Often True). Reading the items on the YSR requires a fifth grade reading level.

The structure of the YSR includes two broadband scales: Externalizing and Internalizing, and eight narrow-band subscales (i.e., syndromes). In addition, a Total Problem score can be computed. The Externalizing Problems broadband scale consists of the Rule-Breaking Behavior and Aggressive Behavior subscales. The Internalizing

Problems broadband scale is comprised of the Anxiety/Depressed, Withdrawn/Depressed, and Somatic Complaints subscales.

The YSR was standardized with a population that closely reflects U.S. population estimates for ethnicity, region, and socioeconomic status. The YSR has adequate internal consistency ( $\alpha = .91$  for the Internalizing scale and  $.92$  for the Externalizing scale) and test re-test reliability ( $r = .91$  for the Internalizing scale and  $.92$  for the Externalizing scale; Achenbach & Rescorla, 2001). The ASEBA system has also proven to have acceptable convergent validity with other measures of emotional and behavioral functioning such as the parent and teacher versions of the Behavioral Assessment System for Children (Pearson correlation coefficients:  $.75$  to  $.83$  for Internalizing Scales and  $.74$  to  $.88$  for Externalizing scales) and the Conners Parent and Teacher Rating Scales-Revised ( $.71$  to  $.89$ ; Achenbach & Rescorla, 2001).

**Behavioral and emotional screening system.** The Behavioral and Emotional Screening System is a multi-disorder screening system (BESS; Kamphaus & Reynolds, 2007) designed to identify emotional and behavioral strengths and weaknesses in students from preschool to high school. Three versions of the report form are available: student, parent, and teacher. This study used the teacher form, which consists of 27-items and takes approximately five to ten minutes to complete. The BESS uses a 4-point scale (never, sometimes, often, and almost always). The teacher-form produces a single score and provides a risk-level classification for emotional and behavioral problems that can fall within the range of one of three categories or levels of risk: normal, elevated, or extremely elevated.

The BESS was normed on a representative sample that closely matches recent U.S. Census population characteristics. The teacher version of the BESS has a test-retest reliability estimate of .91, inter-rater reliability estimate of .71, and split-half reliability estimate of .96. The BESS teacher form has been shown to correlate moderately to strongly with other measures of emotional and behavioral functioning such as the ASEBA (Externalizing Composite = .68, Internalizing Composite = .28, and Total Problems = .75), Conners' Rating Scale Revised (Global Index = .73, ADHD Index = .79, DSM IV Symptoms = .78), and Vineland II Teacher Rating Form, Child Adolescent Version (Adaptive Behavior Composite = -.69, Communication = -.63, Daily Living Skills = -.63, Motor Skills = -.55; Kamphaus & Reynolds, 2007). Students' risk-level classifications have also been shown to be significantly related to school-based outcome criterion (Renshaw et al., 2009).

**Oregon assessment of knowledge and skills.** Student data on the Oregon statewide assessment system was obtained from student records. Oregon Assessment of Knowledge and Skills (OAKS) scores in the areas of reading and math were recorded for participating sixth, seventh, and eighth grade students. The OAKS is considered a psychometrically sound measure and is correlated with other measures of achievement (California Achievement Test, Iowa Test of Basic Skills, NWEA Subject Tests, and Lexile Scale), with correlations ranging from .73 to .84 (ODE, 2007).

**Oral reading fluency.** The participating district uses AIMSweb reading fluency scores as benchmarks of student performance. Students were assessed using oral reading fluency (ORF) passages three times over the course of the school year - fall, winter, and spring. ORF passages assess a student's accuracy and rate in connected text. The

AIMSWeb benchmark scores have been shown to have good reliability (Christ & Silbergliitt, 2007; Howe & Shinn, 2002).

**Cumulative grade point average.** Grades in this district are reported on a 4-point scale, with higher grades indicating better academic performance. The cumulative grade point average takes into account student grades earned over all grading periods in the 2010-2011 school year.

**Absences.** Absences were recorded as the total number of school days missed across the school year in which the study was conducted (2010-2011). Excused and unexcused absences were combined to obtain a total number of days absent. The participating district reported absences by the half day (e.g., 2.5 days).

**Office discipline referrals.** Student office discipline referral (ODR) data were retrieved by the district from the School-Wide Information System (SWIS; May et al., 2006). The SWIS is a secure web-based data-management system that allows schools to enter and monitor individual students, and to review school wide trends in ODR data across student groups, locations, times, and behaviors. The SWIS can be used to produce discipline reports that schools use for data-based decision making across all tiers of SWPBS. In the SWIS, two types of ODR data exist: minor (e.g., low-intensity disruption, inappropriate language) and major (e.g., abusive language, fighting). Preliminary research suggests that the type and frequency of ODRs can be used as screening measures for additional behavior support in middle schools (Tobin, Sugai, & Colvin, 1996; Tobin & Sugai, 1999).

**Social validity measure.** Students were asked to rate one item about educators' provision of social and behavioral supports for students. A copy of the social validity item is included in Appendix B.

### **Procedures**

During Phase II, students completed self-report measures (i.e., YSR, a social validity question, and the SEARS-SF), teachers completed behavior rating scales on participating students (i.e., BESS, SEARS-SF), and data were collected from student records (i.e., ODRs, number of absences, etc.).

The lead researcher with assistance from trained research team members administered the YSR and the SEARS-SF to participating students. Each student received a packet that included a student assent form, social validity question, YSR form, and SEARS-SF. The student's study ID was written on the top right hand corner of all of forms with the exception of the student assent form. When we handed a participating student his or her packet, we removed a sticky note on which we had written the student's name. This procedure was used to ensure that research id numbers matched up for Phase I and II of the study. At each group administration, the lead researcher reviewed the information in student assent form and provided students with directions for completing the YSR and SEARS-SF. Most students completed the YSR and SEARS-SF in approximately 20 to 25 minutes. For their participation, students received \$5.00 gift card and pencil. All 107 students completed both the SEARS-SF and YSR.

For each participating student, a teacher completed the BESS and teacher version of the SEARS-SF. All participating schools were comprised of teams of teachers who taught core subject areas (e.g., Math, Science, Language Arts, and Social Studies) and



had been teaching participating students for at least one period per day since the beginning of the current school year. We distributed administration packets as evenly as possible across all core teachers of participating students and delivered administration packets in separate envelopes (one envelope per student) to each of the building principals. Packets included behavior rating scales (BESS and SEARS-SF) and a letter from the lead researcher with directions and contact information if teachers had questions. Each packet had a BESS teacher form and teacher version of the SEAR-SF with the students' assigned research id numbers written on all forms. The students' names were attached to the forms on a sticky note. Teachers were directed to discard the sticky note with the student's name before returning the completed forms in the envelope to the building principal. The return rate for teachers completing the behavior rating scales was 100%. Teachers received a \$5.00 gift card or credit to purchase school supplies for each student for whom they completed behavior rating scales.

Trained research assistants entered student and teacher data converting data into electronic files using SPSS. A second researcher scored twenty percent of randomly selected participants' measures and agreement was 99%.

## **Results and Discussion**

Results from Phase II are presented and arranged in sections by analyses and research questions. All analyses were conducted using SPSS 18.0 Grad Pack (SPSS, 2009).

Of the 106 Phase II student participants, 45 were identified to be At-Risk and 61 Not At-Risk. G\*Power 3.1 was used to establish whether statistical power was sufficient to address the primary research question. A sensitivity analysis was performed to

determine the effect size that would be detectable with 80% power. A two-tailed independent groups t-test with alpha of .05 and two groups of size 45 and 61 has 80% power to detect an effect size of  $d = .56$ , which is a medium or moderate effect size (Cohen, 1992). Therefore, the sample size was deemed sufficient to address the primary aims of the study.

### **Missing Data**

For the published norm-references measures (BESS, YSR) missing data at the item level were treated in accordance with the publishers' manuals. All forms were sufficiently complete so that they could be scored (Achenbach & Rescorla, 2001; Kamphaus & Reynolds, 2007; Merrell, 2011). Two teacher participants skipped one item and one teacher skipped three items on the BESS. Missing items on the BESS were coded using missing item replacement values found in the BESS manual (Kamphaus & Reynolds, 2007). The manual for the YSR recommends that forms with eight or more (of the 112) items not be included on statistical analyses (Achenbach & Rescorla, 2001). Of the 106 student participants, 81 students responded to all 112 items. Of the 25 students who left one or more items blank on the YSR; 16 left one item blank, four students left two or three items blank, and two students left five or six items blank. All missing items were coded accordance to the guidelines in the Achenbach System of Empirically Based Assessment Manual (Achenbach & Rescorla, 2001).

Missing data on the student and teacher versions of the SEARS-SF were treated in the same manner as in Phase I (i.e., mode imputations were used to replace missing values). Missing data appeared to be missing at random. On the SEARS-SFs administered to students in the fall and spring, six different forms from each

administration had one item missing. Six forms completed by teachers rating their students also had one item missing.

Data on the norm referenced measures (BESS, YSR, and SEARS-SF) were screened for normality, range restriction, outliers, and missing data for each of the two classification groups. Within the At-Risk group, three outliers were identified on the student version of the SEARS-SF administered in the fall. These three outliers represented students with the lowest scores on the SEARS-SF, who had been assigned to Tier III based on of the study's research design. No other severe outliers were identified within in the At-Risk group on any other measure.

Within the Not At-Risk group, one severe outlier (i.e., the highest score) was identified on the student version of the SEARS-SF administered in the fall. On the YSR, the Not At-Risk group had one severe outlier on the Internalizing Problems scale, two on the Externalizing Problems scale, and three on the Total Problems scale. The severe outliers on the Total Problems Scale were the same three outliers from the Internalizing and Externalizing Problems scale. Prior to the logistic regression analyses, outliers were further analyzed using Cook's D, leverage scores, and DFBETA, which established that outliers would not cause an undue effect on the equation nor would they be potentially influential (i.e., significantly change the intercept as a function of deleting the outlier). Thus all cases were retained for all analyses. No other severe outliers were identified within the Not At-Risk group on any other measure.

### **Descriptive Statistics**

Descriptive statistics for each measure and group are provided in Tables 12 and 13. Mean scores and standard deviations follow the expected trend with the Not At-Risk

group having a higher mean score on the SEARS (i.e., strength-based measure) and lower scores on the YSR and BESS (i.e., primarily deficit-based measures) than the At-Risk group. Mean scores on the SEARS-SF also increased from when students completed the form in the fall and again in the spring.

Tables 14 and 15 provide descriptive statistics using T scores to aide in interpretation (e.g., all mean scores fall within what would be considered the average range on these standardized, norm-referenced measures). Analyses were conducted using raw scores to capture the greatest amount of variance on each of the dependent variables [note that correlations between T scores and raw scores were very high (YSR Total = .975, YSR Internalizing = .954; YSR Externalizing = .977, SEARS-SF Fall = .951, SEARS-SF Spring = .998, BESS = 1.000, and SEARS-T = .999), and results essentially remained the same when using T scores and raw scores].

Table 12

*Descriptive Statistics Based on Raw Scores for Student Completed Forms*

Measure	Not at-risk group <i>n</i> = 61				At-risk group <i>n</i> = 45			
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
<b>SEARS-SF</b>								
Fall	17	32	21.93	3.62	6	17	14.24	2.86
Spring	14	36	24.36	5.04	12	30	19.51	4.41
<b>YSR</b>								
Internalizing	0	43	11.62	8.30	0	40	15.22	10.48
<b>YSR</b>								
Externalizing	0	38	8.97	7.26	3	33	12.98	7.27

YSR									
Total	0	113	39.57	24.07	10	131	53.40	28.32	

Note. *Min* = Minimum reported score; *Max* = Maximum reported score.

Table 13

*Descriptive Statistics Based on Raw Scores for Teacher Completed Forms*

Measure	Not at-risk group <i>n</i> = 61				At-risk group <i>n</i> = 45			
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
SEARS-SF	3	636	20.69	7.70	4	36	19.33	8.25
BESS	0	47	21.20	12.39	0	61	27.07	14.73

Note. *Min* = Minimum reported score; *Max* = Maximum reported score.

Table 14

*Descriptive Statistics based on T scores for Student Completed Forms*

Measure	Not at-risk group <i>n</i> = 61				At-risk group <i>n</i> = 45			
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
SEARS-SF								
Fall	41	64	48.16	5.90	10	40	35.04	5.90
Spring	36	72	52.11	8.31	31	62	44.16	7.11
YSR								
Internalizing	30	81	51.89	10.41	30	80	56.69	11.97
YSR								
Externalizing	29	77	48.72	9.89	40	75	54.73	9.02
YSR								

Total	28	76	51.52	10.58	36	81	57.76	10.94
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*Note. Min = Minimum reported score; Max = Maximum reported score.*

Table 15

*Descriptive Statistics based on T scores for Teacher Completed Forms*

Measure	Not at-risk group <i>n</i> = 61				At-risk group <i>n</i> = 45			
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
SEARS-SF	27	68	49.33	9.63	28	68	47.56	10.33
BESS	35	72	51.39	9.70	35	82	55.98	11.51

*Note. Min = Minimum reported score; Max = Maximum reported score.*

### **Logistic Regression Analyses**

Four separate logistic regression analyses and independent groups t-tests were used to answer the research questions - *Do reported levels of internalizing and externalizing symptoms on the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) effectively and accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening? Do scores from the Behavioral and Emotional Screening System Teacher Version (BESS; Kamphaus & Reynolds, 2007) effectively and accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening?*

Four one-predictor logistic models were fitted to the data to examine the relationship between risk classification (i.e., whether a student was identified as being At-Risk or Not At-Risk using the strength-based approach to mental health screening under

investigation) and YSR (Achenbach & Rescorla, 2001) and BESS scores (Kamphaus & Reynolds, 2007). The dependent variable was risk classification with two levels: Not At-Risk and At-Risk. Four predictor (independent) variables were analyzed: Externalizing, Internalizing, and Total Problems scores from the YSR and the Total score from the teacher version of the BESS.

To determine if any of the independent variables were predictors of risk-classification, separate logistic regression analyses were used in order to meet the assumption of multicollinearity (Pedhazur, 1997). Given that predictor variables were expected to be correlated with one another, multicollinearity was investigated by examining zero-order correlations among independent variables and Variance Inflation Factor (VIF) values. Correlations between YSR scores ranged from .67 to .91 ( $p < .001$ ). Average VIF values ranged from 8.65 to 18.52 with an average VIF value of 10.94 suggesting that multicollinearity could bias the regression model (Bowerman & O'Connell, 1990; Myers, 1990).

Four independent logistic regression analyses revealed that all YSR scores (Internalizing, Externalizing, and Total) and the BESS score were significant or nearly significant ( $p = .055$  for YSR Internalizing Problems Scale Score) predictors of students risk classifications (see Table 16). The Hosmer-Lemeshow test was insignificant for all predictor variable ( $p > .05$ ) suggesting that each model fit the data. According to the models, the odds of a child being identified at-risk was positively related to all predictor variables. The higher the score on the YSR or BESS the more likely the student was to be identified at-risk.

Table 16

*Logistic Regression Analyses of Risk Classification*

Predictor	$\beta$	<i>SE</i> $\beta$	<i>df</i>	<i>Wald's</i> $\chi^2$	<i>p</i>	$e^{\beta}$ (odds ratio)
YSR						
Internalizing	.042	.022	1	3.672	.055	1.043
YSR						
Externalizing	.076	.029	1	6.821	.009	1.079
YSR						
Total	.020	.008	1	6.492	.011	1.021
BESS	.033	.015	1	4.634	.031	1.033

Because classification was a goal of these analyses, the classification tables for each of the predictor variables is provided in Tables 17 to 20. Predicted probabilities of at-risk status were retained from the logistic regression analyses. Dichotomized probabilities (below or above .50) were used to place individuals in their most likely category. Tables 17 to 20 provide information regarding the validity of the predicted probabilities using a cutoff set at 0.50. The percentage listed in the first row of each of the classification tables indicates the magnitude of specificity or proportion of correctly non-identified students (i.e., not at-risk). The percentage listed in the second row indicates the sensitivity or proportion of correctly identified students (i.e., at-risk). The overall classification accuracy for the predictor variables in the logistic regression analyses ranged from 60.4 to 64.2, which is an improvement to the chance level, but low.



Table 17

*The Observed and Predicted Frequencies for Risk Classification by Logistic Regression for the YSR Internalizing Problems Scale*

Observed	Predicted		% Correct
	No	Yes	
No (not at-risk)	51	10	83.6
Yes (at-risk)	32	13	28.9
Overall % correct			60.4

*Note.* Cutoff = 0.50.

Table 18

*The Observed and Predicted Frequencies for Risk Classification by Logistic Regression for the YSR Externalizing Problems Scale*

Observed	Predicted		% Correct
	No	Yes	
No (not at-risk)	49	12	80.3
Yes (at-risk)	26	19	42.2
Overall % correct			64.2

*Note.* Cutoff = 0.50.

Table 19

*The Observed and Predicted Frequencies for Risk Classification by Logistic Regression for the YSR Total Problem Scale*

Observed	Predicted		% Correct
	No	Yes	
No (not at-risk)	51	10	83.6
Yes (at-risk)	29	16	35.6
Overall % correct			63.2

*Note.* Cutoff = 0.50.

Table 20

*The Observed and Predicted Frequencies for Risk Classification by Logistic Regression for the BESS Teacher Report*

Observed	Predicted		% Correct
	No	Yes	
No (not at-risk)	50	11	82.0
Yes (at-risk)	30	15	33.3
Overall % correct			61.3

*Note.* Cutoff = 0.50.

To determine significant group differences between YSR and BESS scores, independent group *t*-tests were conducted. Results are presented on Table 21 and indicate significant differences between the Not At-Risk and At-Risk group across all scales. Cohen’s *d* effect sizes demonstrate overall moderate differences between groups.

Table 21

*Group Differences in YSR and BESS Scores: Means, Standard Deviations, t-Test Scores, and Effect Sizes*

Measure	Classification (n)	M(SD)	t	p	ES
YSR	Not at-risk (61)	11.62 (8.30)	1.97	.051	.38
	Internalizing	At-risk (45)			
YSR	Not at-risk (61)	8.97 (7.26)	2.81	.006	.55
	Externalizing	At-risk (45)			
YSR	Not at-risk (61)	39.57 (24.07)	2.71	.008	.53
	Total	At-risk (45)			
BESS	Not at-risk (61)	21.20 (12.39)	2.22	.028	.43
	At-risk (45)	27.07 (14.73)			

### **Cross-Informant Reliability**

Data from the matched teacher and student reports on the SEARS-SF were used to answer the research question - “*What is the degree of similarity between student and teacher ratings of a given student using respective versions of a strength-based rating scale (SEARS-Short Forms; Merrell, 2011) ?*” Cross-informant reliability between the total score on the student version and the teacher version of the SEARS-SF were analyzed using Pearson’s product-moment correlations. Pearson product-moment correlations for the teacher ( $M = 20.11$ ,  $SD = 7.93$ ) and student ( $M = 22.30$ ,  $SD = 5.34$ ) forms were statistically significant  $p = .001$ ,  $r = .33$ . This finding indicates a moderate to weak correlation of teacher and student ratings on student’s social-emotional assets and strengths, and that there is considerable variance across raters. These findings are

consistent with prior research on the cross-informant reliability of teacher and student versions of the SEARS using a sample of 31 matched elementary students and their teachers ( $p < .05$ ,  $r = .37$ ; Cohn, 2010). Multiple sources are desired when conducting social, emotional, and behavioral assessments (Merrell, 2008), particularly in light of overall weak correlations between raters on many commonly used behavior rating scales (e.g., Achenbach, McConaughy, & Howell, 1987).

### **Discriminant Validity**

Teacher and student data were used to answer the research question -“*What is the degree of difference between strength-based rating scale scores (SEARS-Short Forms; Merrell, 2011) and primarily problem-based rating scale scores (BESS; Kamphaus & Reynolds, 2007; YSR; Achenbach & Rescorla, 2001)?*” Separate correlation coefficients were calculated to analyze the relationship between (1) the teacher version of the SEARS-SF and the BESS, and (2) the student version of the SEARS-SF and the YSR composite scales. Descriptive information is depicted in Table 22.

Table 22

*Descriptive Statistics of Student and Teacher Scores on the YSR and BESS*

Scale	<i>M</i>	<i>SD</i>
BESS	23.69	13.68
YSR		
Internalizing problems	13.15	9.41
Externalizing problems	10.67	7.50
Total problems	45.44	26.73

Pearson product-moment correlations are presented in Table 23 and indicate moderate negative correlations between student and teacher ratings of students' social and emotional strengths and assets and ratings of student social, emotional, and behavioral problems ( $p < .001$ ).

Table 23

*Pearson Product-Moment Correlations for BESS Teacher Form , YSR, and Respective Versions of the SEARS-SF Scores*

Scale	SEARS-SF student version	SEARS-SF teacher version
YSR		
Internalizing composite	-.48*	
Externalizing composite	-.50*	
Total score	-.55*	
BESS		-.70*

\* $p < .001$

### Group Comparisons

A series of analyses were conducted to answer the research question, “*Are there significant group differences between the At-Risk and Not-At Risk group according to academic functioning, number of absences, number of office discipline referrals, gender, and disability status?*” Results are presented by dependent variable.

**Student gender.** A two-variable chi-square test was used to evaluate differences in the proportion of male and female students between the Not At-Risk and At-Risk group (see Table 24). The difference in the number of male and female students in the Not At-Risk and At-Risk group was nearing significance,  $\chi^2 (N = 106, 1) = 3.58, p = .058$ .

Table 24

*Percentages and Counts of Female and Male Students by Risk Classification Group*

Group	Not at-risk ( $n = 61$ )	At-risk ( $n = 45$ )
Female ( $n = 49$ )	54.1% (33)	35.6% (16)
Male ( $n = 57$ )	45.9% (28)	64.4% (29)

Because the chi-square test was nearing significance and there almost two times as many male as female participants in the At-Risk group, data were analyzed using a two-way, between-subjects analysis of variance to determine if gender had an effect on risk-classification. The independent variable was risk classification with two levels (Not At-Risk and At-Risk) and student gender with two levels (male and female). The dependent variable was the SEARS-SF score. Descriptive statistics for SEARS-SF scores by group are presented in Table 25.

Table 25

*Descriptive Statistics for SEARS-SF Scores and Gender by Risk Classification Group*

	Not at-risk ( $n = 61$ )		At-risk ( $n = 45$ )		Total ( $n = 106$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male (57)	22.11	3.55	13.90	3.22	17.93	5.33
Female (49)	21.79	3.73	14.88	2.00	19.53	4.61

*Note.* The distributions of SEARS-SF scores for male and female students were roughly symmetrical with one severe outlier in the female group.

Results of the two-way between-subjects analysis of variance are reported in Table 26 and indicate that gender does not confound the effect of risk classification SEARS-SF scores. Gender and risk classification did not interact  $F(1, 102) = 0.93$ ,  $p =$

.338, signifying that the effect of one of these variables was not dependent on the other. Because the interaction effect was not significant, the main effects of risk classification and gender were examined. As would be expected from the grouping procedure used to create the At-Risk and Not At-Risk groups, the effect of risk classification on SEARS-SF scores was significant,  $F(1, 102) = 125.92, p = .000$ . The effect of gender, however, was not significant  $F(1, 102) = 0.25, p = .627$ .

Table 26

*Gender by Risk Classification Analysis of Variance Summary Table*

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Risk classification	1	1403.19	1403.19	125.92*
Gender	1	2.66	2.66	0.24
Risk classification by gender	1	10.33	10.33	0.93
Error	102	1136.63	11.14	
Total	105	2679.44		

\* $p < .001$ .

These findings are inconsistent with findings from the national norming sample of the SEARS where girls were consistently rated as having significantly higher total scores on all versions of the SEARS assessment system ( $p < .01$ ), indicating consistent perceptions of girls' higher levels of social-emotional competencies by all raters (Romer, Ravitch, Tom, Wesley, & Merrell, 2011). However, these differences were small, and thus, the SEARS does not have separate norms for girls and boys (Merrell, 2011). Nonetheless, one might expect these small differences to be most apparent in the At-Risk group. These findings are also interesting in light of more boys than girls being referred

for services (Soles et al., 2008) and boys presenting more often with externalizing behavior problems and girls with internalizing behavior problems throughout adolescence (APA, 2000; Reid et al., 2000).

**Disability status.** A two-variable chi-square test was used to evaluate if there was a difference in the proportion of students receiving special education services (i.e., students with an IEP) between the Not At-Risk and At-Risk group (see Table 27). Results revealed no significant difference in the proportion of students receiving special education services in the Not At-Risk and At-Risk group,  $\chi^2 (N = 106, 1) = 0.18, p = .675$ .

Table 27

*Percentages and Counts of Students Receiving Special Education Services by Risk Classification Group*

Group	Not At-Risk ( $n = 61$ )	At-Risk ( $n = 45$ )
IEP ( $n = 17$ )	14.8% (9)	17.8% (8)
No IEP ( $n = 89$ )	85.2% (52)	82.2% (37)

It would be expected that a valid screening measure of social-emotional competencies and assets should differentiate among groups of students in this manner, as research indicates that students with disabilities are more likely to exhibit deficits in important social-emotional competencies in comparison to their typically developing peers (Merrell & Gimpel, 1998). Similarly, analyses from the national norming sample of the SEARS-SF indicated that both parent and teacher rating of students not receiving special education services were significantly higher on the SEARS-SF than students receiving special education services with effect sizes ( $ES = .75$  for parent ratings;  $ES =$



.74 for teacher ratings) suggesting clinically meaningful differences between these two groups (Nese et al., in press). The insignificant finding may be related to this being a small sample with only 17 students having had an IEP. Also, this study, unlike the other studies that compared SEARS scores of students receiving and not receiving special education services, utilized student self-reports. Perhaps teachers and parents are more likely to report differences than students themselves.

**Office discipline referrals.** A two-variable chi-square test was used to evaluate if there was a difference in the proportion of students identified as being at At-Risk or Not At-Risk based on ODRs. Chi-square analyses were conducted utilizing several different groupings of major and minor ODRs that students received over the course of the school year (Horner, Sugai, Todd, & Lewis-Palmer, 2005). Combining major and minor ODRs, three groups were created based on the following cut points: six or more ODRs = Tier III, two to five ODRs – Tier II, and zero to one ODRs = Tier I. Groupings based on Major ODRs were also created: three or more major ODRs = Tier III, one to two major ODRs = Tier II, and zero major ODRs = Tier I. Regardless of how students were grouped, there was no significant difference in the proportion of students identified at-risk, ( $p > .10$ ; see Tables 28 to 31).

Table 28

*Percentages and Counts of Students by Risk Classification Group and Major ODRs based on Two Tiers*

Group	Not At-Risk ( $n = 61$ )	At-Risk ( $n = 45$ )
> 1 Major ODRs ( $n = 35$ )	27.9% (17)	40.0% (18)
0 Major ODRs ( $n = 71$ )	72.1% (44)	60.0% (27)

$p = .189$ .

Table 29

*Percentages and Counts of Students by Risk Classification Group and Major ODRs based on Three Tiers*

Group	Not At-Risk ( $n = 61$ )	At-Risk ( $n = 45$ )
> 3 Major ODRs ( $n = 15$ )	13.1% (8)	15.6% (7)
1-2 Major ODRs ( $n = 20$ )	14.8% (9)	24.4% (11)
0 Major ODRs ( $n = 71$ )	72.1% (44)	60.0% (27)

$p = .374$ .

Table 30

*Percentages and Counts of Students by Risk Classification Group and Major and Minor ODRs based on Two Tiers*

Group	Not At-Risk ( $n = 61$ )	At-Risk ( $n = 45$ )
> 6 Minor and major ODRs ( $n = 29$ )	23.0% (14)	33.3% (15)
0-5 Minor and major ODRs ( $n = 77$ )	77.0% (47)	66.7% (30)

$p = .236$ .

Table 31

*Percentages and Counts of Students by Risk Classification Group and Major and Minor ODRs based on Three Tiers*

Group	Not At-Risk ( $n = 61$ )	At-Risk ( $n = 45$ )
> 3 Minor and major ODRs ( $n = 13$ )	13.1% (8)	11.1% (5)
1-2 Minor and major ODRs ( $n = 16$ )	9.8% (6)	22.2% (10)
0 Minor and major ODRs ( $n = 77$ )	77.0% (47)	66.7% (30)

$p = .212$ .

ODRs are commonly used by schools, including middle schools, to evaluate and monitor student behavior and intervention across all tiers of support. There is a growing body of evidence to support the validity and utility for using ODR data to guide decision making around problem behaviors (Irvin, et al., 2006; Irvin, Tobin, Sprague, Sugai, & Vincent, 2004; Sugai, Sprague, Horner, & Walker, 2000). Prior research utilizing behavior rating scales has indicated that ODRs are an efficient measure of externalizing, but not internalizing behavior problems (McIntosh, Campbell, Russell Carter, & Zumbo,

2009; Nelson, Brenner, Reid, Epstein, & Currin, 2002). Walker, Cheney, Stage, and Blum (2005) found that students with two or more ODRs scored similar to students with one or fewer ODRs on a measure of social skills (SSIS; Gresham & Elliot, 1990). McIntosh, et al. (2009) did not find a significant relationship between ODRs and the Adaptive Behavior Composite score on the Behavior Assessment Scale for Children – Second Edition (Reynolds & Kamphaus, 2004). More research is needed to determine the relationship between ODRs and measures of social and emotional competence. Particularly useful information that strength-based assessments might provide for intervention planning purposes would be regarding if students receiving multiple ODRs have a social or emotional skill or resource deficit.

**Academic functioning.** Reading and math OAKS scores, Oral Reading Fluency (ORF), and cumulative Grade Point Average (GPA) for At-Risk and Not At-Risk students were evaluated with using independent groups *t*-test. Results are presented on Table 32 and the only significant difference between the Not At-Risk and At-Risk group was indicated for cumulative GPA, with Cohen's *d* effect sizes demonstrating a moderate difference. These results are interesting in light of the link between social, emotional, and behavioral competence and academic achievement (Durlak, et al., 2011; Greenberg et al., 2003; Payton et al., 2008). It is noteworthy that the two groups did not differ significantly on assessments of specific academic skills (i.e., reading and math), but on cumulative GPA. It may be the case that cumulative GPA takes into account not only performance on academic tasks, but attendance, participation, homework completion, group work, etc., which are variables associated with the social and emotional skills and assets assessed by the SEARS.

Table 32

*Differences in Academic Indicators by Risk Classification Group: Means, Standard Deviations, t-Test Scores, and Effect Sizes*

	<i>Gender (n)</i>	<i>M (SD)</i>	<i>t</i>	<i>p</i>	<i>ES</i>
Math	Not at-risk (60)	231.30 (10.72)	0.70	.485	.14
	At-risk (44)	229.89 (9.32)			
Reading	Not at-risk (60)	231.02 (7.85)	0.11	.915	.02
	At-risk (44)	230.84 (8.85)			
ORF	Not at-risk (60)	161.45 (42.96)	0.94	.349	.19
	At-risk (45)	153.82(38.46)			
Cumulative GPA	Not at-risk (61)	3.28 (0.63)	3.22	.002	.63
	At-risk (45)	2.86 (0.71)			

*Note.* All distributions of scores were roughly symmetrical for the At-Risk and Not At-Risk groups. One severe outlier based on OAKS math scores was identified in the At-Risk group. The distribution of OAKS reading scores revealed one severe outlier in the Not At-Risk group and six severe outliers in the At-Risk group. One severe outlier based on cumulative GPA was identified in the Not At-Risk group. All outliers were retained.

**Absences.** The number of absences for At-Risk and Not At-Risk students was evaluated using a Mann-Whitney test, because the assumption of normality was not met, as distributions for the At-Risk (skew = 1.48) and Not At-Risk (skew = 1.25) groups had a strong positive skew. Results revealed that the total number of absences of Not At-Risk students ( $Mdn = 5.0$ ) did not differ significantly from At-Risk students ( $Mdn = 5.5$ ),  $U = 1338.00$ ,  $z = -0.22$ ,  $p = .825$ . Although absenteeism is often related to physical and mental health problems (Kearney, 2008), this sample did not have very high rates of absenteeism regardless if students were classified as being At-Risk or Not At-Risk.

## Social Validity

Ninety-eight of the 106 student participants responded to a social validity question about educators providing social, emotional, and behavioral support to students. Results are summarized in Table 33 and suggest that overall the students in this sample reported that they consider educators helping them as quite important.

Table 33

### *Descriptive Statistics for Student Social Validity Question*

Question	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>Mdn</i>	<i>Mode</i>
How important do you think it is that your teachers and other adults help students with their problems? By problems, we mean: not getting along with other students or adults, feeling lonely, or when students are having a hard time dealing with a something and feel stressed, sad, worried, or angry.	1	5	3.78	4	4

*Note.* *Min* = Minimum reported score; *Max* = Maximum reported score.

## CHAPTER V

### GENERAL DISCUSSION

The previous two chapters presented results and brief discussions of specific findings from Phases I and II of the study. The focus of this final chapter is on the major findings of this study in relation to the primary research questions, followed by limitations, future directions and implications for strength-based mental health screening.

Overall, results revealed that the odds of a child being identified as at-risk using the strength-based approach under investigation was positively related to well-established measures of social-behavioral problems. Students identified as being At-Risk differed from Not At-Risk students on grade point average and teacher and self-report measures of social, behavioral, and emotional functioning (YSR; Achenbach & Rescorla, 2001; BESS; Kamphaus & Reynolds, 2007). The At-Risk and Not At-Risk groups did not significantly differ on disability status, ODRs, gender, absences, and standardized measures of academic performance. Cross-informant reliability and discriminant validity were analyzed, and results were consistent with previous research providing additional support that the SEARS-SF meets these standards of validity and reliability (AERA, APA, & NCME, 1999). The following discussion of the findings is organized around the five research questions.

#### **Discussion of the Findings**

##### **Research Questions 1 and 2**

The first two questions were:

1. Do reported levels of internalizing and externalizing symptoms on the Youth Self-Report (YRS; Achenbach & Rescorla, 2001) effectively and

accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening?

2. Do scores from the Behavioral and Emotional Screening System Teacher Version (BESS; Kamphaus & Reynolds, 2007) effectively and accurately discriminate between students identified as not at risk and at-risk based on the proposed strength-based approach to mental health screening?

Measures of internalizing and externalizing behaviors (Achenbach & Rescorla, 2001; Kamphaus & Reynolds, 2007) discriminated between students identified as Not At-Risk and At-Risk using the proposed strength-based approach to mental health screening. BESS and YSR (Internalizing, Externalizing, and Total) scores were significant or nearly significant predictors of whether students were grouped into the At-Risk or Not At-Risk group. The overall classification accuracy for the predictor variables in the logistic regression analyses ranged from 60.4 to 64.2, which is an improvement to the chance level, yet low. These results were likely impacted by the 6-month delay between Phase I and Phase II. Furthermore, students were classified as At-Risk and Not At-Risk using a strength-based measure, while predictor variables were broad-band measures of primarily problem behaviors. Given that positive and negative indicators of mental health are not necessarily at the opposite ends of the same continuum (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008), one might expect predictive validity to be moderate at best.

More research is needed to improve classification accuracy of this approach to mental health screening and to determine if the differences between the At-Risk and Not At-Risk group are meaningful in relation to students' actual social and emotional



functioning and mental wellness. These results should be considered a conservative measure of predictive validity given the approximately six month delay between the strength-based screening procedure used to group students and the administration of the criterion measures. In fact, Pearson product-moment correlations between SEARS-SF scores obtained during Phase I and Phase II of the study were only moderately correlated ( $r = .56, p < .01$ ) indicating that students self-reports of social emotional strengths and assets changed from the time they completed the SEARS-SF in the fall to when they completed the SEARS in the spring. Thus, although findings of the logistic regression analyses were overall significant, a stronger relationship may have been identified had all of the measures been administered in the fall.

Of the four predictor variables, the Internalizing scale score on the YSR scores was the least significant predictor of risk classification when compared to the other three predictor variables (YSR Externalizing, YSR Total, and BESS scores). Early identification of internalizing problems is particularly important as these types of problems can cause severe impairment, yet often go undetected unless children and adolescents are directly asked about their internalizing behaviors (Pagano, et al., 2000). Students with internalizing problems also receive fewer services than those students with externalizing symptoms (Bradshaw, et al., 2008), and many of the behaviors associated with disorders such as anxiety and depression are very difficult to observe, particularly at the subclinical level. Furthermore, students coping with internalizing problems are generally not disruptive and, therefore, potentially less likely to be noticed by their teachers. Teachers may also be less motivated to intervene if a student is not disruptive. Finally, while schools have considerable amounts of student data associated with

externalizing behavior problems (e.g., ODRs) available, school-based mental health promotion requires a strategic and systematic approach of assessing students' social and emotional functioning, and behavior rating scales provide a way for schools to identify students at-risk for internalizing problems.

### **Research Questions 3 and 4**

The third and fourth research questions were:

3. What is the degree of similarity between student and teacher ratings of a given student using respective versions of a strength-based rating scale (SEARS-Short Forms; Merrell, 2011)?
4. What is the degree of difference between strength-based rating scale scores (SEARS-Short Forms; Merrell, 2011) and primarily problem-based rating scale scores (BESS; Kamphaus & Reynolds, 2007; YSR; Achenbach & Rescorla, 2001)?

Cross-informant reliability of the SEARS-SF indicated relatively weak correlations between teacher reports and child self-reports based on Pearson-product moment correlations ( $r = .32$ ). Discriminant validity between the SEARS-SF (student, self-report) and YSR (student, self-report) and BESS (teacher report) indicated moderate negative correlations ( $r = -.48$  to  $-.70$ ). These results are consistent with other research validating the SEARS assessment system (Merrell, 2011, Merrell, Cohn, & Tom, 2011; Nese et al., in press) and meet standards for reliability and validity (AERA, APA, NCME, 1999).

## Research Question 5

The fifth research question was:

5. Are there significant group differences between the At-Risk and Not-At-Risk group according to academic functioning, number of absences, number of office discipline referrals (ODR), gender, and disability status?

The At-Risk and Not At-Risk groups did not differ on disability status, ODRs, gender, absences, and standardized measures of academic performance. These results are somewhat surprising as these outcomes have been associated with students' social and emotional skills and assets (Fleming et al., 2005; Zins, et al. 2004; Burns, et al., 2004; Knoff, 2004). However, these results may have been confounded for several reasons that will be discussed in the limitations section. More research is needed to determine the relationship between strength-based screening and student outcomes.

As noted previously, significant group differences between the At-Risk and Not At-Risk group were found on the YSR composite scales and the BESS teacher report scores. Also, the At-Risk group had significantly lower grade point averages at the end of the school year compared to students in the Not At-Risk group. This finding is particularly interesting in light of SEARS-SF self-report scores from the start of the school year being used to group students (At-Risk and Not At-Risk groups) and that significant differences between these two groups were based on grade point averages at the end of the academic school year. Moreover, this was the case despite 26 participants who had been classified At-Risk in the fall, no longer being classified as At-Risk in the spring (based on a second administration of the SEARS-SF). This finding may be

explained by grades accounting for not only academic performance, but also social and emotional behaviors (e.g., interpersonal relationships, problem solving and self-regulation skills) related to the constructs assessed by the SEARS-SF. Replication of this finding is needed before drawing any conclusions, however, the link between the strength-based approach to mental health screening used in this study and grade point averages at the end of the school year may have particular relevance to schools focused on coordinated academic and mental health supports as grade point average and problem behavior for this age group are early indicators for high school dropout (Suh & Suh, 2007; Tobin & Sugai, 1999) and speaks to the importance of systematically monitoring and supporting student behavior and academic performance.

### **Social Validity**

Teachers and students responded to several questions related to social validity. The teachers in the participating schools rated mental health screening as quite important and an acceptable use of class time. Teachers indicated that students are somewhat accurately able to rate their own social-emotional functioning, which is consistent with generally low agreement between student self-reports and teacher reports on standardized behavior rating scale systems. Students reported that they think it is important that teachers and other school staff support their social and emotional needs.

### **Limitations**

When evaluating the findings of this study, it is important to consider possible confounding influences on the results. First, no procedural integrity data were collected to measure the consistency of the administration of the screener during Phase I of the study. Teachers received a brief training on how to administer the screener but the extent

to which they adhered to the protocol is unknown. Also during Phase I of the study, researchers scored and analyzed the data, all of which were obtained via pen-and-paper measures. This procedure likely is overly cumbersome for a school to implement independently. Thus, there is a need for more efficient data collection and analysis, for example by computerized test administration and analysis.

The limited sample size resulted in underrepresentation of certain demographic groups and regional sample bias. Although a sample of 106 students was deemed adequate, a larger sample would have increased statistical power. A larger sample would have also made it feasible to recruit three groups (Tier I, Tier II, and Tier III) and allow for comparison between students in Tier I and Tier III. The sample of students was also relatively homogeneous and nested within one district. A large portion of the sample was from one school in the Pacific Northwest region on the United States, predominantly White/Caucasian, which has been implementing a three-tiered model of behavioral and academic supports. This school also has a history of collaboration with researchers from the local university. These nesting effects could further decrease the generalizability of the results. Finally, the approach to mental health screening in this study involved using cut scores based on the national norming sample and it is unrealistic to assume that single cut scores can adequately detect risk for all subgroups of students represented in other schools.

Another limitation to be considered is the time delay Phase I and Phase II of the study. Based on the second administration of the SEARS-SF in the spring, which was administered at the same time as the criterion measures, 26 fewer students would have been identified At-Risk compared to the beginning of the school year. This suggests that,

over the course of the year, this sample had fewer students whose scores fell within the At-Risk range and that results may have been confounded by changes in behavioral, social, and emotional behavior over time (Merrell, 2008). In addition, because the participating schools were all implementing SWPBS with good integrity, at minimum all students were receiving Tier I interventions aimed at supporting prosocial behavior during those six months. These schools were implementing Tiers II and III supports within Intensive Positive Behavior Support and used school data to select students in need of further intervention so it is likely that at least some of those students identified via the SEARS-SF in the fall but not the spring received intervention in the interim that reduced their risk status.

Although Phase I of the study was completed quickly and seamlessly in part because active consent from parents was not necessary, the process of gathering active consent resulted in a long delay between Phase I and Phase II. The need for active consent to proceed with the second phase of the study also introduced the potential for additional sampling bias by resampling from one of the schools and parents of students identified as Not At-Risk were more likely to return their consent forms.

### **Future Directions and Implications for Practice**

To our knowledge, this study was the first to assess the validity of a solely strength-based *approach* to mental health screening. Behavior rating scales and self-assessments have been suggested for universal screening and progress monitoring as part of multi-tiered mental health intervention models (Levitt, et al., 2007; Merrell & Gueldner, 2010). Future research should determine the utility of short form versions of strength-based rating scales (e.g., Devereux Student Strengths Assessment-mini; Naglieri,

LeBuffe, & Shapiro, 2011; SEARS, Merrell, 2011) for the purpose of universal screening.

Replication of this study with a higher level of methodological rigor is needed to further investigate if this strength-based approach to mental health screening is indeed sufficient or if it can be used in conjunction with other readily available student data to identify students in need of additional supports. Additional research is also needed to investigate if this type of strength-based approach is acceptable and feasible for parents, students, and educators, and to identify proximal and distal outcomes related to using a strength-based approach to mental health screening. Further scale development (i.e., content selection) and psychometric support for strength-based measures designed specifically for the purpose of universal screening within a three-tiered model may lead to better measures for this purpose. Finally, this line of research also needs to consider how universal mental health screening can be integrated into a system of supports while taking into account available resources and other contextual variables.

Although this study investigated the validity of a solely strength-based measure as a mental health screener, the criterion measures used to validate this approach were primarily deficit-based. As such, criterion measures did not assess the social and emotional competencies of the participating students or the school environment. It seemed logical to have the first step of validating a solely strength-based approach to mental health screening align with current, well-established standards of behavioral, social, and emotional assessment (Merrell, 2008). However, the premise of using a solely strength-based approach to mental health screening is based on the gains in prevention science that have come from a perspective focused on systematically building

competence rather than correcting weakness (Seligman & Csikszentmihalyi, 2000), and as such, research is needed to validate a strength-based approach to mental health screening in relation to indicators of mental wellness.

Future research may also focus on the psychometric properties of strength-based assessment systems such as the SEARS including longitudinal test re-retest reliability analyses, cross informant analyses with parents, teachers, and students, convergent validity with other strength-based measures, and use as an intervention outcome measure. Research is needed to investigate the relationship between teacher, parent, and self-report ratings, as well as direct observations of student social and emotional skills. Studies utilizing receiver-operating characteristic curve analysis are needed to evaluate the classification accuracy of the SEARS-SF and identify optimal cut scores. Differential Item Functioning and Item Response Theory can be used to determine if responses on strength-based assessment measures vary between different demographic groups. Lastly, additional research is needed to investigate the sensitivity of the SEARS-SF to short-term changes in student social and emotional behavior.

To determine the validity of using a strength-based measure for the purpose of mental health screening across all grades, extensions of this type of research to preschool, elementary, and high schools settings is needed. In younger grades, a similar screening process would likely involve teacher ratings (Flanagan, Bierman, & Kam, 2003). Although a multimethod, multisource, multisetting assessment is the standard for behavioral, social, and emotional assessment practices (Merrell, 2008), additional research is needed to determine which source or sources (i.e., teacher, caregiver, student) are optimal informants for universal screening measures involving ratings of student



behavior (Cook, Volpe, & Livanis, 2010). Cross-informant agreement on student's social emotional functioning is generally low (Achenbach, et al. 1987), and more than one rater may be needed to accurately identify students at-risk of developing mental health problems.

A multiple gating approach utilizes data from multiple assessments, sources, and settings in order to identify at-risk youth (Loeber, Dishion, & Patterson, 1984; Sprague, Walker, Stieber, Simonsen, & Nishioka, 2001; Walker & Severson, 1991). A multiple gating approach is also designed to minimize false positives and negatives. For example the Systematic Screening for Behavior Disorders (SSBD; Walker & Severson, 1991) has three gates that include: (1) teacher nominations, (2) teacher completed behavior rating scales, and (3) direct observations of student behavior on the playground or in the classroom. A multiple gating procedure begins with a cost-effective and relatively easy to administer screening procedure. Those students that pass through the first gate (i.e., are identified as being at-risk using the screening procedure) are assessed further. Within a multiple gating approach, the SEARS-SF could be considered the first gate within this type of procedure. Then those students identified at-risk using the SEARS-SF would be assessed further using the teacher version of the SEARS-SF or a broad-band measure of behavior (Achenbach & Rescorla, 2001; Reynolds & Kamphaus, 2004). Universal screening of social emotional behaviors may be best accomplished by schools assessing both risk and protective factors. The problem-solving process requires identification of problems as well as information about the students' skills and the contingencies within the school environment maintaining student behavior. A combined approach that includes a strength-based measure may better capture not only risk factors, but protective

factors such as peer friendships, engagement in productive activities, and teacher-student relationships impacting the student body as a whole and the resources of the school, integral to the development of Tier I supports (Doll & Cummings, 2008). Schools not only need to know what empirically supported screeners are available, but what combination of data provides a comprehensive, yet efficient, and cost effective means of assessing student performance and Tier I supports across a range of academic and social behavioral domains. Similarly, some of the data collected as part of this study (ODRs, attendance, grade point average) are also predictors, and could be combined to monitor the effectiveness of universal supports and overall ‘health’ of the school and district.

Universal school-based mental health screening is still in its early stages and only one component of a service delivery process. As such, this line of research lends itself to a collaborative effort between researchers, educators, families, community based service providers, and policy makers as school-based mental health programming needs to be aligned with values and resources of the community (Weist, et al., 2007) and ultimately lead to improved and valued outcomes. Careful consideration needs to be given to factors such as how to ensure parent and community involvement, protect students and family rights (e.g., consent and confidentiality), and proactively address legal and ethical considerations (Levitt, et al., 2007). Another common concern about universal mental health screening is that more students will be identified as requiring additional supports than a school currently has readily available. To address this concern, researchers should work closely with schools to identify resources within the school and community at the onset of a study. Finally, mental screening measures and procedures need to be feasible for schools to administer and include considerations such as associated costs and methods

used to manage and interpret data (Glover & Albers, 2007). The SEARS-SF takes only a few minutes to complete and measures student social and emotional skills and assets that are aligned with mental health programming. Despite these benefits, the cost and data management could pose potential barriers to a schools adoption of this measure as a mental health screener.

### **Conclusion**

In conclusion, this is one of, if not the first study to investigate a solely strength-based approach to mental health screening based on a three-tiered model of service delivery. The findings of this study were mixed, but did indicate that the approach used to identify students At-Risk and Not At-Risk did result in significant differences between the groups on well-established measures of social, emotional, and behavioral functioning (Achenbach & Rescorla, 2001; Kamphaus & Reynolds, 2007) six months later and students cumulative grade point average at the end of the school year. Significant differences were not found on measures of academic skills, absences, special education status, office discipline referrals, or gender.

Advocates for the integration of school-based mental health services propose that, ‘data should document the collective mental health needs of students in the district, research should guide the match between interventions and those needs, and evaluation should document the impact of the program of mental health services on children’s psychological wellness and success,’ (Doll & Cummings, 2008, p. 1334). This cycle of assessment, planning, intervention, and evaluation is aligned with three-tiered models emphasizing data-based decision making and linking assessment to intervention (Chard, Harn, Sugai, Horner, Simmons, & Kame’enui, 2008; Glover, 2010). To this end,

strength-based assessment is particularly relevant to treatment validity and how assessment measures guide interventions aimed at improving social emotional functioning and mental wellness. The strength-based approach used in this study shows promise as educators strive to ‘get ahead of the problem’ by measuring social emotional competencies associated with mental wellbeing and resilience, rather than the absence of mental illness or problems.

## APPENDIX A

### SOCIAL VALIDITY ITEMS: TEACHER VERSION

How important do you think a universal screening procedure is to identify students in need of mental health interventions?

1	2	3	4	5
not at all		somewhat		very important

To what extent do you think your students are able to rate themselves on their own social emotional strengths and personal assets?

1	2	3	4	5
not at all		somewhat		very good

How acceptable do you think it is to have students spend about 5 minutes during the school day to complete a short self-report form about their social and emotional well-being?

1	2	3	4	5
not at all		somewhat		very important

Which type of student behavior rating scale would you prefer to complete (check one):

- Strength-based:** These scales ask you to evaluate the students' skills and personal assets. Example items include: "Is kind towards others." "Identifies own feelings." "Asks for help." "Uses anger management skills."
- Deficit-based:** Items on these scales ask you to evaluate students on various types of problem behavior. Example items include: "Fidgets." "Breaks school rules." "Too fearful or anxious." "Teases a lot."
- No preference**

## APPENDIX B

### SOCIAL VALIDITY ITEM: STUDENT VERSION

How important do you think it is that your teachers and other adults help students with their problems? By problems we mean: not getting along with other students or adults, feeling lonely, or when students are having a hard time dealing with a something and feel stressed, sad, worried, or angry.

1	2	3	4	5
not at all important		indifferent (I don't care either way.)		very important

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