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Article

Neuroimaging and Traumatic Brain Injury:
A Primer for School Psychologists

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Advanced neuroimaging techniques are commonplace in the medical assessment of traumatic brain injury (TBI) and can provide additional information about children and adolescents with TBI that is not easily obtained through traditional neuropsychological or school-based psychoeducational assessment. In addition, advanced neuroimaging techniques are widely used in research on TBI. Having a working knowledge of advanced neuroimaging techniques can assist school psychologists as they consider school-based psychoeducational assessment data and consult with medical professionals about children and adolescents who have sustained a TBI. In addition, having a basic knowledge of advanced neuroimaging techniques can assist school psychologists as they review TBI research and consider its implications in their practice in the schools.

    Keywords: TBI, neuroimaging, school psychology, school psychologist, psychoeducational assessment.

It has been estimated that approximately 1.5 million children and adolescents between the ages of 0-19 will sustain and survive a traumatic brain injury (TBI) each year in the US (Jantz & Bigler, in press). Many of these children and adolescents will enter, or return to, the educational setting with mild to severe cognitive, emotional, social, and/or behavioral difficulties (Jantz, Davies, & Bigler, 2014). Of these children and adolescents, some will experience difficulties significant enough to warrant a school-based psychoeducational assessment.

Advanced neuroimaging techniques are regularly used in the acute, sub-acute, and chronic stages of TBI and are capable of revealing anatomical and structural pathology as well as the "underlying microscopic cellular and vascular pathologies that form the basis of all TBI" (Bigler & Maxwell, 2011, p. 63; Hunter, Wilde, Tong, & Holshouser, 2012; Jantz et al., 2014). For those children and adolescents with a TBI who undergo neuroimaging, neurological and radiological information is summarized in hospital/rehabilitation discharge records and neuropsychological reports. In addition, radiologists, or their technicians, have often captured select images that highlight the major

brain pathologies and these images can be obtained along with hospital discharge records. School psychologists conducting school-based psychoeducational assessments of children and adolescents with TBI routinely obtain hospital/ rehabilitation discharge records and neuropsychological reports that refer to neuroimaging results – they also consult with neurologists and radiologists – and information from these regularly drive school-based intervention decisions.

Having a basic familiarity with advanced neuroimaging techniques commonly used in TBI assessment can help school psychologists as they conduct school-based psychoeducational assessments of children and adolescents with TBI and make intervention decisions. As Jantz and Bigler (in press) illustrate, a student with a severe TBI and an outwardly "normal" appearance (no visible scarring, nor motor impairments, average to

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above average academic performance) can suffer significant social-cognitive deficits (e.g., social communication difficulties, self-direction difficulties) that traditional neuropsychological and educational testing fails to reveal. However, when neuroimaging is obtained and the observed structural and network damage is considered along with the school-based psychoeducational assessment data, a much different picture is presented. Although school psychologists are not expected to become, or replace, radiologists or neurologists, a basic understanding of the advanced neuroimaging techniques commonly used in TBI assessment will assist them when consulting with these professionals, reading/considering their summaries and reports, and/or incorporating the information into their school-based psychoeducational assessments and reports.

Advanced neuroimaging techniques are also widely used in TBI research across all severity levels (Beauchamp et al., 2011; Hunter et al., 2012; Zafonte & Eisenberg, 2012). School psychologists are trained to be consumers of research and "should be able to critique research that has implications for their practice and incorporate the findings of that research into their practice" (Huber, 2007, p. 782). Having a basic familiarity with advanced neuroimaging techniques commonly used in TBI research will help school psychologists better understand important TBI research relevant to their school-based practice. This paper will briefly review the medical assessment of TBI, advanced neuroimaging techniques commonly used in TBI assessment and research, examination of neuroimages, and the contribution neuroimaging can add to the school-based psychoeducational assessment of children and adolescents with TBI.

Medical Assessment of TBI

The number and types of brain scans performed when a TBI occurs reflects the severity of injury. Understanding what neuroimaging procedures are performed acutely, as well as during the chronic and post-injury phase, directly informs school psychologists about the nature and degree of the brain injury. In the mildest of injuries, often no neuroimaging is performed.

When a child with a TBI arrives at the hospital,

emergency department personnel gather relevant information, conduct medical/neurological examinations, and make treatment decisions. A vital part of this process is assessing the immediate medical needs of the child. For those with a more serious TBI, immediate life-sustaining medical interventions (e.g., maintaining an airway, controlling external bleeding) are addressed before performing diagnostic neuroimaging (Demetriades, 2009). After the child has been medically stabilized, neuroimaging will generally be ordered if the severity of bodily injury suggests there was sufficient mechanical force for possible brain injury or if there is a history of any of the following: loss of consciousness, amnesia, severe headache, Glasgow Coma Scale (Teasdale & Jennett, 1974) rating of <15 (Table 1), localizing signs (e.g., right-side hemiparesis), cerebral spinal fluid leaks, or penetrating head injuries (Demetriades, 2009). Typically, during this acute phase computed tomography (CT) will be obtained as the initial, and often only, neuroimaging study (Bigler and Maxwell, 2011).

Table 1 Glasgow Coma Rating Scale

Mild TBI	Moderate TBI	Severe TBI
GCS score: 13-15	GCS score: 9-12	GCS score: 3-8

For a child arriving at the emergency department with a mild TBI (mTBI), the same protocol regarding immediate medical needs (e.g., control of external bleeding) will be followed. After these needs have been met, emergency department personnel will assess the child for the following: presence of headache, vomiting, drug or alcohol intoxication, short-term memory deficit, injury above the clavicle, seizure, skull fracture, focal neurologic deficit, coagulopathy (impaired blood clotting ability), physical signs of a basilar skull fracture, GCS score less than 15, dangerous mechanism of injury (i.e., ejection from a motor vehicle, a pedestrian struck, a fall from a height of more than 3 feet or 5 stairs), failure to reach a GCS score of 15 within 2 hours of injury, suspected open skull fracture, or worsening neurological status (Jagoda et al., 2008). If any of these are present a

CT scan will usually be obtained, but since CT is an x-ray-based procedure, it will not be done unless clinically indicated in order to reduce radiation exposure – especially with children (Davis, 2007). If the CT findings are negative, the child is typically observed and if no obvious neurological or neurobehavioral changes are noted, the child is discharged from the emergency department with instructions for the parent to return if any of the following are observed: repeated vomiting, worsening headache, memory problems, confusion, focal neurologic deficit, abnormal behavior, increased sleepiness or passing out, and/or seizures (Jagoda et al., 2008). If any of these do occur, it may be an indication of a more significant injury, even if it remains in the mild range of injury severity.

Of the individuals with mTBI (GCS between 13-15) who receive a CT scan in the emergency department, less than a quarter of the CTs will reveal any type of abnormality and the vast majority of abnormalities within the mild spectrum of TBI require no neurosurgical intervention (Bigler, 2013). If CT abnormality is present, it is referred to as "complicated" mTBI. When CT neuroimaging fails to reveal trauma-related intracranial pathology (e.g., hemorrhage, contusion, edema) the TBI is referred to as an "uncomplicated" mTBI (Iverson et al., 2012).

A radiological summary containing a description of neuroimaging findings/ pathology is generally included in hospital/emergency department discharge records. These written medical records are directly available from the hospital records department, after obtaining appropriate signed parental release of records forms, and school psychologists should always include this information in their school-based psychoeducational assessment process. For example, if a child's medical records indicate that at the time of discharge, the child was placed on antiseizure medication, this information should be included in the psychoeducational report. In addition, as part of the school-based assessment process, the school psychologist should make contact with the child's parents and physician/neurologist in order to ascertain the child's current seizure and medication status and consider all educational implications.

Furthermore, it is the author's experience that radiologists or their technicians will capture images that highlight the major pathologies, the viewing of which can assist school psychologists in better understanding the extent of the anatomical damage from a brain injury. For example, these images can reveal the extent of damage caused by a penetrating injury (see Figure 2).

Neuroimaging Computed Tomography

CT is by far the most common initial neuroimaging assessment of a TBI patient (Bigler and Maxwell, 2011). CT is used at this point because it is sensitive to detecting skull fractures, contusions, internal hemorrhaging, and brain tissue swelling and in evaluating penetrating brain injuries whether or not any intracranial foreign objects are present. It is also readily available in most hospital settings and generally, if contrast medium is not used, its quick acquisition speed allows the entire process from beginning to end (positioning, obtaining a prerequisite scout film, CT of entire brain) to be completed within minutes. It also does not require that the child be sedated (Hunter et al., 2012). CT neuroimages obtained during the acute phase most typically are acquired on the day of injury, generally referred to as "DOI CT scans." Despite widespread use for DOI assessment, CT is not without drawbacks and limitations (Bigler, 2010; Bigler & Maxwell, 2011; Davis, 2007; Hunter et al. 2012). Because DOI CT scans are generally taken within the first few hours after injury, they will not indicate pathology that evolves subsequent to the acute injury. For example atrophy, either focally or globally, takes days to weeks to be expressed and therefore is not detected in acute neuroimaging. The limited resolution of CT is also problematic because it does not readily detect more subtle injuries such as small hemorrhages associated with subtle tearing of brain tissue, and its supporting vasculature, that commonly occurs at the gray-white matter junction or within deep white matter structures (called petechial hemorrhages) in TBI. In fact, a recent study by Yuh et al. (2013) demonstrated that DOI CT found only about half of the abnormalities detected by magnetic resonance imaging (MRI) in mTBI. Likewise, in a study by Hanten et al. (2012) none of the mTBI participants had DOI CT
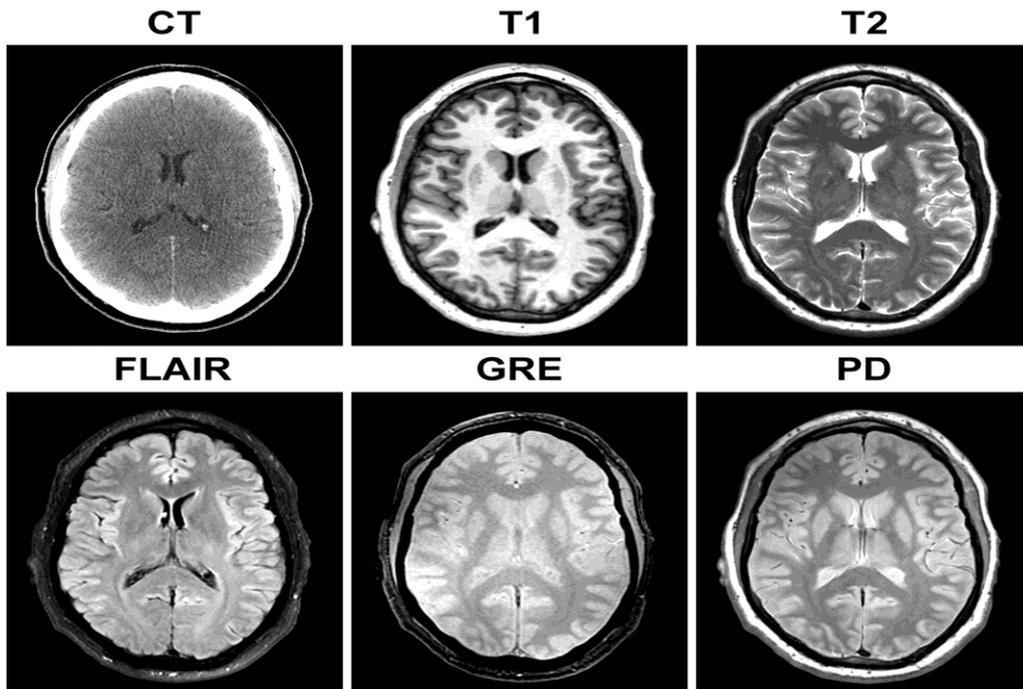
Figure 1. Side by side comparison of computed tomography (CT) and magnetic resonance imaging (T1, T2, FLAIR, GRE, PD). When comparing the CT image to the MRI images, the anatomical clarity of the MRI images becomes strikingly evident, as do the results of the different MRI acquisition methods. That is, tissue and CSF appears brighter or darker depending on the method used. Each of these axial plane images are of the same individual and were obtained at the same level. Image courtesy of Erin D. Bigler, Ph.D., Brigham Young University.

abnormalities; however, about a third were shown to have clinically significant MRI findings when scanned on follow-up three months later.

Magnetic Resonance Imaging

MRI is generally used in a clinical and diagnostic problem-solving capacity during the sub-acute and chronic phases of a TBI, or during the acute phase if neurological findings cannot be explained by CT findings (Le & Gean, 2009). This is due primarily to the sensitivity of MRI in detecting delayed-onset pathology (e.g., edema, hemorrhage) and better resolution of white and gray matter structures and boundaries that define anatomical regions of interest – as well as location of traumatic axonal injuries (including diffuse axonal injury), brainstem injury, and changes in deep white and gray matter structures that reflect injury (Provenzale, 2007). The magnetic resonance

image is derived from detecting radio frequency (RF) wave differences in hydrogen atoms, in particular the protons that make up water within all tissue, by manipulating the electromagnetic field, referred to as the pulse sequence (Bitar et al., 2006; Wilde et al., 2012). The manipulated hydrogen protons produce RF signal differences depending on the magnetic environment of the tissue and the density of the hydrogen protons that are present, which is reflected in signal intensity. These RF signals are then processed using advanced computer software programs to produce a final digital image. The intensity of the generated signal determines how bright or dark tissue appears on the final image – depending on the pulse sequence. As illustrated in Figure 1, different pulse sequences lead to different sensitivities in the MRI showing different aspects of brain anatomy or pathology (Wilde et al., 2012).

T1-weighted scans tend to show better anatomical detail than T2-weighted scans, which
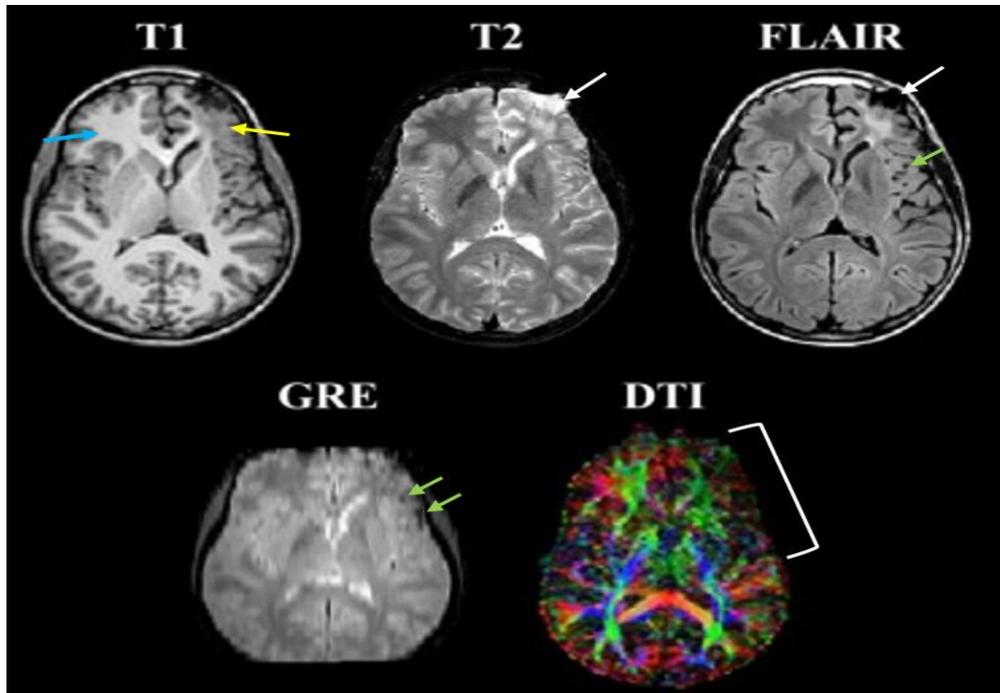
Figure 2. DTI illustration. This clinical MRI series shows an adolescent with a severe penetrating TBI 10 months post-injury. Note how the T1, T2, FLAIR, and GRE show different aspects of the same brain anatomy or pathology. For example note how clearly the T1 axial image (upper left) shows damage to the frontal white matter (yellow arrow) on one side compared to the other side (blue arrow). Note how focal damage from the penetrating injury appears white in the T2 image (white arrow) and black in the FLAIR image (white arrow). Note how hemosiderin left over from hemorrhagic contusions and/or shearing injury shows up as black dots on the FLAIR and GRE (green arrows). Finally, note duller colors in the frontal area of the axial DTI image on the bottom right indicating severe disruption to the white matter tracks (white bracket). Image courtesy of Erin D. Bigler, Ph.D., Brigham Young University.

better show pathologic abnormalities as well as regions that house cerebrospinal fluid – along with where pathological accumulations of cerebral spinal fluid (CSF), or edematous changes, have occurred. An MRI sequence that is very sensitive to revealing white matter pathology is fluid attenuated inversion recovery (FLAIR). Another, gradient recalled echo (GRE), is very adept at showing byproducts left over from bleeding (i.e., hemosiderin, ferritin), especially the susceptibility weighted image sequence (SWI), which is a type of GRE sequence. Yet another MRI sequence technique particularly sensitive to showing integrity of white matter is diffusion tensor imaging (DTI). The DTI technique can also be used to extract information about specific white matter tracts in the brain and their connectivity between regions (Figure 2). For those children and adolescents sustaining moderate or severe TBI, a standard clinical MRI sequence will likely include T1, T2, GRE (or SWI), FLAIR, and DTI. Despite its value in identifying TBI- induced pathology, MRI has limitations (Davis, 2007). For example, MRI equipment is not always available, MRI is very sensitive to movement, and metal (e.g., surgical clips, orthodontic braces) distorts the image and cannot be performed in individuals with certain life-sustaining or monitoring equipment.

It is important to note that there are other neuroimaging techniques used in the assessment of TBI. However, due to expense and/or the need for specialized equipment not typically found in a hospital emergency department, these are reserved for use in research (Hunter et al., 2012). These include, but are not limited to, single photon emission computerized tomography (SPECT), positron emission tomography (PET) and magnetic resonance spectroscopy (MRS), and functional magnetic resonance imaging (fMRI).
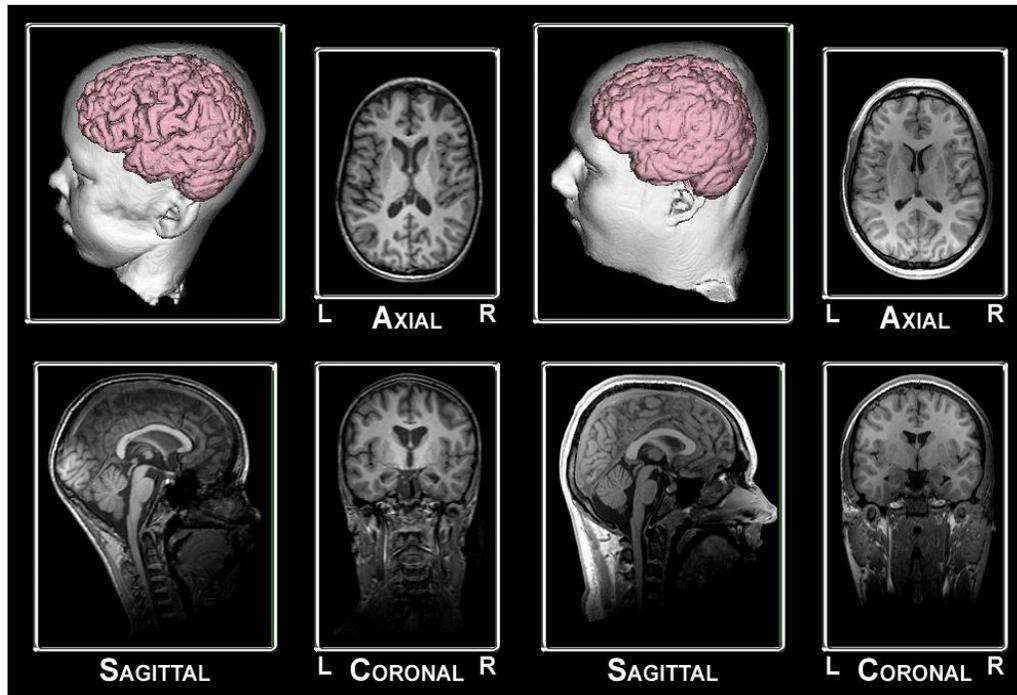
Figure 3. Side by side comparison of standard neuroimaging planes and 3-D image of an adolescent with a severe TBI (left) and control. Because this sequence contains a 3-D reconstruction, the images are presented in a non-radiological (anatomical) orientation (i.e., right is right and left is left). Image courtesy of Erin D. Bigler, Ph.D., Brigham Young University.

Examination of Neuroimages

Neuroimages are typically generated along one of three standard planes: axial, coronal, or sagittal (Figure 3). If the image acquisition includes thin-slice and no gap between images they can be combined to form a 3-D image. Unless otherwise indicated, the orientation of the axial and coronal images will be that of the "radiological" view. That is, the right side of the image will be the left side of the brain, and vice versa, except when a 3-D image of the brain is used (Figure 3). When axial and/or coronal images are used in combination with 3-D images, they are generally referred as being "anatomical" views and the right side of the image is the right side of the brain and the left side of the image is the left side of the brain.

There are two straightforward premises to remember if opportunity arises to examine images of the brain: symmetry and similarity. In the normally or typically developed brain the left hemisphere will mirror the right hemisphere in appearance and structure (symmetry) in the axial

and coronal planes (see Figure 1) and normal brain structure will generally approximate each other (similarity – note how in Figure 3 the general appearance of the typically developing adolescent's brain appears next to the child with severe TBI). Put differently, if you see something in the left hemisphere you should also see it in the same spot in the right hemisphere, it should look about the same, and it should be similar to every normal brain you look at. Noticeable dissimilarities generally indicate brain abnormalities–especially when they coincide with descriptions in medical records. These two principles will hold true across the life span and make looking at images of the brain a straightforward process. When viewing DTI scans (Figure 2), orange or red colors represent white matter fiber tracts that project laterally, green colors represent white matter tracts that project anteriorly to posteriorly, and blue colors represent vertically projecting white matter tracts. While school

psychologists are not expected to be experts in the reading of neuroimaging, remembering these basic guidelines will assist them in identifying areas of brain abnormality that have been described in medical reports, or if shown in images, and incorporated into their school-based psychoeducational evaluations.

It should be noted that neuroimaging results obtained from hospital records departments are placed on a cd-rom disc that typically includes a viewing program, the diagnostic imaging, and the radiologist's report.

Neuroimaging and School-Based Assessment

During the school-based psychoeducational assessment of children or adolescents with TBI, neuroimaging, and a basic working knowledge of neuroimaging, can provide school psychologists with a common nomenclature and context when consulting with medical professionals (e.g., neurologists, radiologists) or reading discharge summaries and neuropsychological reports. In addition, neuroimaging can assist school psychologists when, outwardly, a child or adolescent with a TBI appears "fully recovered" from his or her injury (Jantz & Bigler, in press) – that is, when a child or adolescent, known to have sustained a moderate or severe TBI, does not exhibit motor (e.g., paralysis) or physical (e.g., scarring) abnormalities. Jantz and Bigler (in press) have noted that due to the influences of the halo effect (Thorndike, 1920) a child or adolescent can be judged to have fully recovered from a TBI if they lack outwardly visible signs, despite the contrary report of others (e.g., reports, discharge summaries). In addition, Jantz et al. (2014) state that recovery from TBI is on a continuum and refers to the degree to which a person has returned to premorbid levels of functioning. They further state that complete recovery from a moderate or severe TBI is highly unlikely, paper and pencil assessment instruments are not always sensitive to subtle TBI-related deficits, and the degree of recovery following injury can be mistakenly overestimated based on goal attainment rather than how the goal was attained (e.g., assuming a child no longer has memory deficits because she remembers to write down her assignments in a memory aid). In circumstances like these, neuroimaging can add perspective to the interpretation of recovery, paper and pencil assessments, and goal attainment by reminding school psychologists that pathology noted in neuroimaging represents destruction of brain tissue, structures, microscopic cells, and/or vasculature – damage that is irreversible. The visual reminder of neuroimaging helps school psychologists (in addition to teachers and parents) fully appreciate the extent to which a child or adolescent's brain had been damaged and helps them remember to interpret a child or adolescent's level of recovery, test results, or goal attainment with caution.

As school psychologists increase their basic working knowledge of TBI-related neuroimaging techniques and learn to "read" neuroimages, they acquire a valuable tool that can be incorporated into the school-based assessment of TBI. That is, observable damage in a neuroimage can present a piece of objective data capable of supporting less quantitative data. For example, neuroimaging that reveals damage to the hippocampus (an area known to be associated with working memory) can help support a child's complaint that he has difficulty "remembering things" in math class. This can be helpful when cognitive testing in the area of short-term memory is unremarkable. This type of discrepancy can easily occur when the sustained attentional demands in the classroom setting are absent during the administration of an individual cognitive subtest.

Summary

Advanced neuroimaging techniques are widely used in the medical assessment of TBI and summarized in hospital/ rehabilitation discharge records and neuropsychological reports. Select neuroimages highlighting brain pathology are often available and incorporation of neuroimaging findings into the school-based psychoeducational assessment of TBI has been shown to be of value (Jantz & Bigler, in press). In addition, advanced neuroimaging techniques are used extensively in research on TBI. Having a rudimentary knowledge of advanced neuroimaging techniques can aid school psychologists as they consider TBI school-based psychoeducational assessment data and consult with medical professionals about children

and adolescents who have sustained a TBI. In addition, having an elementary knowledge of advanced neuroimaging techniques can assist school psychologists as they review TBI research and consider its implications in their practice in the schools.

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Article

Critical Features for Identifying Function-Based Supports: From Research to Practice

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This paper heeds the call from the field to scale down the rigorous procedures involved in developing behavioral interventions (Scott, Alter, & McQuillan, 2010) and presents a practical guide for school personnel to use research-based critical features to design effective behavioral interventions based on why students engage in problem behaviors (i.e., the function of student behavior). Research-based critical features of function-based supports for school personnel to use data from functional behavioral assessments (FBA) to guide the development of individualized behavior support plans are presented. Two case examples will illustrate the critical features for developing function-based supports.

Keywords: Function-based supports, behavior support, antecedent interventions, alternative behaviors, consequence strategies

Students with behavioral concerns continue to pose a significant challenge to classroom instruction and student safety in schools. Though a robust research literature and federal legislation have promoted the use of *functional behavioral assessment* (FBA) to guide development of *positive behavior support plans* for over 15 years (IDEA, 1997), schools still struggle with effective implementation to support students with challenging behavior. Several studies (e.g., Blood & Neel, 2007; VanAcker, Boreson, Gable, & Potterton, 2005) have found one of the most common problems in the behavior support planning process is that school teams are not using assessment information about the function of student behavior to directly inform interventions in the behavior support plan. One reason may be school personnel lack sufficient training in how to identify interventions based on the function of behavior (Ervin, Radford, Bertsch, & Piper, 2001).

Another challenge may be the limited agreement in the field regarding consensus on the critical features for identifying function-based interventions in schools (Fox & Gable, 2004). This paper presents research-based critical features of function-based supports that have been empirically demonstrated as effective in training typical school-based personnel to identify interventions directly addressing the function of student problem behavior (Borgmeier, Loman, Hara, & Rodriguez, 2014; Strickland-Cohen & Horner, in press). Two case examples will illustrate the critical features for developing function-based interventions.

Function-based supports are individualized interventions developed through the process of conducting an FBA (Carr et al., 2002). The FBA process usually involves interviews, rating scales, and direct observations conducted by trained school professionals. Based on data collected in the FBA, an antecedent − behavior − consequence (A-B-C)

sequence is outlined by a summary statement that specifically identifies: (a) when and where problem behavior occurs and the environmental variables that consistently trigger problem behavior (i.e., context and antecedents); (b) an operational definition of the problem behavior; and (c) the maintaining consequences that follow the problem behavior(s) suggesting why a student engages in the identified problem behavior (i.e., function; for a more comprehensive review of how to conduct FBA see Crone & Horner, 2003 or O'Neill et al., 1997). Function-based supports are designed using the FBA summary statement to guide the development and/or selection of interventions that prevent problem behavior while promoting desired outcomes for students.

Since FBA was mandated in 1997, several books and manuals have been published with the intent to teach function-based interventions (e.g., Chandler & Dahlquist, 2010; Crone & Horner, 2003; O'Neill et al., 1997). Additionally, many states and school districts have developed training models to teach school-based personnel to conduct FBAs (Browning-Wright et al., 2007). These texts often present "critical features" for developing behavioral supports for students with the most significant behavioral concerns. However, this paper will heed the call from the field to "scale down" (Scott et al., 2010) the focus of function-based intervention to the basic features to guide school personnel in the development of function-based supports for students with mild to moderate behavioral problems. Therefore, setting events (events occurring outside of the school that may affect student behavior) and corresponding strategies have intentionally been omitted from the critical features presented to emphasize interventions that school staff may implement to immediately improve the environment, curriculum, and instruction affecting student behavior.

A function-based support plan should include components that (a) address antecedent triggers to prevent problem behavior, (b) teach alternative and desired behaviors, and (c) identify appropriate responses to desired and problem behaviors. Figure 1 illustrates the A-B-C sequence and how function plays a pivotal role in designing prevention strategies, teaching alternative or replacement behaviors, and responding to both desired and

problem behaviors. In Figure 1, antecedents are defined as events or stimuli that immediately precede or trigger problem behavior. Behavior is the observable behavior of concern (i.e., problem behavior). Consequence is defined as the consistent response to the problem behavior that reinforces the behavior. This logic is based on applied behavior analytic literature (e.g., Horner, 1994) suggesting function is where problem behavior intersects with the environment to affect learning. Given this logic, an individual exhibiting problem behaviors has learned: "Within a specific situation 'X' (context), when 'A' (antecedent is present) if I do 'B' (problem behavior), then 'C' (the maintaining consequence) is likely to occur." Through experience (and repetition) the individual learns that the problem behavior is effective or "functional" for meeting their needs. Therefore, the individual is likely to continue to engage in the problem behavior under similar circumstances. Based on this model, the function of an individual's behavior should guide the selection of each component intervention (prevention, teaching, and consequence strategies) within a positive behavior support plan.

Using Assessment to Guide Function-Based Supports

Function-based supports are developed using a clear, detailed summary statement from the FBA (outlining the antecedents, behaviors, and maintaining consequences within a specific routine/context). This summary statement should be framed within a specific routine or context because similar behaviors often serve different functions for the student in different contexts. For example, a student may predictably hit a peer during round robin reading so he can be sent to the back of the room to avoid reading failure in front of peers, and he may also regularly hit a peer at recess so the peer quits teasing him. Once the team has established a clear understanding of the problem behavior and the environmental features predicting and maintaining problem behavior in a given context, then they can develop function-based interventions.

Above the dotted line in Figure 2, a Competing Behavior Pathway (O'Neill et al., 1997) visually frames the FBA summary statement to guide function-based support planning. The FBA
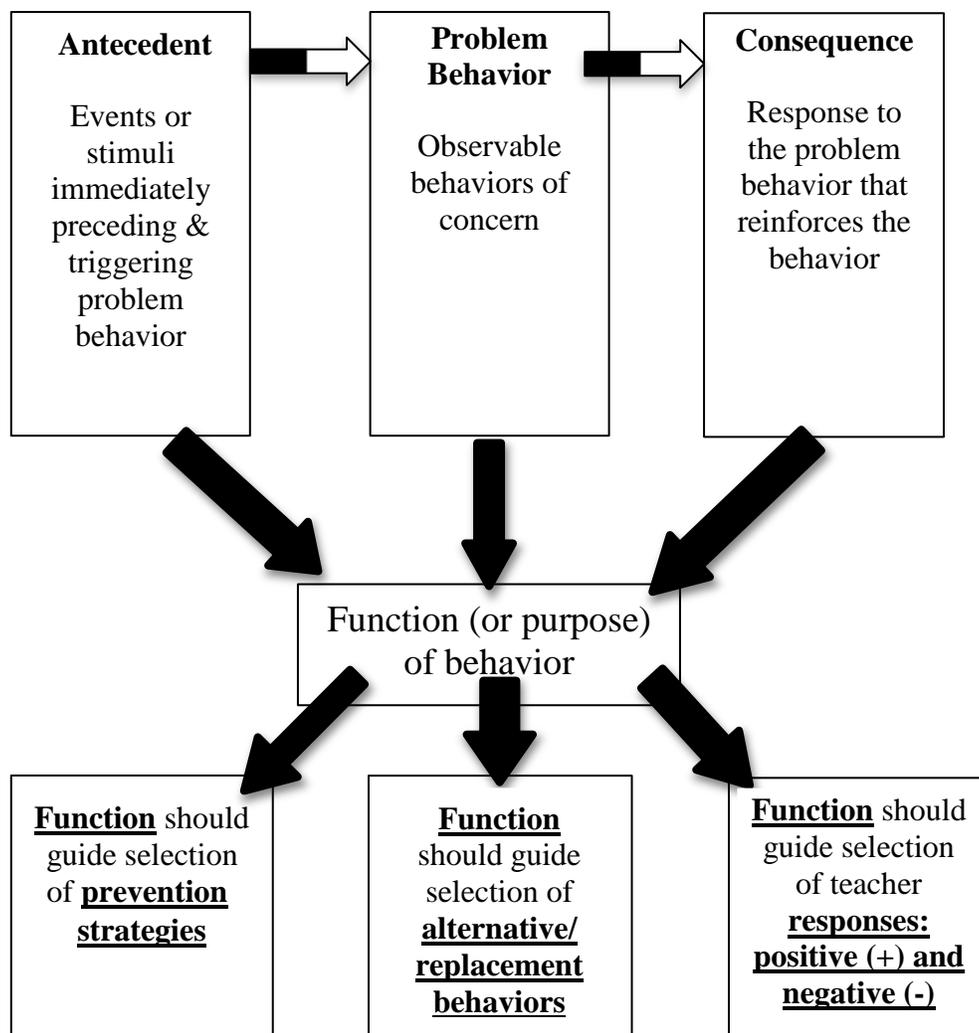
Figure 1. Using Function to Develop Interventions to Change Behavior

summary statement or hypothesis forms the center of the Competing Behavior Pathway (the antecedent(s), problem behavior(s), and maintaining function of student behavior) for a prioritized routine or context. Within the Competing Behavior Pathway the summary of behavior is used to inform identification of the alternative behavior and desired behavior. Each is defined in Figure 2.

A completed example of the FBA summary statement in Figure 3 should read, "During math (routine/context) when Nathan is asked to work independently on a double digit multiplication worksheet (antecedent), he fidgets, gets off task, uses foul language, slams his book, and picks on peers (problem behavior), which typically results in

the teacher asking Nathan to leave the room and go to the principal's office (consequence). It is hypothesized Nathan's behavior is maintained by escaping the independent math worksheet (function; the "why" or "pay-off").

The completed FBA summary statement for Abby in Figure 4 should read, "During carpet time (routine/context) when the whole class is receiving instruction and Abby is asked to sit quietly in her carpet square for more than five minutes (antecedent), Abby fidgets and disrupts the class by yelling or wandering around the room (problem behavior), which typically results in Abby's teacher chasing her around the room, asking her to be quiet, and scolding her about how to behave

Routine/Context: Prioritized Time & Place Where Problem	(1) Desired Behavior (Long-term Goal) Behavior *expected* when antecedent stimuli are present	(2) Consequence/ Typical Outcome Natural outcome when expected behavior occurs

Antecedent

Events or stimuli immediately preceding and triggering problem behavior

Problem Behavior

Observable behaviors of concern

Consequence (Outcome)
Response to the problem behavior that reinforces the behavior

Function (Why/Student Pay-off)

Meaningful outcome of problem behavior from student perspective

(3) Alternative Behavior (Short-term Goal)

Replacement behavior individual can use to obtain same functional reinforcement as problem behavior

(A) Manipulate Antecedent to prevent problem & prompt alternate/desired behavior	(B)Teach Behavior Explicitly Teach Alternate & Desired Behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Alt./Expected Behavior	(D) Problem Behavior
Intervention should: □ Directly address the identified antecedent □ Directly address the function of problem behavior	Provide explicit instruction of the alternate behavior(s) that: □ Serves the same function as problem behavior □ Is as easy or easier to do than problem behavior □ Is socially acceptable Explicitly teach skills necessary to engage in desired behaviors or approximations thereof:	Include an intervention to reinforce the: □ Alternative behavior & □ Desired behavior or approximations toward the desired behavior Ensure reinforcers are valued (use function to guide selection of reinforcers as appropriate) Set up Reinforcement Schedules based on reasonable expectations and timeframes	Prompt the alternative behavior at the earliest sign of problem behavior Eliminate or limit access to reinforcement for engaging in problem behavior

Figure 2. Competing Behavior Pathway with Definitions of Critical Features

Student _____Nathan_____

Context: Math

Antecedent/Trigger

Independent work during Math: When asked to work independently on a double-digit multiplication mathematics worksheet

(1) Desired Behavior:
Complete task quietly & independently

(2) Typical Consequence:

Success; more assignments

Problem Behavior

Student fidgets, goes off-task, uses foul language, slams his book, and picks on other peers.

Consequence/Function

Escape difficult math task

 Teacher responds by asking Nathan to leave the room and go to the principal's office, therefore escaping the academic task at hand.

(3)Alternative/ Replacement Behavior
Ask to take a break from the academic task

(A) Manipulate Antecedent to prevent problem & prompt alternate/desired behavior	(B) Teach Behavior Explicitly Teach Alternate & Desired Behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Reinforce Alt./Expected Behavior	(D) Problem Behavior
Decrease the difficulty of the math worksheet, intersperse easier addition, subtraction and single digit multiplication problems with double digit multiplication problems Provide an example of sequence of steps for completing double digit multiplication problems for student to reference Help Nathan get started with first double digit multiplication problem	Teach student to turn paper over to signal he will take a break from the academic task Teach student to ask for help on problems he does not understand Teach student to cross out double digit multiplication problems he does not want to do and go on to next problem	Student can earn homework passes after completing so many academic tasks (i.e. 4 completed tasks = 1 homework pass) Reinforce student for asking to take a break with a short 2-minute break from the task	Prompt student to ask to take a break when he begins to display problem behavior Have student spend after school time on task if he displays problem behavior during class

Figure 3. Example of Nathan's Function-Based Support Plan

Student _____ Abby ___

Context: Carpet Time

(1) Desired Behavior: Participate in turn and engage quietly

(2)Typical Consequence: Infrequent teacher attention; success at carpet time

Antecedent/Trigger

Whole class instruction during carpet time: When asked to sit quietly in her carpet square and listen for long periods of time (5-6 minutes)

Problem Behavior

Student fidgets, looks around room, then disrupts class by screaming/yelling, or getting up and wandering around the room.

Consequence/Function

Obtain teacher attention

Teacher focuses her attention toward Abby by chasing her around the room or asking her to be quiet. Often, teacher talks with Abby about the right and wrong way to behave.

(3) Alternative/ Replacement Behavior
Raise hand and ask to speak or move around the room

(A) Manipulate Antecedent to prevent problem & prompt alternate/desired behavior	(B) Teach Behavior Explicitly Teach Alternate & Desired Behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Reinforce Alt./Expected Behavior	(D) Problem Behavior
Check-in with Abby during transition to carpet time to provide brief 1:1 attention

Make Abby "teacher's helper" and give her jobs providing teacher interaction

Move student's carpet square closer to the teacher so it is easier for the teacher to notice and provide attention for on-task behavior (see Reinforcement strategy) | Teach student to raise her hand and ask to speak with the teacher

Provide social skills instruction focused on appropriate adult interactions (e.g. conversation started, eye contact, smiling) and increasing endurance for spans of time with limited attention. | Provide regular frequent attention for on-task behavior

Student gets "special teacher time" if she displays appropriate behaviors in class

Student gets to talk to teacher when asking appropriately | Prompt student to ask to speak to teacher at earliest signs of disruptive behavior (fidgeting)

Have student spend time in the designated "time-out" zone if problem behaviors continue to persist. |

Figure 4. Example of Abby's Function-Based Support Plan

(consequence). Given this information, it is hypothesized that Abby's disruptive behaviors are maintained by obtaining teacher attention (function; the "why" or "student pay-off").

Selecting Function-Based Interventions

Using the FBA summary statement, the first step to developing a function based support plan involves identifying the (1) desired behavior (long- term goal) and (2) the natural reinforcers resulting from this behavior (what typical students receive for performing this behavior; labeled 1 and 2 in Figures 2, 3, & 4). The next step is identifying an alternative behavior (short-term goal; labeled 3 in the figures) to achieve the same function as the problem behavior (Carr, 1997). Once the alternative and desired behaviors have been identified, the focus shifts toward the identification of function-based interventions. Following identification of the alternative and desired behaviors, the next focus is teaching these behaviors. The individual should be provided explicit instruction of how and when to use the alternative behavior appropriately as well as explicit instruction of the skills (or progression of skills) necessary to engage in the desired behavior (O'Neill et al., 1997). Explicit instruction of the alternative behavior and skills supporting the use of the desired behavior should be paired with antecedent and consequence interventions. Antecedent interventions modify the events or stimuli triggering the problem behavior to prevent problem behavior and concurrently prompt the alternative and/or desired behaviors. Then, procedures for reinforcing alternative behaviors and desired behaviors should be identified in such a way that the student receives valued reinforcement based on reasonable expectations and timeframes. Finally, responses to redirect problem behavior and eliminate or reduce the pay-off for problem behavior should be identified. The specific critical features of each of these components of a function- based support plan will be presented in the following sections and are summarized in Figure 2.

Critical Features of Function-Based Alternative Behaviors

Begin the function based support plan by developing a clear definition of what the student should do (versus what not to do). Very often a skill deficit (e.g. academic, social, organizational, communication) prevents the student from being able to regularly perform the desired behavior (long-term goal) right away. In Nathan's example (see Figure 3), the desired behavior is for him to independently complete double-digit multiplication problems, but he currently lacks the skills to perform this task. Until this academic skill deficit is bridged, he is more likely to need a way to avoid or escape a task he cannot complete. Nathan is likely to continue to engage in, or escalate problem behavior, to avoid the difficult math task, *unless* he is provided another way (alternative behavior) to have this need met.

An alternative behavior is an immediate attempt to reduce disruption and potentially dangerous behavior in the classroom. The alternative behavior should be viewed as a short-term solution to reduce problem behavior that provides a "window" for teaching and reinforcing the skills necessary to achieve the long-term goal of the desired behavior(s). To facilitate decreased problem behavior, it is important the alternative behavior meets three critical criteria: ***the alternative behavior must serve the same function (or purpose) as the problem behavior*** (Sprague & Horner, 1999), ***be as easy as or easier to do than the problem behavior*** (Horner & Day, 1991) and ***be socially acceptable*** (Haring, 1988). In the early stages of behavioral change it is recommended to closely adhere to these criteria as one works to convince the student to stray from the well- established habit and pathway of the problem behavior and commit to a new alternative behavior to access the desired reinforcer. Over time, the alternative behavior will be amended to increasingly approximate the desired behavior (long term goal). In the initial stages, however, it is important to ensure the student perceives the alternative behavior as an efficient way to have their needs met or they are not likely to give up the problem behavior.

According to the FBA summary statement for Nathan (Figure 3), he fidgets, gets off task, displays foul language, slams books, and picks on peers to escape difficult math tasks. The alternative behavior for Nathan must allow him to escape the difficult math task (serve the same function as the problem behavior). Asking for a break addresses this function and requires less energy than the series of

tantrum behaviors described earlier (*easier*). Additionally, requesting a break is more *socially acceptable* than throwing a tantrum consisting of foul language and throwing materials in class.

In Figure 4, the FBA summary indicates Abby is disrupting the class to access teacher attention. A reasonable long-term behavioral goal for Abby is she would quietly listen during carpet time, participate when it is her turn, and seek attention at appropriate times. The first step to help Abby toward her long-term goal is to select an alternate behavior that meets the three critical features. First, the alternate behavior should *serve the same function as the problem behavior*. In this case, Abby is engaging in disruption to access teacher attention. A more appropriate way to request teacher attention is to raise her hand. Raising her hand to request attention should be *as easy as, or easier, to do* than the disruptive behaviors and should be *socially acceptable behavior* according to Abby's teacher.

The main goal of a function-based support plan is overcoming an established habit and pattern of learning in which the individual uses a problem behavior because it is functional (i.e., achieving a pay-off). The initial alternative behavior should be markedly easier to do and more efficient in its pay-off than the problem behavior. Otherwise, the individual may be less likely to abandon the "tried and true" problem behavior for the new alternative behavior.

Teaching the Alternative Behavior, Desired Behavior, and Approximations

Teaching is a critical component of all function-based interventions. Explicit instruction is encouraged to promote fluency and use of the alternative behavior and the desired behavior. Explicit instruction increases the likelihood that the individual understands when, how, and where to use the alternative behavior, as well as the pay-off for using the alternative behavior (i.e., the same functional outcome as the problem behavior). Ideally, instruction occurs with the person(s) and in the setting in which use of the alternative behavior will occur. Although the alternative behavior is a starting point, it is a short-term solution, and over time the focus should shift toward increasing use of the desired behavior.

When teaching to promote use of the desired behavior(s) it is important to understand the extent of the discrepancy between a student's current skills and the desired behaviors. If there is a large discrepancy, it may be necessary to identify a progressive instructional plan including instruction of necessary prerequisite skills and a series of approximations toward the desired behavior. The sequence of approximations toward the desired behavior would increasingly challenge the student to take greater responsibility (increasing independence and self-management) to access the reinforcers. Over time, instruction in the skills promoting use of the desired behaviors would provide increasing access and exposure to natural reinforcement for engaging in the desired behavior.

For example in Nathan's case, we could conduct an assessment to identify Nathan's specific skill deficits and instructional needs in math. Then the behavior specialist would teach Nathan to raise his hand and request to "take a break" appropriately instead of using foul language and slamming books to avoid work. While Nathan begins to break the habit of using the problem behavior, we will provide instruction in multiplication and the prerequisite skills necessary for Nathan to be able to perform the math worksheets independently (desired behavior). As Nathan builds mastery in the necessary math and multiplication skills, the need to rely on the alternative behavior to avoid tasks should reduce. Instruction to address the underlying math deficits should ultimately eliminate the need for student problem behavior.

As Nathan demonstrates fluency with requesting breaks appropriately and refraining from foul language and book slamming, we would increase the expectation for requesting breaks. Instead of giving breaks freely, we might limit Nathan to three break tickets during math, and if he has any leftover tickets he can cross off two problems from his worksheet. As Nathan's math skills increase, the expectation may be that he finishes at least five problems before he can request a break. When first increasing expectations and student responsibility, it is often necessary to increase reinforcement for engaging in the desired behavior to motivate the student to take the next step. As Nathan's math skills increase and he can complete more problems, he is also accessing the natural reinforcement of

pride in work completion. At first it is important to make this explicit by praising student progress, effort, and work completion by saying such things as, "You should be really proud of how many problems you completed today."

In Abby's case, she would need explicit instruction and practice in raising her hand and requesting attention. Requesting attention appropriately and reducing disruption are important, but over time it will be important to increase time between requests for attention to a schedule that is reasonable for the teacher. The next approximation may be to systematically reduce the number of requests for attention (three per carpet time to two, etc.). Additional social skills instruction on appropriate ways (e.g. conversation starters, eye contact, smiling) and times to obtain adult attention should increase Abby's access to positive social attention during non-instructional times. Increasing specific social skills paired with incentives (e.g., earning a game with an adult) for fewer requests for attention during instructional times will help Abby increase her endurance during instructional times and reduce her need to solicit attention so frequently. Increased positive interactions and relationships with adults (the natural reinforcers) should increase and maintain social skill use.

Critical Features of Function-Based Prevention Strategies

The next step in developing a function-based support plan is to determine strategies to prevent the problem behavior. These include antecedent strategies that alter the triggers to problem behavior. The literature suggests critical features for prevention strategies that: (a) *directly address the features of the antecedent (e.g., task, people, environmental conditions) that trigger the problem behavior* (Kern, Choutka, & Sokol, 2002) and (b) *directly address the hypothesized function of the problem behavior* (Kern, Gallagher, Starosta, Hickman, & George, 2006).

Nathan (Figure 3, column A) is engaging in problem behavior when presented with double-digit multiplication worksheets (antecedent) to avoid difficult math tasks (function), prevention strategies could include reducing the difficulty of his

assignment by interspersing double digit multiplication problems with addition, subtraction, and single digit multiplication problems with which he can be more successful. When this is done, his need to engage in problem behavior to escape the task is prevented or reduced. A number of other prevention strategies have been shown to address escape-motivated behaviors such as: (a) to pre-correct desired behavior (Wilde, Koegel, & Koegel, 1992); (b) clarify or simplify instructions to a task or activity (Munk & Repp, 1994); (c) provide student choices in the activity (Kern & Dunlap, 1998); (d) build in frequent breaks from aversive tasks (Carr et al., 2000); (e) shorten tasks (Kern & Dunlap, 1998); (f) intersperse easy tasks with difficult tasks (Horner & Day, 1991); and (g) embed aversive tasks within reinforcing activities (Carr et al., 1994). Choosing the most appropriate intervention will depend on the specific antecedent and function of behavior identified in the FBA summary.

Abby (Figure 4, column A) engages in disruptive behavior when asked to sit quietly and listen with limited adult attention for five or more minutes at a time (antecedent) to obtain teacher attention (function). Prevention strategies directly linked to this function would provide Abby with frequent teacher attention prior to problem behavior, such as a check-in during transition to carpet time, giving Abby jobs as teacher helper, and seating her near the teacher so it is easier to periodically (every three to four minutes) provide her with attention. These strategies directly address the antecedent by reducing longer spans of time in which Abby is not receiving adult attention. Prevention strategies that have been effective at addressing attention-maintained behaviors include: (a) use of peer-mediated instruction (Carter, Cushing, Clark, & Kennedy, 2005); (b) self-management strategies where student monitors their behavior to recruit feedback from the teacher (Koegel & Koegel, 1990); (c) provide assistance with tasks (Ebanks & Fisher, 2003); and (d) provide the student with the choice of working with a peer or teacher (Morrison, Rosales-Ruiz, 1997). Once again, choosing the most appropriate prevention strategies will require a match to the specific antecedent and function of behavior identified in the FBA summary statement.

Critical Features of Function-Based Consequence Strategies

Once teaching and prevention strategies have been selected, the next critical step is to determine strategies to reinforce appropriate behavior and minimize or eliminate payoff for problem behavior. Although many people associate the word "consequence" with a punitive response, in behavioral terms consequences can be punitive or pleasant. Within a Positive Behavior Support (PBS; Carr et al., 2002) framework, the goal is to minimize the use of aversive consequences. The function (or purpose) of the student's behavior should guide the selection of strategies to reinforce appropriate behaviors and minimize payoff for problem behaviors.

Reinforcing Appropriate Behavior. There are four critical features for identifying effective reinforcers. The first two are broad strategies to *reinforce the alternative behavior* (Petscher, Rey, & Bailey, 2009) and to *reinforce desired behavior or approximations toward the desired behavior* (Wilder, Harris, Regan, & Ramsey, 2007). More specific considerations when setting up effective interventions to encourage behavior are to *identify reinforcers valued by the student* (Horner & Day, 1991) and to set *reasonable timeframes and expectations for the student to encourage behavior* (Cooper, Heron, & Heward, 2007). In our experience there are two common mistakes in using reinforcement. The first mistake is selecting incentives that are not valued by the student. The second common mistake is setting goals, expectations, and timeframes that are not reasonable for the student to achieve. If we identify a desired reward but only offer it to the student for engaging in perfect behavior, we are oftentimes setting the student up for failure rather than motivating success. What is reasonable for a student depends on the student's current performance as well as the discrepancy between this skill and the desired behavior. Often times, we must begin by reinforcing approximations of the desired behavior in smaller intervals of time before increasing to closer approximations of the desired behavior over longer spans of time.

For Nathan, when he asks for a break (alternative behavior), it is important to reinforce this behavior by providing a break quickly. If Nathan does not learn that asking for a break is a more effective and efficient way to get his needs met than the fidgeting, using foul language, slamming his book, and picking on peers, he will quickly resort back to the problem behaviors that have worked so effectively in the past. Additionally, he may earn a "no homework pass" if he completes a reasonable, specified number of problems (desired behavior). If Nathan previously has only started one or two problems on a worksheet, it is probably not a reasonable expectation that tomorrow he will earn a reward for completing the entire worksheet. A more reasonable goal might be that he attempts five problems tomorrow to earn the incentive, a more attainable approximation of the desired behavior. By combining the option for Nathan to take a break (alternative behavior), modifying the task to make it easier (antecedent), and the incentive of the homework pass (reinforcement), Nathan is receiving integrated supports that set him up to be successful. The supports incentivize the desired behaviors and reduce his need to avoid difficult tasks through inappropriate behaviors.

For Abby, when she raises her hand to request teacher attention (alternative behavior), it is important to provide teacher attention (reinforcement) immediately. Additionally, Abby should receive more frequent attention for engaging in appropriate, on-task behavior. She can also earn special time with the teacher if she participates appropriately for the duration of carpet time and is appropriate even when not called on every time she raises her hand (desired behavior). Encouraging Abby with a highly valued reinforcer like "special teacher time" can be an effective motivator to challenge her to progress through increasing approximations of the desired behavior, as long as the expectations in this progression remain reasonable for Abby.

Responding to Problem Behavior. Despite our best efforts to set up students and encourage them to engage in appropriate behavior, it is likely the student will revert to problem behavior from time to time. Therefore, a function-based intervention should include specific strategies for responding to problem behavior. These strategies are *redirecting to the alternative behavior at the earliest signs of*

problem behavior (Kern & Clarke, 2005) and ***actively limiting or eliminating the pay-off for problem behavior*** (extinction; Mace et al., 1988). At the earliest signs that the student is engaging in or is likely to engage in the problem behavior, the first and best option is to briefly remind the student to engage in the alternative behavior and then reinforce the alternative behavior according to the plan. Additionally, it is critical if the student does not respond to the prompt, the team has identified *a response to the problem behavior that does not inadvertently reinforce it*.

In Nathan's case, at the earliest sign of problem behavior (e.g. off-task behaviors, negative language), his teacher should remind him he could request a break (redirection). When Nathan asks for a break appropriately, the teacher should quickly provide a break and acknowledge him for making a good choice to request a break appropriately. If Nathan does engage in severe problem behaviors to escape the task, he may temporarily be able to avoid the task to maintain safety and order in the classroom. However, responses to remove him from the room should be minimized, and if he must be removed, the work should be sent with him with the expectation that he completes the work when he calms down. Additionally, Nathan could also be required to come in during recess or after school to complete those tasks to minimize or eliminate his long-term opportunities to escape the task.

In Abby's case at the earliest signs of off-task behavior (fidgeting, looking around the room), quickly use the visual prompt (limiting the richness of individual verbal attention) to redirect her to quietly raise her hand to request attention. If she does so appropriately, quickly provide teacher attention. If Abby does not respond, it is important that teacher attention is minimized or eliminated for problem behavior. Instead of chasing Abby around the room and having a "talk" with her about right and wrong, attention to misbehavior should be limited. In many cases it is not safe for a student to be running around the room, but it is possible to redirect a student in a more impersonal way (no conversation, brief directions, limited eye contact, etc.) that limits attention for problem behavior. In contrast, it is essential that when Abby is engaging in appropriate behavior she experience rich, high quality attention so that she clearly learns the

difference between the outcomes for desired versus non-desired behavior.

Summary

As educators increasingly encounter students with complex academic, social, and emotional needs, it is imperative they have research-based tools that can be appropriately and effectively utilized in unique contexts. The research on the effectiveness of function-based supports is vast, but educators are often missing the "how to" or "practical" strategies drawn from research. This paper highlights "scaled down" research-based critical features to consider when developing a function-based behavior support plan. It illustrates the importance of utilizing the function of a student's behavior to outline prevention, teaching, and consequence strategies synergistically to positively impact student outcomes.

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Article

Academic and Behavioral-Emotional Screenings to Enhance Prediction of Statewide Assessment Scores in Reading

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Reading Curriculum-Based Measurement (R-CBM) has been shown to be an excellent predictor of high-stakes statewide assessments for reading. Behavioral and emotional functioning also contribute to academic performance (Hinshaw, 1992), but have not yet been examined in relation to R-CBM in predicting statewide assessment results. The current study sought to examine the impact of utilizing a behavioral and emotional screening instrument in conjunction with R-CBM to predict scores on the Texas Assessment of Knowledge and Skills (TAKS) Reading test. Students in grades 3 through 5 were screened with R-CBM and the Behavioral and Emotional Screening System (BESS). Results indicated that the BESS explained between 4% to 12% additional variance in predicting students' scores on the TAKS reading test in combination with R-CBM. Strengths and limitations of the study, as well as areas for future research, are discussed.

Keywords: universal screening, academic screening, behavioral and emotional screening, statewide assessment

Curriculum-Based Measurement (CBM) provides a standardized set of assessments across reading, math, spelling, and writing that has been shown to be extremely useful for activities such as screening and identifying students at-risk for academic difficulties, determining local normative data, and determining effectiveness of classroom academic interventions (Deno, 2003; Shinn, 2008). Researchers have increasingly focused on the use of CBM to address one of the more salient issues in education: increased school accountability related to statewide test scores as mandated by No Child Left Behind (2002). An ever expanding body of literature has examined the utility of Reading CBM (R-CBM) to predict those students who are likely to pass or fail their respective state exams.

Stage and Jacobsen (2001) examined the use of R-CBM Oral Reading Fluency (ORF) to predict fourth grade students' performance on the Washington Assessment of Student Learning. After evaluating the slope across fall, winter, and spring benchmarks, cut-scores were created that accurately

predicted student outcome for 74% of students. Similar results were found by Good, Simmons, and Kameenui (2001) where 96% of third grade students who met or exceeded the R-CBM ORF benchmark goal passed the Oregon Statewide Assessment. These results have been replicated across several studies, typically investigating elementary students (Atkins & Cummings, 2011; Crawford, Tindal, & Stieber, 2001). Silberglitt and Hintze (2005) examined the use of R-CBM ORF and Maze procedures at the elementary and secondary (middle school) levels and established

effective and psychometrically sound cut scores to use within a response to intervention (RTI) framework. More recently, Yeo (2010) conducted a multilevel meta-analysis of 27 studies utilizing R-CBM (both ORF and Maze procedures) to estimate the predictive validity coefficient of R-CBM and statewide achievement tests in reading. Results indicated an overall large correlation ($r = .689$), further highlighting that R-CBM is a valid predictor of reading achievement for statewide assessments.

Linking Academic Competence and Emotional/Behavioral Functioning

While the literature has established that R-CBM is an excellent predictor of reading achievement on statewide assessments, research has also focused on the unique contributions that behavioral and emotional functioning have on academic performance. Two pathways have been hypothesized regarding development of problem behaviors: 1) a social behavior deficit pathway, such as difficulties in social skills and externalizing problems (Reid & Patterson, 1991; Welsh, Parke, Widaman, & O'Neil, 2001) and, 2) an academic skill deficit pathway, such as poor skills in reading or math resulting in repeated academic failure leading to behavior problems (Herman, Lambert, Ialongo, & Ostrander, 2007; Hinshaw, 1992; Maguin & Loeber, 1996). Hinshaw (1992) reviewed potential causal relationships and underlying mechanisms between externalizing behavior problems and poor academic achievement. Welsh and colleagues (2001) found a reciprocal model, indicating the influence of academic achievement (i.e., language and math grades) and social competence (i.e., prosocial and aggressive behaviors) in first, second, and third graders. Overall, lower academic competence is associated with lower social competence in future grades; however, more research was recommended to examine the impact of negative social competence on future academic competence. While inattention and hyperactivity are strong correlates of academic difficulties in childhood, antisocial behavior and delinquency gain greater prominence in adolescence. Students' lower social competence and increase in behavioral difficulties may result in missing instruction due to their inattention,

removals from the classroom due to disruptive behaviors, or potentially impacted views of self-efficacy in academic competence due to behavioral difficulties.

In a review conducted by Rock, Fessler, and Church (1997), between 24% and 52% of students with a learning disability had clinically significant social, emotional, or behavioral problems; approximately 38% to 75% of students having an emotional disturbance were found to have a learning disability or severe learning difficulties. Several studies have documented the co-occurrence of behavioral and emotional difficulties with academic difficulties such as academic processing speed (Benner, Allor, & Mooney, 2008), language skills (Nelson, Benner, & Cheney, 2005), and reading skills (Benner, Beaudoin, Kinder, & Mooney, 2005; McIntosh, Horner, Chard, Boland, & Good, 2006). McIntosh et al. (2006) examined the predictive validity of office discipline referrals and oral reading fluency on the number of office discipline referrals in fifth grade, with the overall model explaining 49% of the variance in receiving discipline referrals in fifth grade. This result was replicated using data from second grade (both office referrals and oral reading fluency) to predict 46% of the variance in fifth grade referrals (academic data, $R = .54$; behavioral data, $R = .13$), while Kindergarten data were able to predict 43% of the variance in fifth grade referrals (with only the academic data being a significant predictor, $R = .52$).

Another study documented that problem behaviors in eighth grade negatively impacted academic performance in ninth grade (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). More specifically, students exhibiting externalizing behavior problems have been shown to have difficulties with reading, mathematics, and written language tasks (Nelson, Benner, Lane, & Smith, 2004). While the link between academic difficulties and emotional/behavioral problems may not be fully understood, it is clear that schools would benefit from examining the link between these variables. Utilizing a public health perspective and incorporating both academic and behavioral screening is likely to provide school districts with optimal data to address all students' needs (Shapiro, 2000; Strein, Hoagwood, & Cohn, 2003).

One contemporary instrument, the Behavioral and Emotional Screening System (BESS; Kamphaus & Reynolds, 2007), has been linked to report card ratings for academic, behavioral, and engagement marks (Kamphaus, Thorpe, Winsor, Kroncke, Dowdy, & VanDeventer, 2007; Renshaw et al., 2009). Kamphaus and colleagues (2007) screened 637 students in grades K-5 with the BESS while collecting data on grades, special education placement, and reading and math achievement scores on the Stanford Achievement Test-9. Overall, the BESS demonstrated moderate to strong correlations with reading and math grades (r = -.546 and -.477, respectively), a moderate correlation with special education placement (r = .306), and strong correlations with standardized reading and math scores (r = -.575 and -.547, respectively). Renshaw and colleagues (2009) collected data on 48 third and fourth graders and found large correlations (r > -.50s) between the BESS ratings and each of the three general composite areas – academic achievement, engagement (behavioral), and behavioral performance – further highlighting the link between academic and behavioral functioning.

Though previous studies have identified a link between academic achievement and behavioral/emotional functioning, further research is needed to determine the utility of behavioral/emotional screening data in predicting academic achievement. The purpose of the current study is to examine the utility of including a screening measure for behavioral and emotional difficulties with an established predictor of reading achievement (i.e., R-CBM) for a statewide assessment. Maximizing the utility of screening procedures for identifying students in need of additional assistance to meet academic standards and highlighting the interconnection of behavioral, emotional, and academic functioning would enhance schools' ability to identify students in need of additional educational supports. Specifically, this study seeks to address if the BESS can be used in conjunction with R-CBM to explain additional unique variance in statewide reading assessment achievement for students in grades 3 through 5.

Method

Participants and Setting

Based on district data as of October 2010, 1588 students were enrolled in the district in grades 3 through 5 and considered eligible for analysis in the current study. Participants included 892 students in grades 3 through 5 from four elementary schools in a suburban, public school district in the southeastern United States and had complete data on all measures. The age of students in the current study ranged from 8.07 years to 12.8 years. Table 1 presents demographic data for the sample broken down by grade level and for the total sample. The following student demographic information was available: age, ethnicity, sex, economic disadvantage, limited English proficiency, and eligibility for special education. A large portion of students in the district was of Hispanic background, and many were considered limited in English proficiency.

Measures

Reading – Curriculum-Based Measurement. Reading passages developed by AIMSweb (Edformation, 2010) were administered by district personnel in the fall of 2010 to obtain a measure of students' oral reading fluency for reading curriculum-based measures (R-CBM). The grade-based passages contain between 150-300 words. Teachers were trained by the district (with no formal fidelity available) to administer the probes to students. For benchmarking, students were administered three passages, asked to read them aloud, and school personnel calculated the number of correct words read per minute, with the median score recorded. Alternate-form reliability for passages used in grades 3 through 5 range from r = .85 - .88 (Howe & Shinn, 2002). CBM has been shown to be a reliable and valid measure for examining reading achievement (Shinn, 1989).

Behavioral and Emotional Screening System (BESS). The BESS (Kamphaus & Reynolds, 2007) was used to screen all students in the district. The BESS can be completed by parents, teachers, and students (grades 3 and up). The current study contains data gathered from teachers (BESS-T).

Table 1

Demographics of Students in Grades 3 through 5 (Percentages)

	Grade 3 (n = 294)	Grade 4 (n = 328)	Grade 5 (n =270)	Total Sample (n = 892)
Sex				
Male	49.3	54	51.5	51.7
Female	50.7	46	48.5	48.3
Race/Ethnicity				
American Indian/ Alaskan	0	0.3	0.4	0.2
Asian/Pacific Islander	2	0	1.9	1.2
Black/Non-Hispanic	23.5	22.6	16.3	21
Hispanic	60.5	62.2	65.6	62.7
White/Non-Hispanic	13.9	14.9	15.9	14.9
Limited English Proficiency				
Yes	30.3	28.7	34.2	30.8
No	69.7	71.3	65.8	69.2
Socioeconomic Indicator				
Free/Reduced Price Lunch	78.6	80.5	80.4	79.8
No Free or Reduced Price Lunch	21.4	19.5	19.6	20.2
Special Education Eligibility				
Yes	2.7	4.6	2.6	3.4
No	97.3	95.4	97.4	96.6

Teachers completed the BESS by filling out the rating scales at school. A typical screening may take between 5-10 minutes per student. The BESS-T contains 27 likert scale items assessing four domains (i.e., Externalizing Problems, Internalizing Problems, School Problems, and low Adaptive Skills). Examples of items on the BESS address attention, sadness, study habits. A Total Score (a T-score) is derived indicating the child's level of risk for developing or currently exhibiting emotional or behavioral difficulties. The Total Score indicates whether a student is within the "normal," "elevated," or "extremely elevated range" for exhibiting or developing a behavioral and/or emotional problem. A score within the "normal" range (T ≤ 60) is indicative of a small risk of behavioral or emotional problems. Students with scores in the "elevated" range (T = 61-70) have a higher likelihood of being identified as having a behavioral/emotional problem resulting in a diagnosis or eligibility for special education services, with those in the "extremely elevated" range (T ≥ 71) having the greatest likelihood of a diagnosis or eligibility for special education services. In regard to reliability, the Spearman-Brown prophecy formula was used to estimate the split-half reliability of the forms, yielding a reliability of .96 for the teacher forms across all ages and a .94 for the parent forms across all ages. In examining the test-retest reliability for the instrument, both the teacher and parent child/adolescent form yielded adequate reliability (r = .91 and r = .84, respectively) as reported in the manual (Kamphaus & Reynolds, 2007). In examining the validity of the BESS, the Total Score exhibited high correlations with the BASC-2 teacher and parent forms (adjusted r = .90 with the Behavioral Symptoms Index of the BASC-2). Lower correlations were reported with regard to Internalizing Problems on the BASC-2 (adjusted r = .62 and .59 for teacher and parent forms). Comparing the BESS to another broadband scale, the Achenbach System for Empirically Based Assessment teacher and parent forms, adequate correlations were obtained (adjusted r = .76 and .71 for teacher and parent forms).

Texas Assessment of Knowledge and Skills Reading Test (TAKS-R). The TAKS-R is an untimed test, mandated for all students in grades 3 through 8 in Texas administered over the course of one day. According to the Texas Education Agency (2004), the test evaluates a subset of the Texas Essential Knowledge and Skills, the state-mandated curriculum. Student expectations are grouped under four objectives: 1) demonstrate a basic understanding of culturally diverse written texts, 2) apply knowledge of literary elements to understand culturally diverse written texts, 3) use a variety of strategies to analyze culturally diverse written texts, and 4) apply critical thinking skills to analyze culturally diverse written texts. The objectives align vertically throughout the grades. Students read from narratives, expository selections, mixed selections (two types of writing combined in a single passage), and paired selections (two selections designed to be read together; for grades 4 through 8 only). Passages in grades 3 and 4 contain approximately 500 – 700 words; passages in grade 5 contain approximately 600 – 900 words. Students respond by selecting the best answer to the multiple choice questions provided after the passages. Student performance is measured using a scale score, with criterion scores recommended by the state. Only students taking the full TAKS-R test (i.e., not those who received a modified version) on the first administration were included in this sample.

Procedure

All data were collected during the 2010-2011 school year by the district and provided to the author in de-identified format. All demographic data were collected based on parent completion of enrollment forms for the district. School staff conducted academic screenings during September 2010. During this time, parents and teachers were also asked to complete ratings of the students using the adopted behavioral/emotional screener by the district. The district used the behavioral/ emotional screener to universally assess all elementary students in grades 1 through 5. Behavioral/emotional ratings of students were completed between the third week of October and second week of November of 2010. Students were administered the statewide assessment during March 2011. Only those students with complete data on the academic screening, behavioral/emotional screener, and statewide reading assessment were included in the data analysis.

Results

Data were initially screened for outliers, distributional properties, and meeting additional assumptions of regression. No cases were considered to be extreme outliers. All assumptions were met for regression. Table 2 presents the descriptive statistics for the assessment measures. Passing scores for the TAKS-R include scale scores above 483, 554, and 620 for 3rd, 4th, and 5th grade students, respectively.

Correlational Data

Table 3 contains the Pearson correlation coefficients between measures for each grade level. As expected, there was a large correlation between R-CBM and the TAKS-R score for each grade level. Correlation coefficients were moderate between ratings on the BESS-T and scores obtained on the R-CBM for 4th grade ($r = -.35$), but small for grades 3 and 5 ($r = -.29$ and $-.28$, respectively). Moderate negative correlations were found at each grade level between ratings on the BESS-T and outcomes on the TAKS-R. All correlations were statistically significant ($p < .01$).

Hierarchical Multiple Regressions

Tables 4, 5, and 6 contain the full results of the hierarchical regression analyses for grades 3, 4, and 5, respectively. Each grade was analyzed separately. In step 1, scores for the TAKS-R were the dependent variable, with R-CBM being the independent variable. In step 2, BESS-T scores were entered into the equation. For 3rd grade, the results of step 1 indicated that R-CBM significantly accounted for 28% ($\beta = .53$, $p < .001$) of the variance in TAKS-R scores ($F_{(1,292)} = 112.61$, $p < .001$). In adding the BESS-T in step 2, there was a significant change in the variance accounted for in the equation ($\Delta R^2 = .12$; $F_{(1,291)} = 58.78$, $p < .001$). In step 2, both R-CBM and BESS-T scores were significant predictors of scores on the TAKS-R ($\beta = .42$ and $-.36$, respectively, $p < .001$), accounting

Table 2

Descriptive Statistics of Assessments by Grade

	R-CBM			BESS-T			TAKS-R		
Grade	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
3rd	71.77	32.67	11-180	50.76	12.45	33-97	581.07	94.72	348-803
4th	93.34	32.38	14-195	48.49	9.80	33-79	612.80	86.46	374-854
5th	107.51	32.50	8-220	50.59	11.14	35-90	692.94	89.98	454-904

Note: R-CBM = Reading curriculum-based measurements; BESS-T = Behavioral and Emotional Screening System – Teacher Form; TAKS-R = Texas Assessment of Knowledge and Skills – Reading Test.

Table 3

Correlations between study measures for grades 3 through 5

	R-CBM 3rd	BESS-T 3rd
BESS-T 3rd	-.29**	-
TAKS-R 3rd	.53**	-.49**

	R-CBM 4th	BESS-T 4th
BESS-T 4th	-.35**	-
TAKS-R 4th	.54**	-.37**

	R-CBM 5th	BESS-T 5th
BESS-T 5th	-.28**	-
TAKS-R 5th	.56**	-.38**

Note: **p < .01 (2-tailed).

for an additional 12% of variance explained (total 40% explained).

For 4th grade, the results of step 1 indicated that R-CBM significantly accounted for 29% (β =.54, *p* < .001) of the variance in TAKS-R scores ($F_{(1,326)}$ = 130.91, *p* <.001). In adding the BESS-T in step 2, there was a significant change in the variance accounted for in the equation (ΔR^2 = .04; $F_{(1,325)}$ = 18.34, *p* <.001). In step 2, both R-CBM and BESS-T scores were significant predictors of scores on the TAKS-R (β = .46 and -.21, respectively, *p* < .001), with 33% total variance explained by the model.

For 5th grade, the results of step 1 indicated that R-CBM significantly accounted for 31% (β = .56, *p* < .001) of the variance in TAKS-R scores ($F_{(1,268)}$ = 120.59, *p* <.001). In adding the BESS-T in step 2, there was a significant change in the variance

Table 4

Hierarchical Multiple Regression Analysis Predicting 3rd Grade TAKS-R Score

Variable	Model 1			Model 2				
	B	SE B	β	B	SE B	β	Partial	Part
Constant	471.29	11.36		633.27	23.54			
R-CBM	1.53	.14	.53***	1.23	.14	.42***	.46	.41
BESS-T				-2.77	.36	-.36***	-.41	-.35
R^2		.28			.40			
ΔR^2					.12			
F for ΔR^2		112.61***			58.78***			

*$p < .05$. ** $p < .01$. ***$p < .001$. Part = Semipartial.

Table 5

Hierarchical Multiple Regression Analysis Predicting 4th Grade TAKS-R Score

Variable	Model 1			Model 2				
	B	SE B	β	B	SE B	β	Partial	Part
Constant	479.41	12.34		586.38	27.72			
R-CBM	1.43	.13	.54***	1.24	.13	.46***	.47	.44
BESS-T				-1.84	.43	-.21***	-.23	-.20
R^2		.29			.33			
ΔR^2					.04			
F for ΔR^2		130.91***			18.34***			

*$p < .05$. ** $p < .01$. ***$p < .001$. Part = Semipartial.

accounted for in the equation ($\Delta R^2 = .06$; 25.90, $p <.001$). In step 2, both R-CBM and BESS-T scores were significant predictors of scores on the TAKS-R ($\beta = .49$ and -.26, respectively, $p < .001$), with 37% total variance explained by the model.

Discussion

The purpose of this study was to examine the utility of a behavioral and emotional screener combined with an established measure of reading

performance to predict results on a statewide reading achievement assessment. Similar to the findings from previous literature, R-CBM was a significant predictor of state reading achievement scores on the TAKS-R. The correlation between R-CBM and the TAKS-R scores ($r = .53$ to .56) was somewhat lower than correlations found with other statewide assessments of reading ($r = .69$) (Yeo, 2010), but is comparable to at least one study utilizing R-CBM and the TAKS-R ($r = .56$, fall; Webb, 2007). The TAKS-R may assess additional

Table 6

Hierarchical Multiple Regression Analysis Predicting 5th Grade TAKS-R Score

Variable	Model 1			Model 2				
	B	SE B	β	B	SE B	β	Partial	Part
Constant	527.11	15.77		651.01	28.65			
R-CBM	1.54	.14	.56***	1.36	.14	.49***	.51	.48
BESS-T				-2.06	.41	-.26***	-.30	-.25
R^2		.31			.37			
$\varDelta R^2$					.06			
F for $\varDelta R^2$		120.59***			25.90***			

*p < .05. ** p < .01. ***p < .001. Part = Semipartial.

skills beyond the scope of basic reading, perhaps due to the requirement related to culturally diverse texts (TEA, 2004), which may draw upon other basic knowledge skills beyond basic reading and reading comprehension skills.

Significant negative associations were found between the BESS and the TAKS-R, with the strongest correlation found at 3rd grade, $r = -.49$. This may be due to possible variability in the performances across grades or possibly indicate that responsiveness to instruction in this grade was higher in this sample. It should be noted that the BESS and R-CBM data were collected in the fall, while the TAKS-R was administered in the spring. During this time, interventions related to the social/emotional and students' reading ability may have lowered the correlations, though specific data related to this is unavailable. Given this hypothesis, these screeners may yield higher predictive results than those obtained in the current study when administered closer to the final outcome measure (i.e., the statewide assessment).

The BESS was moderately correlated with the TAKS-R in 4th and 5th grades, $r = -.37$ and -.38, respectively. Results also indicated that across all three grade levels, combining scores related to behavioral and emotional functioning from the BESS with R-CBM significantly improved the model in predicting reading achievement on the TAKS-R. These results were greatest for 3rd grade,

with the full model yielding a $R^2 = .40$, with $R^2 = .33$ and .37 for 4th and 5th grades respectively. The combined results of the R-CBM and BESS yield results similar to the studies reviewed by Hoge and Luce (1979) as well as McIntosh et al. (2006) that found moderate levels of association between classroom behaviors and academic achievement; however, the Hoge and Luce study only included behavioral measures, not additional academic measures like R-CBM. A strength of the current study is the ability to examine the unique contributions of R-CBM and the BESS in predicting reading achievement. The partial correlations obtained in 3rd, 4th, and 5th grades ranged from -.41, -.23, and -.30, respectively. These appear to be somewhat lower compared to moderate levels found previously between 45 and.63 (Hoge & Luce, 1979). This may be in part due to using a screener rather than a direct behavioral observation and also may be a function of collecting data at two different time points (fall/spring). Additionally, attention and inattention were the main behavioral factors noted previously, whereas the BESS devotes 4 of 27 total items to these two domains.

Based on these results, districts may benefit not only from the information obtained on the BESS in identifying and addressing the behavioral/emotional needs of students but may also use this information to help further identify those youth who may be at risk for academic failure. Given the importance that

statewide testing plays in providing indicators of adequate yearly progress for schools and decision-making data related to promotion and retention at times, emotional/behavioral data appear to provide schools important information related to instruction of academic skills which clearly impacts results of high stakes tests.

Limitations and Future Directions

The results of the current study should be seen as preliminary and require further replication. Given the brief time required to complete ratings on the BESS and the significant results of this study, emotional/behavioral screening appears worthwhile to consider when predicting statewide performance on assessments. It is not known what other screeners may contribute to the predictive validity of statewide assessments, and longer screeners may not be efficacious within the school setting. The BESS was chosen for this study based on the desirable psychometric properties of the instrument and ease of data collection, scoring, and management.

The current sample included a large group of Hispanic students and students identified as Limited English Proficient; therefore, results may not be generalizable to other populations. This sample may not follow a typical trajectory for developing oral reading fluency from those who are proficient in English. Additionally, only reading achievement was examined, and fidelity of R-CBM was not measured. Future research should examine other behavioral/emotional screeners and examine other areas of achievement such as mathematics.

With the development of screening instruments for emotional and behavioral functioning, research is warranted on several other areas related to school performance. When schools conduct social emotional screenings, they have the opportunity to intervene early such as providing targeted social skills or anger management groups for children and youth. Utilizing these data properly in consultation with teachers may enhance their self-efficacy in addressing students' behavioral difficulties. Additionally, youth with concomitant behavioral and academic difficulties may require more intensive interventions compared to youth with only one area of difficulty. Interventions addressing only academic issues may be ineffective when combined

with anxiety or depression present. In examining the data gathered through behavioral screeners, school psychologists can examine how social-emotional and behavioral functioning impact school climate variables such as safety, feeling as though a student "belongs," and overall school climate.

Conclusions

The data presented here suggest that behavioral and emotional screening data can provide additional information to reading screeners in identifying students who may be at risk for failing statewide reading assessments. This added utility may be viewed as another benefit of universal academic and behavioral screenings to be adopted by districts in working to identify students in need of intervention or special education evaluations (Child Find). Previous data indicate only 2% of districts in the United States conduct behavioral/emotional screenings (Jamieson & Romer, 2005). Because the link between academic achievement and behavioral/emotional functioning is well documented, educators should increasingly attempt to understand how to use this information to identify potential problems early to inform interventions and support student outcomes. As school psychology practitioners, it is imperative that data be collected to obtain a holistic view of the child. While academics are of key importance to school personnel, it is clear that social-emotional and behavioral functioning impact academics and must be addressed. Performing academic and social-emotional/behavioral screenings is a vital component in implementing multi-tiered systems of support or services within a response-to-intervention model.

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Article

The Importance and Need for Implementing School-Based Supports as Adjuncts to Pharmacotherapy for Students Diagnosed with ADHD

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Psychotropic medication effectively reduces ADHD core symptomatology, yet often fails to facilitate the academic and/or behavioral skill development needed for a student to succeed in school. School psychologists are in the unique position of facilitating the implementation of school-based adjunctive treatments for those students with ADHD who are being treated with pharmacotherapy. Compelling evidence endorses the need for school-based supports, including behavioral and academic interventions, within physician-managed treatment plans so that continuity of care across settings may enhance the power and breadth of treatment effects. This paper describes a number of school-based supports that school psychologists can provide efficiently and effectively as part of an integrated biopsychosocial treatment plan for ADHD. Legal and ethical implications for working with parents, teachers, and physicians around ADHD treatment issues are discussed.

Keywords: ADHD, pediatric school psychology, youth, behavioral treatment, psychotropic medication

Attention-deficit/hyperactivity disorder (ADHD) is one of the most commonly diagnosed mental health concerns and is often the primary reason children are referred to psychiatric clinics and/or primary care (Barkley, 2006). Young children who exhibit the behavioral difficulties associated with ADHD (i.e., inattention, hyperactivity, impulsivity) demonstrate early academic difficulties that persist throughout their education (Loe & Feldman, 2007). Consequently, these children are at an increased risk of being expelled or dropping out of school. The behavioral problems of children with ADHD are also associated with an increased level of interpersonal relationship difficulties in peer and family domains (DuPaul, McGoey, Eckert, & VanBrakle, 2001). Given the chronic nature of the disorder, management and treatment of ADHD symptoms within school settings is essential to ensure positive developmental outcomes. To this end, major organizations have recognized in their consensus guidelines the importance of involving the school as an integral component of evidence-based biopsychosocial care.

The American Academy of Pediatrics (AAP; 2011) practice guidelines for treating ADHD state "…the primary care clinician should prescribe FDA-approved medications for ADHD and/or evidence-based parent- and/or teacher-administered behavior therapy as treatment for ADHD, preferably both…The school environment, program, or placement is a part of any treatment plan" (p. 1015). Relatedly, the American Psychological Association's (APA; 2006) Task Force Report on ADHD Treatments concluded that psychopharmacological, behavioral, and combined treatments are well-established as acute interventions. In contrast to the AAP guidelines, APA's report recommends that behavioral treatment be used as first-line care, with adjunctive use of medication as needed. Given the

possibility that lower medication dosages may be prescribed when adjunctive treatment approaches are used (DuPaul & Kern, 2011; MTA Cooperative Group, 2004; Pelham et al., 2005), the implementation of combined treatments for ADHD is an important consideration for all psychologists who work with school-age children.

Variability often exists between recommendations of these consensus guidelines and what is found in "real world" practice (Epstein, Langberg, Lichtenstein, Kolb, & Simon, 2013). The demand for access to primary care physicians (PCPs) causes limited appointment "face time," and the limited training these practitioners receive in providing behavioral interventions (Kim, 2003; Serby, Schmeidler, & Smith, 2002) often results in deficits in the continuity of care necessary when children adjust to the effects of a new medication. School psychologists can serve as a liaison between the school and primary care to ensure the provision of high quality treatment across settings. Nearly all school psychologists already report having at least one student on their caseload who is prescribed with and taking psychotropic medication (Carlson, Demaray, & Hunter-Oehmke, 2006). Of those, the most common medication class is psychostimulants for the treatment of ADHD. Despite this prevalence, many school psychologists appear to play limited roles in carrying out school-based supports for students being treated with psychotropic medication (Shahidullah & Carlson, 2014). It is clear that an articulation of the practice roles that school psychologists are positioned to provide in offering school-based supports to children prescribed with psychotropic medication for ADHD is needed.

The following section offers an overview of why school psychologists are the ideal candidates to coordinate these adjunctive school-based supports. Specific examples of interventions and strategies are then delineated and discussed. Throughout this paper, the term *adjunctive support/treatment* is used to refer to any support that is provided to a child with ADHD in addition to psychotropic medication. Adjunctive supports for children prescribed with and taking psychotropic medication, as recently delineated by Shahidullah and Carlson (2014), can include facilitating communication, completing functional behavioral assessments, collaboratively identifying and developing treatment goals, and co-

ordinating the provision of behavioral and academic supports to improve school-based functioning. Finally, legal and ethical considerations for providing these adjunctive school-based supports are discussed.

Rationale for Promoting Adjunctive ADHD Treatment Supports in Schools

Psychotropic medications are increasingly used to treat ADHD in school age populations (Zito et al., 2003). These drugs can offer benefits to students who fail to respond to school-based services (Pappadopulos, Guelzow, Wong, Ortega, & Jensen, 2004). Specifically, they can be used to improve classroom behavior (e.g., increase ability to concentrate and decrease hyperactivity) and provide short term relief of disruptive symptomatology that may allow the child to be more receptive to other interventions (Brown & Sammons, 2002). However, these treatments typically do not address peripheral areas of functioning such as interpersonal relationships and academic performance (Pelham & Smith, 2000). In fact, results from the Special Education Elementary Longitudinal Study suggest that stimulant treatment for ADHD does not lead to improved academic achievement across time and that the effects of stimulants on academic performance may vary by ADHD symptomology (Barnard, Stevens, To, Lan, & Mulsow, 2010). With an understanding of both the benefits and limitations of psychotropic usage, informed school psychologists can facilitate implementation of adjunctive supports to complement and enhance the safety and effectiveness of medication.

School psychologists are uniquely situated to coordinate treatment efforts amongst key stakeholders (i.e., students, families, teachers, PCPs) for students in school settings. School psychologists have knowledge of the school culture and environment, training in child and adolescent psychopathology, understanding of evidenced-based interventions and practice, and accessibility to students and their caretakers. The process of identifying the student's level of need and subsequently matching the identified level of need with the appropriate level of school-based resources is one such role to be played (Tobin, Schneider, Reck, & Landau, 2008). Specifically, behavioral and academic supports can be provid-

ed as adjuncts to pharmacotherapy to maximize treatment effects, ensure safe dosage amounts, and enhance the generalizability of the student's long term skill development.

Providing Adjunctive Behavioral and Academic Supports

There is compelling evidence of the need for school psychologists to provide a continuum of care to school age children diagnosed with ADHD when outside medical care is integrated with school-based service delivery systems (DuPaul & Carlson, 2005). School psychologists can utilize frameworks of care, such as Positive Behavioral Intervention and Supports (PBIS) and Response to Intervention (RTI) to supplement the care provided by PCPs. PBIS and RTI are structured systems to deliver behavioral and academic interventions targeted to the areas and intensities of student needs. Through these systems, students with ADHD can receive supports to improve their behavior and remediate areas of academic difficulty. Further, PBIS and RTI include structured ways to collect data about students' behavioral and academic progress. When PBIS and RTI systems are effectively in place and behavioral and academic interventions are implemented with integrity, all mental health care providers can be aware of treatment progress and/or the need to make modifications to a treatment plan. Specific school-based interventions and supports for students diagnosed with ADHD are discussed next.

Behavioral Supports

There are several different evidenced-based approaches that practicing school psychologists can take to implement behavioral interventions for children with ADHD that can be divided into *direct* (e.g., working directly with students in provision of adjunctive intervention) and *indirect* (e.g., consultation with teachers and PCPs) service delivery roles (Shahidullah & Carlson, 2014). As a part of these roles, school psychologists can use their knowledge of behavioral health disorders and effective communication skills to provide psychoeducation about ADHD (e.g., overview of the disorder, symptoms, and treatment options along with the empirical evidence supportive of each). Providing psychoeduca-

tion about ADHD can help students, families, and teachers to better understand and appreciate the difficulties that children with ADHD may experience as well as emphasize the importance of understanding each individual student's needs from a problem-solving framework. Results of meta-analyses suggest that in addition to increasing the knowledge of ADHD, providing psychoeducation to students, families, and teachers can improve ADHD symptoms and academic performance independent of other interventions (Montoya, Colom, & Ferrin, 2011).

Another way school psychologists can support comprehensive care for students diagnosed with ADHD is to engage in direct behavioral training for children. Though pharmacological treatments aim to address core behavioral deficits including learning related behaviors (e.g., attention span, focus, concentration), direct behavioral training can enhance the functional impairments that affect children with ADHD (e.g., sustaining social relationships, fostering compliance). The provision of behavioral skills training addresses impairments in behavioral functioning whereby adaptive skills are increased and maladaptive behaviors are decreased using principles of operant conditioning. Direct skills training that emphasizes self-monitoring and self-reinforcement have long been lauded as effective interventions for maintaining and generalizing behavioral gains (Dunlap & Dunlap, 1989; Rhode, Morgan, & Young, 1983). By focusing on operationalized, observable behaviors, the child can acknowledge their own habits that result from cues in the environment that elicit and maintain their inappropriate behaviors. This approach can involve directly teaching children alternative appropriate behaviors and providing reinforcement for successful completion of appropriate behaviors, such as teaching a student to raise his or her hand rather than blurt out a question.

Because symptoms of ADHD may impair social interactions with parents, siblings, teachers, and peers, the use of social skills training can be used to diminish symptoms, improve functioning, and lead to positive changes in social behavior. However, research has shown that a weakness in many social skills training programs is their ineffectiveness in promoting generalization of skill development to natural settings (Pelham, Wheeler, & Chronis,

1998). Therefore, it is important that social skills training take place in the school setting where students have the opportunity to practice their newly developed social skills with their peers and experience natural reinforcement. Conducting social skills instruction in the school setting potentially provides social validity that a physician's office or other clinical setting cannot replicate. Social skills training programs, which can be completed in small groups, involve teaching appropriate social behavior, modeling this behavior, engaging in role playing, and receiving feedback on performance (Antshel & Remer, 2003).

For social skills training to be most effective, families and educators should play roles in facilitating generalization of treatment gains across settings by noticing and positively reinforcing improvements in social behaviors when they occur in natural settings (LaGreca, 1993). School psychologists can instruct parents on the social behaviors to target and how to appropriately reinforce them when they occur through differential attention. In a study of children with ADHD and other disruptive behavior disorders, Webster-Stratton and Hammond (1997) found that parent training alone, social skills training alone, and their combination all resulted in significant behavioral improvements, but the combined treatment was most effective and led to greater generalization across home, school, and peer domains. In sum, research demonstrates that social skills training for children is most effective when conducted as part of a continuum of behavioral interventions and in authentic social settings (Pelham et al., 2005).

Because evidence-based behavioral interventions typically involve frequent consultation with the student's teacher regarding the use of effective strategies (Chronis et al., 2004), school psychologists should expect this role to be important in facilitating effective supports for students with ADHD. Part of this consultation typically includes psychoeducation about a student's impairment and medication, as well as expectations for side effects and how they might influence emotions, behavior, and academic performance. Specific behavioral techniques are developed that address the student's unique needs as demonstrated by functional behavioral assessment data and occur in addition to any school wide PBIS supports (Crone & Horner, 2003; e.g., manip-

ulation of antecedent "triggers" and consequential "reinforcers", daily report card, contingency management programs, response cost programs, token economies, positive reinforcement of effective coping, self-regulation). In this way, school psychologists can use their assessment skills to clearly define behavioral difficulties that students exhibit. Then, behavioral interventions can be developed to teach and reinforce appropriate behaviors.

Supports for Home-School Collaboration

Poor parenting practices are a strong predictor of negative long term outcomes in children with behavior problems (Chamberlain & Patterson, 1995). Despite the pharmacological or school-based interventions a child receives, maladaptive parenting strategies in the home may serve to minimize the effectiveness of "outside" therapies (Patterson, DeBaryshe, & Ramsey, 1989). Therefore, parent training should be included as an integral evidence-based component of any multimodal treatment plan for ADHD (Pelham et al., 1998). Behavioral programs targeting parental effectiveness have been demonstrated to be effective for parents of noncompliant, oppositional, and aggressive children (Barkley, 1997) as well as for parents of children with ADHD (Pelham et al., 1998).

School psychologists may first work with the child's parents in a psychoeducation provider role where they can also understand the parents' views on their child's behavior and expectations for treatment. This forum provides an opportunity to stress how consistency between the home and school environment is important for maximizing long term treatment gains. Once it is assured that parents are supportive and willing to ensure that home life is consistent with expectations at school, school psychologists can take the steps necessary to provide the parents with the behavior intervention training to do this.

Parents can be instructed on how to foster and support positive coping strategies by identifying and manipulating the antecedents and consequences that dictate their child's moods and behavior in the home. Specifically, parents can be trained on the use of positive reinforcement to identify and reward prosocial behavior through praise, positive attention, and tangible rewards, as well as how to de-

crease unwanted behavior through planned ignoring, time out, and other non-punitive discipline techniques (DuPaul & Kern, 2011). A commonly used home-school intervention is a daily report card (DRC) for behavior program (Dougherty & Dougherty, 1977; Vannest, Davis, Davies, Mason, & Burke, 2010). This program typically involves the student, teacher, and family agreeing on a set of identified target behavioral expectations and developing performance criteria for each. The student and teacher will then use a rating system to evaluate the student's daily performance against a pre-specified criterion. The teacher sends a report home each day about the child's performance at school, which allows the student to earn points within a token system redeemable for privileges at home (e.g., Rhode, Morgan, & Young, 1983). The structure of DRCs vary based on the difficulties of the student, but they generally include several brief items in which teachers indicate their level of agreement with a statement (e.g., student was respectful). Empirical evidence suggests that the use of DRCs can increase academic performance and decrease problematic behaviors (Fabiano et al., 2010). Additionally, teachers report generally high acceptability rates in using DRCs (Chafouleas, Riley-Tillman, & Sassu, 2006).

Academic Supports

Students with ADHD diagnoses are likely to experience academic difficulties (Chronis et al., 2004; DuPaul, Stoner, & O'Reilly, 2008). Although the currently available literature suggests that pharmacological treatment approaches result in small-to-moderate effects on academic outcomes for children and adolescents with ADHD, methodological weaknesses (e.g., failure to report participant characteristics, weak dependent measures of academic outcomes, limited types of medications studied, lack of longitudinal studies) serve to constrain these findings (Ryan, Reid, Epstein, Ellis, & Evans, 2005). Furthermore, medication use may result in observable improvements in students' attention and behavior, but medication alone fails to equip students with the long-term habits or skills they may need to be successful academically (Raggi & Chronis, 2006). Using an RTI framework, schools can implement academic interventions as adjunctive

treatments to medication, which can serve to accelerate treatment progress while still being sensitive to potential negative academic effects of the mental disorder and/or medication (Tobin et al., 2008). By providing differentiated supports that aim to "work around" a student's impaired areas of functioning, students can access and benefit from the learning environment (Bolen & Brown, 2010).

School psychologists' knowledge of potential effects of mental health conditions and medication uniquely positions them to identify the individual, as well as the instructional and environmental variables, that may be limiting a student's academic performance. As members of multidisciplinary teams, school psychologists are able to help teachers consider all of these variables as they work together to design, implement, and monitor academic interventions. Throughout the implementation process, school psychologists are able to support teachers in the collection and interpretation of relevant student data, such as rates of work completion, time on task, and the accuracy of student work. Although data collection is an important element of identifying appropriate interventions and subsequently monitoring intervention effectiveness, teachers may not have the knowledge of, or adequate training in, effective data collection processes. Therefore, teachers may benefit from engaging in consultative relationships with school psychologists, who are well trained in these skills (DuPaul et al., 2008).

In the classroom, supports can be introduced to improve academic productivity. These are primarily aimed at modifying the antecedents to (e.g., academic instruction, materials, how a teacher provides commands) and/or consequences of student behavior (DuPaul & Eckert, 1998). Evidence-based approaches that have been effective for students with ADHD include task and instructional modifications, peer tutoring, and strategy training (DuPaul & Eckert, 1998; Raggi & Chronis, 2006). Though limited, there is empirical evidence to suggest that students with ADHD might also benefit from computer-assisted instruction, in terms of improvements in their attention and work performance (e.g., Clarfield & Stoner, 2005; Raggi & Chronis, 2006). Computer-assisted instruction utilizes beneficial learning strategies, such as the use of repeated trials, the chunking of information, and the provision of immediate performance feedback.

Additionally, students with concentration-impairing conditions like ADHD may lack effective organization skills needed for note taking and planning academic study and assignment completion schedules, thus impairing their ability to effectively complete and efficiently turn-in assignments (Langberg et al., 2010; Power, Werba, Watkins, Angelucci, & Eiraldi, 2006). The ability to plan and organize assignments and work tasks is a skill needed for postsecondary education and employment as an adult. Since medication alone does not enhance a students' functional and cognitive capacity to organize and plan, students may benefit from direct training in organizational skills (Abikoff et al., 2009). For example, Langberg and colleagues (2013) found that ADHD medication use did not significantly correlate with outcomes of the Homework, Organization, and Planning Skills (HOPS) intervention. Hence, the teacher's involvement in the support plan is vital as necessary changes in their instruction style may include incorporating effective planning, organizing, and study skill components into their assignment overviews. Organization, planning, and study skills are most effective for students with ADHD when taught in conjunction with the assignment and when academic directions and expectations are clear, manageable, and modeled (DuPaul et al., 2008).

School psychologists can also work individually with the student to teach basic principles of effective organization, planning, and studying. A best practice approach includes teaching these skills in conjunction with the established curriculum as skills taught in isolation are difficult to generalize to other settings (Harvey & Chickie-Wolfe, 2008). Students may benefit from direct instruction in effectively using a planner or assignment book, note taking, and studying (Evans, Pelham, Grudberg, 1995; Gettinger & Seibert, 2002). Also, any direct skills training must also address the student's ability for self-regulation as for skills to become generalized, students must be able to monitor their own learning and recognize when effective planning directly leads to positive outcomes (Boekaerts, de Koning, & Vedder, 2006; Harvey & Chickie-Wolfe, 2008).

Many of these supports can be written into a child's Individualized Education Plan (IEP) provided in the context of special education or an individualized service plan through Section 504 of the Re-habilitation Act of 1973. Several supports can be put into place early on as the student adjusts to the side effects of a new medication, such as helping educators manage the effects for a short period, or, if necessary, adjusting the student's schedule around times of the day when effects are minimized (e.g., adjust scheduling of formal assessment or other high-stakes testing). Students adjusting to the effects of a new medication may also benefit from accommodations such as more time on tests or the option to test in an alternative environment with fewer distractions. Such accommodations may also benefit many students with ADHD, though it is relevant to consider these accommodations as the student's medications are appropriately titrated and the student adjusts to the effects of the medication. Then, if and when issues of medication side effects arise, school personnel can collaborate with other health care providers in the school (e.g., school nurse, school-based health care staff).

Supports for Medication Adherence and Compliance

Medications cannot be effective if they are not used or not used properly. Generally, medication noncompliance rates are high in pediatric populations (Costello, Wong, & Nunn, 2004). Schools have much to offer in the way of helping students take medication as directed, and schools can provide a forum where numerous stakeholders can facilitate compliance when initiation of these supports is requested by the family in conjunction with the prescribing physician. This typically requires that parents sign an informed consent form for the release and exchange of information between the school and health care provider. Parents appreciate when school staff are sensitive to their child's unique needs and facilitate a system of care that is individualized to addressing the behavioral and academic concerns that may develop as a result of being on a medication regimen (Smith, Taylor, Newbould, & Keady, 2008). One way that school psychologists can do this is by teaming with other school personnel to ensure that students take their medication as prescribed and in a way that is comfortable and non-stigmatizing. First, they can establish a system of support involving the school nurse and other relevant staff who interact regularly with

the student. The school nurse can help with administering or reminding the student to take medication at a specific time of day. The use of technology (e.g., pager, beeper) can be used to remind a student to take medication or come to the nurse for administration.

Another useful practice is for school psychologists to conduct a face-to-face follow up with a student soon after they begin a new medication regimen. This is an opportunity to identify any psychosocial or environmental factors impeding their medication taking. McCormick (2010) recognized that one practical approach with resistive students is to discuss the social and academic benefits of taking their medication (e.g., less time required studying, greater control of their mood or temper, greater ability to focus, lowered dosage amounts as symptoms decrease). If they have taken their medication, it can be important to objectively assess improvements as well as difficulties and graph these changes for visual inspection.

The ability to engage in this type of self-reflection is highly dependent on the cognitive and developmental level of the student. As students grow and mature, they may be able to assume more responsibility, in terms of setting individual goals for performance and monitoring their own behaviors, thus making it increasingly important to involve them in the treatment planning process (Raggi & Chronis, 2006). Finally, when given consent by the student's parents, school psychologists are able to serve as consultants to the PCPs by providing data (e.g., behavior rating scales, systematic observations, teacher narratives) as part of a school-based medication evaluation (Volpe, Heick, & Gureasko-Moore, 2005). This can help the PCP to monitor medication effects on the student's daily functioning across multiple settings, which can be particularly important in the initial titration phase as well as the maintenance and phase-out phase.

Legal and Ethical Considerations in Providing Adjunctive School-Based Supports

School psychologists may be restricted somewhat by school district policies and/or laws restricting their medication-related practice roles. However, with appropriate training and awareness of their scope of practice, school psychologists are ideally

positioned to undertake pivotal roles in providing care to students who are prescribed with and taking psychotropic medication for ADHD (Shahidullah, 2014). It is first necessary to recognize that privacy laws (e.g., Family Educational Rights and Privacy Act of 1974 [FERPA]; Health Insurance Portability and Accountability Act of 1996 [HIPAA]) preclude school psychologists and/or physicians from sharing information without parental informed consent and appropriate release/exchange of records documentation. Because communication is pivotal to the provision of integrated medical and school psychological service delivery, school psychologists can overcome this systemic barrier in obtaining written parental consent for the release of educational or medical information by working with their schools to develop systematic processes for obtaining consent. Without parental consent for release of records, bi-directional communication between school psychologists and physicians will not occur. This two-way communication is necessary for physicians to inform school providers about changes regarding medication type, dosage amount, potential side/adverse effects, and for the school psychologist to keep physicians abreast of a student's response to medication in academic, behavioral, social, and emotional domains. The communications between school psychologists and PCPs should be effective and efficient. Research about communicating with medical professionals suggests that it is beneficial for schools to provide PCPs with brief summaries of student behavior including the core and peripheral symptoms of ADHD and any medication side effects a student experiences (Shaw & Woo, 2008). With the school psychologist and physician working together, each can account for the services of the other and measure expected outcomes in the context of the least restrictive treatment (i.e., lowest dosage amount; minimally intrusive treatment).

School psychologists must consider their scope of professional competency in working with the students they serve (APA, 2010; NASP, 2010). While many of the support roles discussed in this paper will naturally be part of their service provision within universal, targeted, or indicated levels of PBIS/RTI prevention support, or as a related service through special education (e.g., consultation regarding the delivery of behavioral and academic interventions), other roles (e.g., medication moni-

toring) may likely require additional training. In a national survey of school psychologists, roughly three-quarters of respondents indicated they had never taken a university-based course on psychopharmacology (Shahidullah & Carlson, 2014). Consistent with the 97% of school psychologists who believe they should have training in psychopharmacology, school psychologists have recently demonstrated a history of seeking out additional psychopharmacology training through workshops, independent study, on the job training, and continuing education coursework (Carlson, Demaray, & Hunter-Oehkme, 2006; Shahidullah & Carlson, 2014). Also, while school psychology training programs may not typically teach consultation methods for use with medical professionals, the principles involved in consultation with families, teachers, and school staff can be translated to work with medical professionals, especially within the framework of a problem-solving consultative approach (Kratochwill & Bergan, 1990).

Conclusion

The existing literature clearly identifies a number of adjunctive, school-based interventions that may provide needed support to students who are prescribed with and taking psychotropic medication for ADHD. Because of the restrictions of PCPs such as limited time, availability, and a lack of training specifically in child and adolescent mental health, they may not be able to effectively provide these supports. This positions school psychologists as the "de facto" support providers for students diagnosed with ADHD. School psychologists have the expertise and position within the school to coordinate and provide these adjunctive supports. These supports draw on school psychologists' training in evidence-based assessment and intervention, problem-solving consultation, and program evaluation to track a student's response to intervention and communicate these findings to treatment decision-makers. However, it must be noted that several barriers exist (e.g., psychopharmacology knowledge, ethical/legal considerations) to providing these adjunctive school-based supports, which require school psychologists to seek out additional training that they may not have received in their formal graduate training program (Shahidullah & Carlson, 2014).

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Article

School Psychologists' Perceptions of Due Process Hearings

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This study investigated the perceptions of school psychology personnel on due process hearings in general, the impact due process hearings have on school psychology personnel performing their duties, and the effect hearings have on their relationships with students and parents. Researchers found that due process hearings generally result in adversarial relationships, do not foster an atmosphere of compromise, and take special education issues to an extreme. Although school psychologists perceive that the hearing process damages relationships between the school and parent, they do not believe that hearings affected relationships with students in a negative manner. Trust and rapport with the student is viewed as separate from such issues with the parent. However, there was conflict on the degree to which hearings had an impact on service delivery, with those school psychologists involved in hearings indicating that the delivery of services is negatively affected. In addition, school psychologists indicated that their responsibility in due process hearings is to remain neutral. They believe that they are not necessarily an advocate for the student, nor is their primary role to advocate/assist the district. Finally, the sample overwhelmingly indicated that participation in due process hearings increases the stress level for school psychologists and are so time-consuming that participation hinders the ability to meet job demands.

Keywords: Due process hearing, school psychology, school psychologist

The Individuals with Disabilities Education Act (IDEA, 2004) is a federal mandate that requires school districts to identify students with disabilities and provide them with a free, appropriate public education (FAPE) in the least restrictive environment (LRE). An essential component of the special education process is the Individualized Education Program (IEP) team, which is composed of a variety of school personnel and the student's parents. The IEP team makes decisions regarding eligibility, educational programming, placement and numerous other issues that affect and direct the student's academic career. In some cases, the school district and parents disagree with the decisions of the IEP team which may include eligibility conclusions or proposed services recommended by the team (Zirkel & Gischlar, 2008).

When the school district and parents are not able to reach an agreement, various forms of dispute resolution are conducted in an attempt to resolve the conflict. Dispute resolution is a general term

referring to different methods that a school district and a student's parents could engage in, in an attempt to resolve disagreements that affect the student's special education programming. These methods range from informal meetings with the IEP team to formal court hearings in which each party presents evidence and provides expert testimony and information. Mediation is one method of dispute resolution "in which participants come together to resolve their differences with the aid of a neutral third party" (Nowell & Salem, 2007, p. 305). The process of mediation focuses on communication, cooperation and problem-solving between both parties which differs greatly from the format of due process hearings. If these methods are not successful at resolving the dispute, then the dispute is brought to a due process hearing.

According to the IDEA (2004), "a parent or a public agency may file a due process complaint on… the identification, evaluation or educational placement of a child with a disability, or the

provision of FAPE to the child" (§300.507). The structure of a due process hearing "follows the general outline of a civil trial but with fewer formalities than a court proceeding. The decision made by an impartial hearing officer in a due process case is binding, but can be appealed by either party by filing a civil action in state or federal court" (Chambers, Harr, & Dhanani, 2003, p. 2). The IDEA (2004) allows each state to select either a one-tier or two-tier system for their due process hearings. In a one-tier system, the impartial hearing officer develops the final administrative decision which may be appealed, but cannot be reviewed by the state department of education. In a two-tier system, either the district or the student's parents may ask that the decision of the impartial hearing officer be reviewed by a state level officer who makes the final decision (Zirkel & Scala, 2010).

Previous studies regarding due process hearings have focused on topics such as the costs of due process hearings. Chambers et al. (2003) sent questionnaires to 247 districts regarding the costs of procedural safeguards, mediation and due process activities. They also sent out a questionnaire to 917 special education administrators regarding the amount of time they spend among their daily administrative activities and specific activities related to mediation, due process, assessment, evaluation, and pre-referral activities. These authors found that in the 1999-2000 school year, school districts spent approximately $90.2 million on mediation and due process activities and $56.3 million on litigation cases. The special education administrators were asked about the cost effectiveness of mediation and 96% of the participants responded that they thought mediation is more cost effective than going to a due process hearing.

Studies also have focused on the outcomes of due process hearings. Newcomer and Zirkel (1999) examined 414 published court cases from January 1975 to March 1995 in which the decisions of the due process hearings were appealed to either a federal or state court. The authors found that in one-tier states, districts were the predominant winners in 53% of the cases whereas parents won 39% of the cases. In two-tier states, the districts won 67% of the hearings whereas parents won 25% of the hearings. When the cases were appealed to federal

level, districts won 52% of the hearings whereas parents won 41% of the cases. When comparing all judicial proceedings and incorporating federal and state cases, school districts won approximately 49% of cases, whereas parents won 41% of the cases.

There have been investigations regarding the perceptions of due process hearings from parents' and school officials' perspectives. In a study by Goldberg and Kuriloff (1991), the fairness of due process hearings was examined. School officials and parents completed questionnaires designed to "measure their perceptions of the major procedural elements of the hearings" (p. 549). These elements included the fairness of pre-hearing and hearing procedures, the fairness of the hearing itself, the accuracy of the hearing officer's decision, their overall satisfaction with the hearing and the outcome, and their evaluation of the results of the entire process for the parents or their child. These elements were rated using a 7-point Likert scale. The authors found significant differences between parent perspectives and school official perspectives. When asked the degree to which they were accorded their legal rights, 95% of school officials had positive perceptions and felt that they had received all or most of their rights whereas only 51% of parents had positive perceptions. No school officials reported negative responses about the rights accorded them, but 24% of parents reported negative feelings.

The school officials and parents also reported differences in perceptions of the overall fairness of their hearings (Goldberg & Kuriloff, 1991). Eighty-eight percent of school officials reported positive feelings towards the overall fairness of the hearings, whereas only 41% of parents reported that the hearings were completely fair or almost completely fair, and 35% reported that the hearings were substantially unfair. When asked about their overall satisfaction with the hearing process, 70% of school officials reported positive feelings and 54% of parents reported negative feelings (no or almost no satisfaction) about the experience. The participants were also asked to rate their overall experience of being involved in this process; 67% of parents and 33% of school officials reported negative feelings and 48% of school officials reported positive feelings. The authors determined that while there are differences between reported satisfaction

between parents and school officials, both parties indicated a substantial lack of satisfaction.

In a recent report by the American Association of School Administrators (AASA; Pudelski, 2013), the results of a survey of 200 school superintendents regarding their experiences with due process hearings are presented. Both cost and emotional burden were major factors in deciding whether to move forward to a hearing. Ninety-five percent of superintendents indicated that due process hearings resulted in high levels of stress, and 24% of these respondents indicated that 10-25% of the time, teachers leave the district or request a transfer out of special education after being involved in litigation (due process hearings or similar proceedings). The AASA report also noted that "school districts across the United States spend over 90 million per year in conflict resolution" (p.23).

There has been limited research investigating the impact of due process hearings on the roles, actions and relationships of school psychology personnel. School psychologists are commonly involved in such procedures since they conduct evaluations of students for eligibility purposes, deliver related services, and are responsible for contributing to the development and monitoring of academic and behavioral interventions. In a study by Havey (1999), 185 practicing school psychologists responded to a survey regarding their experiences in due process proceedings. Over 50% of the sample had actually testified or been on a witness list to testify in a hearing, and school psychologists required on average 7.5 hours of preparation. Parents requested most hearings, placement followed by services were the most common issues in dispute, and schools prevailed in approximately 69% of the hearings. The school psychologists in this sample felt that the hearing decisions were fair. The survey also contained space for comments and 18% of the sample provided such comments. The largest number of comments added by school psychologists addressed the "stressful, time-consuming, anxiety-provoking nature of hearings" (p. 119).

Studies have shown that the general perception of due process hearings is that they are adversarial in nature (Goldberg & Kuriloff, 1991; Zirkel, 1994). While Havey's (1999) survey touched on the feelings that school psychologists have about

hearings, the survey did so by asking for comments and only 33 respondents completed the comments. Thus, the purpose of the present study is to investigate not only the general perceptions of due process hearings by school psychology personnel, but also the impact due process hearings have on school psychology personnel performing their duties, and the effect hearings have on their relationships with students and parents.

Method

Participants

The sample consisted of 93 participants. Of the total participants, 15% were male (n=14) and 85% were female (n=79). The participants in this study were credentialed as Licensed Specialists in School Psychology (LSSP). This is the credential for school psychology practice in Texas and reflects a minimum of a 60-hour program based on the standards of the National Association of School Psychologists (NASP). In this article, the terms LSSP and school psychologist are used interchangeably.

Of the 93 participants who completed the survey, 16 held the Ph.D. degree and 77 held a Master's or Specialist degree. The majority of the sample had 5 or more years of experience (1-4 years: n=24; 5-9 years: n= 25; 10-14 years: n=14; and 15+ years: n=30). The sample reflected individuals working in rural (n=19), urban (n=20) and suburban (n=42) districts; 12 participants did not indicate the type of district they worked in or selected more than one option.

The participants indicated their current job title. Eighty percent of the sample were or had been employed as a school psychology practitioner (n=74). Other job titles were Administrator (n=6), Professor (n=1) and Other [n=11; examples include consultants, a retired individual, a special education counselor, and several maintaining dual roles (practitioner and instructor of psychology, practitioner and behavior specialist, practitioner and administrator, etc.)]. One participant did not indicate a job title. Only a few participants noted that they did not work full-time in a public school district [university: n=2; private practice: n=1; other: n=6, examples include self-employed or

contract employees, a retired individual, and one who selected two options (public school district and private practice)]. The vast majority of the sample (n=83; 88%) worked within a public school district. Two participants did not indicate their employing agency.

Participants were asked about their involvement in due process hearings, the issues and outcome, and testimony. Forty-eight percent of the respondents reported that they had never been involved in a case with litigation issues (n=45). The remaining 48 participants had been involved in litigation cases: n=19, hearing filed but did not advance, and n=29, hearing filed and the case did advance to a formal hearing. Of the 48 participants who had some involvement in litigation, 32 reported that they had participated in 1-3 due process hearings, 11 reported participating in 4-6 due process hearings, 1 in 7-9 hearings, and 3 in 10+ hearings (1 participant indicated participation in 0 hearings). Of the respondents that participated, 54% (n=26) had been called to testify in a due process hearing.

Overall, the majority of the sample consisted of Specialist-level school psychologists with five or more years of experience working in urban and suburban public school districts. Approximately one-half of the sample had never been involved in a case with litigation issues, and the remaining half of the sample had been involved in such cases to some degree.

Materials

After reviewing the survey created by Havey (1999), an instrument was developed specifically for this study. The 35-item instrument and demographic page was sent to several professionals in the field with a request for feedback. They were asked to review the survey and provide suggestions or recommendations regarding item clarity, ease of responding, item redundancy, and other issues relating to due process that should be addressed. Responses were received from four doctoral level school psychologists, each of whom had been involved in due process hearings and had testified. Two of these professionals had held the role of Director of Psychological Services at some point in their career. Additionally, four specialist-level

school psychologists remitted feedback, each of whom had been involved to some degree in a due process case but had not testified in a hearing. One special education attorney provided feedback on the survey. Once feedback had been received, the researchers reviewed the comments and clarified and/or modified the survey accordingly. No one recommended that items be dropped; thus the survey remained at a total of 35 questions.

The structure of the instrument is as follows: The first eight questions consisted of general demographic information about the respondents participating in the study. The next six questions asked about common issues and outcomes in the hearings or litigation cases in which participants had been involved. The third section of the instrument contained 35 items directly related to attitudes and beliefs toward due process hearings (DPH). These 35 items are presented in their entirety in Table 1 and Table 4. For these items, each respondent rated their belief or attitude on a 4-point Likert scale with 1 representing *strongly disagree*, 2 representing *disagree*, 3 representing *agree* and 4 representing *strongly agree.* All participants answered the first 28 items, whereas the final seven items were answered only by those participants who had experienced a DPH first-hand.

Procedure

The surveys were completed in October 2011 at a state conference for school psychologists. The investigators had a designated booth at the conference with a sign requesting participation in the study. An announcement was made in one of the workshops requesting completion of the survey. A consent form describing the study accompanied each survey and any questions were answered directly by one of the investigators. Those attendees who completed the survey returned them to a designated completion box on the table.

Results

Common themes for participants who had experienced a due process hearing

Thirty-seven participants provided information about the final outcomes of the DPH hearings they

had experienced in terms of which party prevailed. Seventy-three percent of the hearings resulted in the school district prevailing, and parents prevailed in 16% of hearings. In 11% of the hearings there was a split decision. Participants revealed that the top three issues that initiated a DPH were: special education services (51%), eligibility (49%) and placement (38%). Some participants chose more than one category resulting in sums greater than 100%. Discipline (21%) and related services (19%) issues also were concerns that brought the parents and districts together in a DPH.

Participants also indicated which issues they testified about. Again, the 46 respondents who provided information were allowed to check all categories that apply, resulting in a sum greater than 100%. The most common issues that the school psychologists testified about were evaluation (61%), eligibility (54%), diagnosis (41%) and appropriateness of placement (37%). Some participants also provided testimony about adequacy of the IEP (26%) and related services (17%).

Response differences between those involved and those not involved in due process hearings

The initial analysis was undertaken to examine the differences in perceptions between those respondents who had been involved in some way in a DPH and those who had not been involved. For each of the 28 items, *t*-tests were computed to examine whether there were differences between these groups. Means and standard deviations are given in Table 1, as well as *t*-values and *p* values. As can be seen in Table 1 using *p*<.05, there are significant differences between these groups for only 2 items: Item 12 (i.e., DPHs generally result in adversarial relationships) and Item 27 (I have known of school personnel (teachers, school psychologists, other staff) who have resigned as a result of their participation in a DPH). This indicates that whether participants had or did not have experiences with due process hearings, their perceptions were similar.

Table 1: *Comparisons of participants involved and not involved in due process hearings*

Item	Involved (n=48)		Not Involved (n=45)		*t-value*	*p*
	M	SD	M	SD		
1. DPHs are generally fair to both parties.	2.58	.71	2.62	.58	0.084	.773
2. Parents involved in DPHs are generally satisfied with the results.	2.15	.51	2.30	.55	1.729	.192
3. School districts involved in DPHs are generally satisfied with the results.	2.48	.58	2.48	.63	0.000	.988
4. Students benefit as a result of DPHs.	2.13	.82	2.35	.78	1.774	.186
5. Communication between school administrators, staff, and parents improve as a result of DPHs.	2.15	.99	2.40	.86	1.733	.191
6. DPHs are necessary in order for students to receive the services they need.	1.77	.66	1.93	.78	1.180	.280
7. DPHs increase the level of stress for school psychological personnel.	3.81	.45	3.60	.69	3.169	.078
8. DPHs improve current practices in consultation.	2.43	.71	2.42	.75	0.000	.983
9. DPHs improve the way school psychology personnel interact with students.	2.19	.67	2.18	.75	0.004	.948
10. In general, DPHs improve the way school psychology personnel interact with parents.	2.29	.71	2.33	.74	0.077	.783

11. The atmosphere of DPHs is conducive to compromise.	1.94	.73	2.18	.65	2.812	.097
12. DPHs generally result in adversarial relationships.	3.38	.70	3.09	.60	4.448	.038
13. Administrative support is typically strong for school psychology personnel who participate in DPHs.	2.75	.84	2.82	.58	0.232	.631
14. The primary responsibility of school psychology personnel is to assist the district to prevail in litigation.	2.33	.91	2.16	.67	1.140	.288
15. The primary responsibility of school psychology personnel in a hearing is to advocate for the student.	2.71	.85	2.71	.84	0.000	.987
16. The primary responsibility of school psychology personnel is to remain neutral in a DPH and just present facts.	2.75	.70	2.93	.65	1.699	.196
17. School psychology personnel have adequate training to provide testimony in a DPH.	2.50	.95	2.20	.92	2.402	.125
18. Because DPHs are time consuming, they hinder the ability to meet job demands.	3.42	.68	3.33	.60	0.390	.534
19. DPHs take special education issues to an unnecessary extreme.	3.19	.79	2.91	.78	2.891	.093
20. Districts should do everything possible to avoid DPHs.	2.65	.82	2.80	.81	0.742	.391
21. DPHs negatively impact rapport with the student.	2.52	.71	2.66	.64	0.943	.334
22. DPHs negatively impact rapport with the student's family.	3.27	.64	3.16	.56	0.841	.361
23. DPHs violate the basic focus of school psychology training as collaborative problem solvers.	2.77	.86	2.58	.69	1.420	.236
24. In general, DPHs have a negative impact on trust between school psychology personnel and parents.	3.10	.72	2.98	.51	0.938	.335
25. In general, DPHs have a negative impact on trust between school psychology personnel and students.	2.46	.74	2.58	.54	0.775	.381
26. Once a DPH has occurred, the ability to provide services to that particular student by any school psychology personnel is negatively affected.	2.38	.79	2.49	.66	0.565	.454
27. I have known of school personnel (teachers, school psychologists, other staff) who have resigned as a result of their participation in a DPH.	2.39	.88	1.82	.69	11.712	.001
28. DPHs lead to positive changes in the educational system for students with disabilities.	2.40	.71	2.48	.70	0.243	.623

Note: DPH=due process hearing

Cluster Differences

In order to examine whether there were cluster differences between these groups, the items were informally analyzed for similar focus and grouped into three categories. The first of these three categories is named "General Perceptions" about DPHs and includes items 1, 3, 4, 5, 6, 11, 12, 19, 20, and 28. The second category is named "Impact on Relationships with Parents and Students" and includes items 2, 9, 10, 21, 22, 24, 25, and 26. The third category is called "Roles and Responsibilities" of school psychologists in DPHs and includes items 7, 8, 13, 14, 15, 16, 17, 18, 23, and 27. Averages across scores of items within each category were computed, resulting in continuous scores for each category. Means and standard deviations are given in Table 2, as well as *t*-values and *p* values. As can be seen in Table 2, there are significant differences between these groups for the Roles and Responsibilities category.

In order to review trends in the data, percentages were generated based on the frequency of responses for those participants who agreed (strongly agree and agree) versus disagreed (disagree and strongly disagree) with the instrument's statements. Table 3 presents these data for each of the clusters.

Table 2: *Cluster comparisons of participants involved and not involved in due process hearings*

Category	Involved (n=48)		Not Involved (n=45)		*t-value*	*P*
	M	**SD**	**M**	**SD**		
General Perceptions about DPHs	2.47	.30	2.53	.33	0.621	.433
Perceptions of Impact of DPH on Relationships with Parents and Students	2.55	.32	2.60	.32	0.384	.537
Roles and Responsibilities of School Psychologists	2.79	.21	2.66	.22	8.130	.005

Table 3: *Percentage of participants who agree versus disagree on items within clusters*

Cluster – General Perceptions about DPH		
Item	**% Agree**	**% Disagree**
1. DPHs are generally fair to both parties.	65	35
3. School districts involved in DPHs are generally satisfied with the results.	51	49
4. Students benefit as a result of DPHs.	40	60
5. Communication between school administrators, staff, and parents improve as a result of DPHs.	41	59
6. DPHs are necessary in order for students to receive the services they need.	15	85
11. The atmosphere of DPHs is conducive to compromise.	27	73
12. DPHs generally result in adversarial relationships.	87	13
19. DPHs take special education issues to an unnecessary extreme.	76	24
20. Districts should do everything possible to avoid DPHs.	63	37
28. DPHs lead to positive changes in the educational system for students with disabilities.	52	48
Cluster – Perceptions of Impact of DPH on Relationships with Parents and Students		
Item	**% Agree**	**% Disagree**
2. Parents involved in DPHs are generally satisfied with the	27	73

results.		
9. DPHs improve the way school psychology personnel interact with students.	31	69
10. DPHs improve the way school psychology personnel interact with parents.	40	60
21. DPHs negatively impact rapport with the student.	54	46
22. DPHs negatively impact rapport with the student's family.	90	10
24. DPHs have a negative impact on trust between school psychology personnel and parents.	85	15
25. DPHs have a negative impact on trust between school psychology personnel and students.	52	48
26. Once a DPH has occurred, the ability to provide services to that particular student by school psychology personnel is negatively affected.	42	58
Cluster – Roles and Responsibilities of School Psychologists		
Item	**% Agree**	**% Disagree**
7. DPHs increase the level of stress for school psychological personnel.	96	4
8. DPHs improve current practices in consultation.	48	52
13. Administrative support is typically strong for school psychology personnel who participate in DPHs.	74	26
14. The primary responsibility of school psychology personnel is to assist the district to prevail in litigation.	32	68
15. The primary responsibility of school psychology personnel in a hearing is to advocate for the student.	55	45
16. The principal responsibility of school psychology personnel should remain neutral in a DPH and just present facts.	79	21
17. School psychology personnel have adequate training to provide testimony in a DPH.	44	56
18. Because DPHs are time consuming, they hinder the ability to meet job demands.	96	4
23. DPHs violate the basic focus of school psychology training as collaborative problem solvers.	53	47
27. I have known of school personnel (teachers, school psychologists, other staff), who have resigned as a result of their participation in a due process hearing.	30	70

General Perceptions. As noted in Table 2, there was no significant difference between those participants involved and those not involved in a DPH regarding general perceptions. Table 3 presents percentages across the entire sample regarding responses to the questions in this cluster.

Respondents were equally divided on questions relating to whether or not the school districts are satisfied with the results (51% agree (A)/49% disagree (D)) and whether or not due process hearings lead to positive change in education for students (52% A/48% D). Those surveyed showed slightly more agreement that due process hearings are generally fair to both parties (65%) and that districts should do everything possible to avoid due process hearings (63%). Those surveyed were also

more unified in their belief that students do not benefit as a result of due process hearings (60%), and that communication between school administrators, staff, and parents does not improve as a result of due process hearings (59%). Participants overwhelmingly indicated agreement that due process hearings generally result in adversarial relationships (87%), and that due process hearings take special education issues to an unnecessary extreme (76%).

Impact on Relationships with Parents and Students. As noted in Table 2, items regarding this cluster also did not yield significant results between those participants involved or not involved in a DPH. Table 3 presents percentages across the entire sample regarding responses to these questions. In general, the items assess the overall impact of due process hearings on the relationships between school psychology personnel and students and their families. The majority of participants in this study did not agree that parents are generally satisfied with the results of due process hearings (73%) or that due process hearings improve relationships between school personnel and students (69%) or their parents (60%). The majority of participants did agree that due process hearings have a negative impact on rapport with the student's family (90%) and a negative impact on trust between school psychology personnel and parents (85%). Three items that addressed the negative impact that due process hearings have on rapport (54%), on trust (52%) with the student, and on the effect due process hearings may have on the ability of school psychology personnel to provide services to students (42%) were approximately evenly distributed.

Roles and Responsibilities. There was a significant difference regarding roles and responsibilities (Table 2) between those participants involved and those not involved in a DPH. Within this item set as noted in Table 1, item 27 yielded a significant difference with individuals involved in a due process hearing more likely to have first-hand knowledge of people who have left the profession. A review of the means in Table 1 indicates a trend of school psychologists who have been involved in a DPH having a higher level of agreement for the majority of the statements. The two exceptions to this were that those school psychologists who had

not been involved in DPHs tended to believe that there was strong administrative support and believe that school psychologists should remain neutral in a DPH. While there are trends in the data, in general there are no significant differences between nine of the 10 items in this set and overall there is agreement among school psychologists who have and have not participated in DPHs.

Table 3 presents the data for the whole sample regarding those items relating to roles and responsibilities. The data indicate that the vast majority of school psychologists (96%) perceive due process hearings to be stressful and time-consuming, and that because of the time-consuming nature of hearings, such proceedings hinder the ability to meet job demands. Most school psychologists feel that they receive adequate administrative support for their participation (74%); however, the majority does not believe they have adequate training (56%) for providing testimony. The majority of school psychologists (79%) perceive their responsibility in the hearing is to remain neutral and just present facts.

Perceptions of school psychologists who have been involved in due process hearings

Of the 48 participants who indicated that they had prior experiences with DPHs, only 40 answered the last seven items, which related to actual experiences during a DPH. An examination of the perceptions of these 40 participants is contained in Table 4, in which the percentages for agree versus disagree for the final seven items of the instrument are presented. As can be seen, most respondents agree that DPHs negatively impact rapport (78%) and trust (75%) with the student's family. They also believed that they are adequately prepared for testifying (73%), that participation in the DPH process made them more skeptical about school related matters in general (63%), and that DPH does not impact rapport (63%) or trust (58%) between school personnel and the student. They were divided (47% agree, 53% disagree) on the matter of feeling pressure from administration to respond in a particular direction about a litigation issue.

Table 4: *Perceptions of school psychologists involved in due process hearings*

Item	% Agree	% Disagree
29. Based on my involvement in DPHs, due process hearings negatively impact rapport with the student.	37	63
30. Based on my involvement in DPHs, due process hearings negatively impact rapport with the student's family.	78	22
31. Participation in DPHs has made me more skeptical about school related matters in general.	63	37
32. DPHs have a negative impact on trust between school psychology personnel and parents.	75	25
33. DPHs have a negative impact on trust between school psychology personnel and students.	42	58
34. I have felt pressure from administration to respond in a particular direction about a specific litigation issue.	47	53
35. I felt adequately prepared by my district and attorney for participation in DPHs.	73	27

Discussion

The overall results of this study are consistent with those obtained by Havey (1999). School districts prevail in the majority of hearings (73% of the school psychologists note this to be the case in this sample; in Havey's sample this was noted by 69% of the respondents), and hearings are stressful and time-consuming for school psychology personnel. Placement and eligibility are common reasons for DPHs, and school psychologists primarily contribute testimony in areas related to evaluation/eligibility/diagnosis. The consistency of these results with Havey's (1999) study is important since one major limitation of this study was the limited sample (school psychologists from one state). It would be beneficial to extend this survey to a national sample.

The results of this study yield five important conclusions. First, due process hearings generally result in adversarial relationships, do not foster an atmosphere of compromise, and take special education issues to an extreme. Most school psychologists did not believe that students actually benefit from this process. It is understandable then that the majority of this sample endorsed the notion that school districts should do everything to avoid hearings. It is likely that school districts do make substantial attempts to avoid hearings for both altruistic and monetary reasons, but such a process is a basic right of both districts and parents and may be a necessary evil when parties have fundamental disagreements and cannot reach a compromise.

Second, the overwhelming majority of this sample indicated that DPHs negatively impact rapport with family and have a negative impact on trust between school psychology personnel and parents (this is consistent with the results in Havey's sample who overwhelmingly indicated that due process hearings result in negative rapport and trust issues with parents). While this is not a shocking finding, especially since many hearings emanate from distrust with the school and school personnel in providing services, it is a critical finding in that rapport and trust with parents is of major importance in providing services to students. Family-school collaboration is a major guiding principle in school psychology and hearings rock the basic foundation of this. For all parties involved, participation throughout the course of a due process hearing has the potential to elicit strong emotional responses and divergent perspectives. The outcomes are regularly disappointing to everyone involved (Rock & Bateman, 2009; Zirkel, 1994). These

consequences often result in broken trust and stifled communication that can affect the ability of the school psychologist to perform their jobs effectively. It is, therefore, important for school psychologists to be aware of these potential pitfalls in their efforts to maximize the student's educational experience, and minimize their own negative perceptual outcomes. Rock and Bateman (2009) suggested that due process hearings be reviewed to guide educational practices, make informed decisions regarding services, and promote partnerships. Clearly, perceptions and outcomes are not universal, but certainly have the potential to significantly improve or damage relationships.

Third, on a more positive note, the school psychologists sampled did not believe that the hearing affected relationships with students in a negative manner. Trust and rapport with the student is viewed as separate from such issues with the parent. However, the sample was divided on the degree to which hearings had an impact on service delivery, with those school psychologists involved in hearings indicating that the delivery of services was negatively affected.

Fourth, the school psychologists indicated that their responsibility in due process hearings was to remain neutral. This sample felt that they were not necessarily an advocate for the student, nor was their primary role to advocate/assist the district. This neutrality is positive in that school psychologists must follow ethical standards. Elias (1999) has written on this issue and discusses a possible divergence between the interest of the school and the ethical considerations of the school psychologist. This issue of responsibility to remain neutral is important given that at least half of the participants who had participated in a hearing felt some pressure to respond in a particular direction.

Finally, the sample overwhelmingly indicated that participation in due process hearings increases the stress level for school psychologists and are so time-consuming that participation hinders the ability to meet job demands. In 2011, Lange wrote that the interface of school psychology practice, special education procedures and the potential for litigation may be a factor leading to school psychologists leaving the profession. Thirty percent of this sample indicated that they knew of a professional who had resigned as a result of due

process participation, and this was only one of two items that yielded statistically significant results between individuals involved in DPHs and those not involved (Item 27). This stress can, no doubt, interfere with open communication between all parties involved and significantly change their mutual relationship perceptions. Literature that evaluates these perceptions noted feelings of distrust, anger and displeasure over time and money spent on the part of the school district and parents (Getty & Summy, 2004; Lombardi & Ludlow, 2004; Zirkel, 1994).

There is no doubt that participation in DPHs exerts a professional toll. As a profession, we must consider our roles not only in such proceedings but in how to prevent them, since the cost-benefit ratio of such proceedings is not positive. Regardless of which party prevails in such hearings, it is clear that no party really wins.

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Book Review

Book Review: Flanagan, D., Ortiz, S., & Alfonso, V. (2013). *Essentials of cross-battery assessment – third edition*. Hoboken, NJ: Wiley.

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Flanagan, Ortiz, and Alfonso's *Essentials of Cross-Battery Assessment – Third Edition* purports to serve as a clear guide for the integration of cognitive, academic, and neuropsychological tests, instruction in the process of identification of specific learning disability (SLD), and rapid reference. Flanagan et al. (2013) begin with a review of cross battery assessment, or the XBA approach, discussing the basis of the Cattell-Horn-Carroll (CHC) theory and integration of neuropsychological theory proposing a systematic, reliable, and theory-based evaluation and interpretation process. They report that this approach results in increased psychometric defensibility, understanding of patterns of strengths and weaknesses, as well as a more comprehensive and accurate analysis and identification of individuals with specific learning disabilities. Specific attention is paid to the needs within cognitive assessment related fields and addressing these with the XBA approach as well as refinements, extensions, and changes to CHC theory. The text is organized into seven chapters that include discussions of the organization of XBA assessments, including the use of cognitive, achievement and neuropsychological batteries, interpretation of test data, the Dual Discrepancy/Consistency (DD/C) operational definition of SLD, XBA assessment of individuals from culturally and linguistically diverse backgrounds, strengths and weaknesses of the XBA approach, and a chapter describing an XBA case report. Multiple appendices as well as a CD-ROM (Essential Tools for the XBA Applications and Interpretations) are included.

The intended audience for the book is not explicitly stated in the text; however, authors report "practitioners" (p. 1) as the audience. It appears as though the text is intended for individuals who conduct cognitive, achievement, psychological, neuropsychological assessment, and particularly assessments for SLD. The preface reports that the text will offer experienced clinicians with updates needed to evolve in response to changes to instruments and methods and will serve as an important resource to novice practitioners in the process of psychological diagnosis. In numerous places in the text, references are made to psychological reports, neuropsychological processes, assessments and interpretation as well as executive functioning.

Content and Structure

The main goals and purpose of the book appear to include assisting practitioners in quickly acquiring knowledge and skills that are needed to make the most use of assessment instruments, as well as providing an update to practitioners in the changes in CHC theory and XBA approaches to evaluation, including guidelines for assessment of persons from culturally and linguistically diverse backgrounds. The book also provides informative changes from the SLD Assistant to the Pattern of Strengths and Weakness Analyzer and other software changes. Other goals appear to be the discussion of inclusion of additional ability, achievement, and neuropsychological measures, providing an emphasis on past and current research in regards to SLD, and the discussion of the

importance of neuropsychological assessment, assessment of executive functioning, and use of neuropsychological assessment instruments. Neuropsychological assessment data and the assessment of executive functioning were reported to be very valuable in the assessment of SLD. It was also discussed that the XBA process requires knowledge of neuropsychological processes as well as measures of these processes and executive functions.

The structure and organization of the book appears to be well thought out. For example, beginning with an overview and proceeding to how to organize an XBA assessment and then on to test interpretation and SLD identification appear to have a natural and realistic flow to aid the reader in understanding the process and changes to the recommended process. Inclusion of information about assessment of individuals from culturally and linguistically diverse backgrounds was important. The addition of appendices, which are sectioned and titled, allow the reader to easily find helpful information.

Critique

Essentials of Cross Battery Assessment, third edition is readable and the writing is professional and interesting. The authors meet their apparent goal of providing information to the novice and seasoned evaluator with updates to the XBA approach. This text provides guidance on integration of cognitive, academic, and neuropsychological tests, and assists those working to identify SLD. Additionally, the authors provide data to support recommendations for changes in the process of SLD identification and CHC theory.

Limitations of the book appear to be that practitioners are provided guidance about assessment of SLD using the XBA approach without defining who would be competent or prepared evaluators to use this model (i.e. failure to define who is considered an appropriate "practitioner"). Particularly with the reported trend to incorporate psychological and neuropsychological tests, tests of executive functioning and writing of psychological reports, defining who a "practitioner" is appears to be very

important. The current trend to incorporate neuropsychological assessment into the mix presents a potential chasm between knowledge and appropriate practice with trained and competent professionals

In comparison to other books in the field of assessment, the text is one of a kind. There are not many books that describe assessment in such a specific and precise descriptive manner; however, the book also is based on a specific working model for SLD identification. The authors have integrated and supported their model and process by providing updates to theory and research noting theoretical revisions with additional support with notation of empirical evidence where it exists.

The book contributes greatly to the field by assisting evaluators in the process of identification of SLD as well as in determining a route for interventions. Professional groups that would benefit from the book include licensed specialists in school psychology or school psychologists, educational diagnosticians, students training in psychology master's or doctoral programs, and licensed psychologists or other appropriately licensed individuals who assess for SLD. The time required for the selection of appropriate test batteries, assessment, interpretation and report writing have greater demands on the practitioner than in the past with the prior use of the Simple Difference Method for SLD identification. This book is critical reading due to ongoing research findings and changes to theory and best practices of assessment for SLD.

In summary, the text is a valuable reference for those conducting or who will be conducting assessments of SLD. It is recommended that both novel and experienced practitioners as well as those who are studying to become practitioners should be required to read and study this text. However, in addition to reading this text, it is very important that those practitioners who are assessing individuals using this or similar models be appropriately trained to ensure the validity of the assessment.