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The California School Psychologist Provides Valuable Information to Promote Reading Success Among Students

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This volume of *The California School Psychologist* provides valuable information to promote the reading success of students, as well as many other informative articles addressing response-to-intervention; the education of lesbian, gay, bisexual, transgendered, and questioning (LGBTQ) students; and school-based interventions for students with autism. Each of these articles provides valuable information for school psychologists and other professionals working in the schools, and also contributes to the literature and scholarship that aims to promote the educational success of all students. Previous articles published in *The California School Psychologist*, including the recent volumes addressing a) school engagement, b) strength-based assessment, c) response to intervention (RTI), d) autism, and e) students with emotional or behavioral disorders, are available on-line at www.education.ucsb.edu/school-psychology and at www.casponline.org (CASP members only).

The first article (Christo & Davis, 2008), shares the results of a study that examined the relationships between the cognitive processes of rapid naming, phonological processing and various literacy skills, using data from 65 students in grades two through five. This study used multiple measures, including; phonological processing, rapid naming, reading comprehension, isolated and nonsense word reading, and spelling. Regression analyses revealed that rapid naming was a stronger predictor of word reading, reading comprehension and spelling, relative to phonological processing. Decoding skills were found to account for the largest amount of variance in word reading and spelling. The authors discuss the importance of considering these results when assessing and designing interventions with reading disabled children. Based on the results of this study, the authors emphasize that psychologists should assess underlying processes of rapid naming and phonological processing to better understand the student's skills, and inform intervention strategies.

A guide for school psychologists to use in the consultation process when working with teachers to address students' reading difficulties is provided in the second article (Lilles, Griffiths, Lee, Cardenas, Chacko, & Jimerson, 2008). This article details important facets of instructional consultation and important considerations to take into account including: a) entering the consultation relationship, b) effectively identifying the problem and underlying cause, c) identification of the appropriate intervention, monitoring implementation integrity, and d) the termination of the consultation relationship. This article also provides information regarding possible effective intervention strategies, resources to obtain additional information, and a valuable checklist for school psychologists. The authors encourage school psychologists to use a consultation process to contribute resources and support to teachers to improve student reading ability, and prevent negative outcomes associated with poor reading skills.

The third article (Huang, Nelson, & Nelson, 2008) reports the results of a study designed to investigate increases in reading fluency following a research-based tutoring method using repeated reading, which was implemented with two second-grade students. This study involved two high school students who trained to be the tutors to provide the directed repeated reading experience. In addition, one parent and one

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older sibling were trained to repeat the tutoring process at night. The author also monitored treatment integrity through observation and tutor contact. The results indicate that the six, 30-minute sessions per week resulted in significant increases in sight word vocabulary, fluency and comprehension. Using this study as an exemplar, the authors emphasize that school psychologists should provide leadership in developing intervention strategies that are research-based and also gather data to examine student outcomes, and treatment integrity to enhance the success of all students. This study provides an excellent example of efforts to bring science to practice to benefit students.

Implications of the 2004 Reauthorization of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) as it relates to service delivery is discussed in the fourth article (Powers, Hagans, & Busse, 2008). Specifically, the article emphasizes that there is an opportunity to shift the classification of Learning Disabilities (LD) from a "refer-test-place" to a Response-to-Intervention (RtI) service delivery model. This article includes the results of survey data collected from 249 school psychologists across California, highlighting the need to modify school psychology pre-service training and ongoing professional development to enable school psychologists to become effective instructional consultants. The authors advocate and delineate instructional consultation in a tiered assessment and intervention model. This article offers a discussion of instructional consultation skills and knowledge to promote the learning outcomes of students with achievement deficits, including students with disabilities. The authors emphasize that school psychologists working within the contemporary RtI service delivery model need to be well prepared to collect systematic, instructionally relevant assessment data and consult with teachers on how to apply these data to design effective interventions that are appropriate for varying levels of individual need.

The fifth article (Sansosti & Noltemeyer, 2008) also focuses on implementing a Response-to-Intervention (RtI) model, with particular emphasis on reviewing educational change conceptualizations and research, and highlighting factors that may facilitate or impede current educational reform. This article discusses (a) RtI as a current educational reform initiative, (b) Fullan's (2007) theoretical model as a framework through which to present information related to educational change, and (c) offers suggestions regarding how such educational change literature can inform and improve the implementation and future sustainability of RtI in schools. The authors emphasize the importance of the first year of implementation and the importance of devoting sufficient time and resources to properly plan RtI initiatives at all three phases of the change process: adoption, implementation, and institutionalization. The authors also offer several practical recommendations for planning effectively for RtI initiatives, highlighting the importance of: a) supportive leadership, b) collegiality, c) affirmative teacher beliefs and knowledge, and d) sufficient capacity of both systems and individuals.

The use of a Response-to-Intervention (RtI) approach for identifying children with possible learning disabilities for special education is the focus of the sixth article (Restori, Gresham, & Cook, 2008). The authors note that federal law no longer mandates the need for a discrepancy for determining an SLD. This article: (a) provides a brief review of the discrepancy model, (b) provides a compendium of the issues related to the IQ-discrepancy model for school psychology practitioners in California, (c) reviews the issues related to the use of intelligence tests within an RtI model, and (d) provides a rationale for applying RtI across school districts in California. The authors advocate that the data resulting from the application of RtI methods will allow school psychologists and teachers to focus on issues related to intervention, rather than issues related to classification and eligibility.

The seventh article (Fisher, Komosa-Hawkins, Saldaña, Thomas, Hsiao, Rauld, & Miller, 2008) offers valuable information pertaining to the education of lesbian, gay, bisexual, transgendered, and questioning (LGBTQ) students. The article discusses how LGBTQ students are at risk for developing academic, social, and emotional problems due to harassment and bullying experienced at school and also notes that few schools implement policies and programs to support LGBTQ students. The authors emphasize that school psychologists are in a unique position to help schools be responsive to the needs of LGBTQ students. Emphasizing a public health framework that focuses on primary, secondary, and tertiary levels of prevention and intervention for LGBTQ students, the authors encourage school psychologists to implement strategies and make recommendations for school-wide changes to promote positive development for all students. Specific recommendations for school psychologists include; educating administrators about relevant laws

and policies, conducting staff development activities, facilitating school-wide diversity trainings, serving as the advisor of a gay-straight alliance, conducting group and individual counseling, and evaluating outcomes.

How to address the needs of children with autism in the school context is the topic of the eighth article (Skokut, Robinson, Openden, & Jimerson, 2008). This article discusses scientifically based and promising interventions that may be used to promote the social and cognitive competence of children with autism. Brief descriptions and succinct reviews of outcome data are provided for: a) Discrete Trial Training (DTT), b) Pivotal Response Treatment (PRT), c) Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP), d) The Picture Exchange Communication System (PECS), e) Incidental teaching, and f) The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). The authors aim to bring science to practice by providing school psychologists and other educational professionals with a primer for selecting evidence-based approaches to address the needs of children with autism. The authors emphasize that given the diverse array of challenges faced by children with autism, empirically based intervention strategies should be tailored to the individual child's specific needs and goals.

This collection of articles provides valuable information that may be used by educational professionals working with children, families, and colleagues to enhance the academic success and promote positive developmental trajectories of students. The authors provide valuable information and insights that advances our understanding of numerous important topics. *The California School Psychologist* contributes important information regarding promoting the social and cognitive competence of all students.

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Rapid Naming and Phonological Processing as Predictors of Reading and Spelling

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This study examined the relationships between the cognitive processes of rapid naming and phonological processing and various literacy skills. Variables measured and used in this analysis were phonological processing, rapid naming, reading comprehension, isolated and nonsense word reading, and spelling. Data were collected from 65 second-to-fifth grade children referred for learning difficulties. Regression analysis was performed to determine which of the cognitive processes was the strongest predictor of the literacy skills measured. Rapid naming was found to be a stronger predictor of word reading, reading comprehension and spelling than was phonological processing. When a measure of decoding skills was included as a predictor, it was found to account for the most variance in word reading and spelling. The implications of these results for assessing and designing interventions with reading disabled children are discussed as well as the need to further investigate the double deficit hypothesis.

KEYWORDS: Reading, Rapid Naming, Phonological Processing

Much has been learned about reading and the underlying cognitive processes that are associated with success or struggle in acquiring literacy. For example, there is strong support for the link between phonological processing skills and the development of reading. Basic phonological skills have been identified as strong predictors of future reading success (Bradley & Bryant, 1983; Castles & Coltheart, 2004; Fox & Routh, 1976; Liberman, Shankweiler & Liberman, 1989; Mann & Liberman, 1984; Stanovich, Cunningham & Feeman, 1984; 1984; Wagner & Torgeson, 1987; Yopp, 1988) when comparing poor readers with both age and reading level matches. That is, poor readers are less proficient at tasks requiring phonological awareness, relative to their skilled reader age mates and also than younger readers of equal reading proficiency. Differences are even seen in studies comparing college age dyslexics with normal readers (Kitz & Tarver, 1989).

Rapid automatic naming, as first conceptualized by Denckla and Rudel (1976a; 1976b), consisted of four separate series of letters, numbers, colors, and objects presented over and over in random order on a 50-item matrix. Students would be asked to name the series as quickly as possible, and separate times were kept for each. Rapid naming is considered by some researchers to be subsumed under phonological skills (Felton & Brown, 1990; Wagne, Torgesen, & Rashotte, 1999; Shaywitz, 2003) and by others as a marker for processing speed (Ackerman, Holloway, Youngdahl & Dykman, 2001; Hammill & Mather, 2003). It has also been shown to predict reading development. Poor readers are slower at rapid naming of letters, digits, colors and familiar objects (Ackerman, Dykman, & Gardner, 1990; Denckla & Rudel, 1976; Fawcett & Nicolson, 2001; Spring & Capps, 1974; Spring & Farmer, 1975; Spring & Davis, 1988; Torgesen & Houck, 1980; Wolf, 1986; Wolf, 1991; Wolf & Obergon, 1992). Naming speed differences distinguish reading disabled children from those

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with other learning disabilities and from children with attention deficit disorders (Denckla & Rudel, 1976, Felton, Wood, Brown & Campbell, 1987). It has been shown to account for a significant amount of variance in reading skills beyond that accounted for by a phonological processing measure (Manis & Freedman, 2001; Schatschneider, Carlson, Francis, Foorman, & Fletcher, 2002; Spring & Davis, 1988). Naming speed can be evaluated in both discrete (the time necessary to produce the name for one item) and continuous (the time necessary to produce the names of a series of items) naming trials. Differences have been found under both conditions (Wolf & Goodglass, 1986; Wolf & Obergon, 1992); however, serial naming tasks have generally been seen as a stronger predictor of future reading success (Allor, 2002; Bowers & Swanson, 1991; Walsh, Price & Gillingham, 1988; Wolf, 1991). Wagner et al (1993) found a significant correlation between word identification with serial naming of both letters and digits but not with isolated naming. Spring & Davis (1988) suggested that continuous naming tasks are more like reading than discrete trial naming because of the necessity of overlapping cognitive demands (naming one while accessing next).

Bowers (1996) also proposed that "naming speed influences the ability to learn the orthographic pattern of words" (p.1). In a study requiring subjects to recall letter strings of nonsense words briefly flashed, she found a relationship between the facilitative effects of orthographic redundancy and rapid naming that was independent of phonological processing. That is, orthographic redundancy was more helpful for those students who were slower on rapid naming tasks.

The relationship between these two variables, phonological processing and rapid automatic naming, remains unclear. Wolf (1996) sees these two variables as being markers for separate cognitive processes. Along with other researchers (Bowers, 1996, 2001; Bowers & Wolf, 1993; Spring, personal communication; Wolf, 2001; Wolf & Bowers, 1999), she has suggested a double deficit theory of reading disability to account for the common co-occurrence of deficits in rapid automatic naming and phonological processing that are seen in disabled readers. According to this view, the two tasks represent independent cognitive functions and the most severely disabled readers are deficient in both. Naming speed has been found to have long-term predictive power, independent of phonological processing skills, for measures of reading proficiency (Newhaus & Swank, 2002; Spring & Davis, 1988; Torgeson et al, 1997). In a dyslexia subtyping study, Morris and Shaywitz (1998) identified seven subtypes of reading disability based on a series of cognitive assessments. Six of these subtypes displayed a core deficit in phonological processing while the seventh was categorized as displaying a rate deficit. Further complicating the picture, the relationship between naming speed and reading skills changes across levels of reading skill and across age of the reader (Manis, Seidenberg & Doi, 1999; Meyer, Wood, Hart & Felton, 1998a, 1998b; Torgesen, Wagner, Rashotte, Burgess & Hecht, 1997). In their review of evidence regarding the double deficit hypothesis Vukovic and Siegal (2006) concluded that "the existence of a naming speed only subtype of dyslexia has not been consistently documented" (p. 44). Vukovic and Siegal also note that the research on naming speed deficits is difficult to interpret due to considerable variation in how samples are chosen and defined. Vukovic and Siegal's review of the literature highlights the need for studies that more clearly explicate how naming speed and phonological processing may differentially affect different aspects of literacy.

Bowers (1996) in studying recall of orthographic patterns found an interaction effect between phonological processing and rapid naming. Students who were only deficient in phonemic awareness were better able to recall briefly presented letter strings than those who were poor at both rapid naming and phonological tasks. In addition, for students with phonological processing problems, proficiency in rapid naming appeared to improve performance.

Researchers have also found differential responses to intervention depending on whether the reader is deficient in one or both areas (and which one area) (Bowers, 1993; Bowers & Wolf, 1993; Levy, Bourassa & Horn, 1999). Such studies suggest that rather than being indicators of a single phonological core deficit (Torgeson, Wagner & Rashotte, 1994) naming speed and phonological processing may represent two different cognitive processes.

It is also unclear which skill is more critical to reading and which to spelling (Cossu et al, 1993; Perin, 1983). Both phonological processing and rapid naming performance are linked to reading and spelling performance across ages (Adams, 1990; Wagner & Torgeson, 1987). Bowers, Sunseth and Golden (1999) investigated one possible mechanism for this link. They developed and administered the Quick Spelling Test in

which students reported the letters they had seen in briefly (250 msec) presented words, pseudowords and nonwords. The authors found that third graders with naming speed deficits were less successful at finding letter strings in illegal words than third graders with phonological deficits only. They suggest that naming speed deficits interfere with the ability to learn orthographic patterns. Levy, Bourassa and Horn (1999) found that children with naming speed deficits were slower to learn words, particularly when learning the words as whole units. Spring and Davis (1988) see naming speed as measuring the automaticity of lower level processes that are critical in developing word recognition. For the beginning reader, decoding words requires producing beginning phonemes while accessing the ones following. This is necessary because following phonemes affect the articulation of the preceding one. Thus, accurate blending is dependent upon fluent and rapid identification of constituent phonemes. Children with slow naming speed will have difficulty with this and thus require more learning trials with each individual word in order to develop accurate automatic recognition (even if they have good phonological processing and accurate decoding skills).

More information is needed regarding the uniqueness and co-occurrence of these deficits in relationship to both reading and spelling. The purpose of this study was to further investigate the relationships between phonological processing, rapid naming, reading and spelling in a specific group: children who had been referred for difficulties in reading and/or spelling. Specifically, this study examined the predictive value of naming speed and phonological processing for single word reading, decoding nonsense words, reading comprehension and spelling.

METHOD

Participants

Participants were children in grades 2 through 5 who had been referred to one of two clinics (Raskob Learning Institute at College of Holy Names and School Diagnostic Clinic at California State University, California) for assessment and possible intervention in regard to difficulties in reading or spelling. Data were collected from 65 students. Students were predominantly white and from urban settings. The socio-economic status of the homes was mixed. All students were native English speakers.

Cognitive ability scores were used to screen out students whose reading difficulties might be due to overall cognitive or language deficits. Students whose verbal scores fell below 80 were not included in the data analysis.

Measures

WISC-III (Wechsler, 1991): The WISC-III is an individually administered test of general cognitive ability. The 12 subtests on this test are divided between a Verbal and a Performance Scale. Standard scores are derived for a Full Scale, Verbal and Performance I.Q. with mean = 100 and SD = 15.

Wechsler Individual Achievement Test (WIAT) (Wechsler, 1991): *Basic Reading*: Students are presented with a series of individual, real words, printed on a card, and are asked to read the words in a row-by-row manner. *WIAT Comprehension*: The child reads a series of brief passages and responds orally to questions presented by the examiner. The test measures the ability to recall detail and make inferences. *WIAT Dictation*: *Dictation* is a measure of spelling skill in which words are presented orally and the student is asked to write the words.

Woodcock-Johnson Word Attack (Woodcock & Johnson, 1989)***:*** Students are required to read nonsense words that follow standard orthographic patterns. Words are presented on a flip chart card in groups of six. This test assesses skill in applying knowledge of phonics and in orthographic analysis.

Test of Auditory Analysis Skills (TAAS) (Rosner, 1975): The *TAAS* consists of 13 items evaluating a child's phonological processing ability through manipulation of constituent sounds in words orally presented to the child. The test items increase in complexity. Beginning items require the child to split compound words; complex items require removing phonemes and saying the new word.

Digit Naming Speed (DNS) (Spring & Davis, 1988). On the *DNS*, students are presented with a 5" x 8" card on which 50 digits are presented. Students are instructed to read the digits as quickly as possible. Two trials (with different number series) are given. Time to read all digits is recorded. The *DNS* is a measure developed for use in research projects only and does not have psychometric data available (Spring & Davis,

1988). However the format is similar to that of other naming speed measures (Denckla & Rudel, 1976; Compton, Olson, deFries & Pennington, 2002: Wagner, Torgesen and Rashotte, 1999). Wagner and colleagues report test-retest reliabilities for the Rapid Digit Naming Test on the Comprehensive Test of Phonological Processing to range from .80 to .91, depending on age group.

Procedures

All students were tested individually in quiet rooms. Additional psycho-educational testing, unrelated to the present study, was also completed during the testing sessions. Testing was generally done over two-to-three testing sessions. No session lasted longer than 2 $^1/_2$ hours.

RESULTS

The means and standard deviations for all measures used in this analysis are presented in Table 1. All measures, except the *TAAS*, resulted in standardized age-normed scores. Therefore, prior to further statistical analysis, the *TAAS* raw scores were regressed on age and converted to a standard score. Because the *TAAS* is subject to ceiling effects the distribution of scores was analyzed for deviance from a normal distribution. The *TAAS* scores for the sample population were normally distributed (Pcs = -.42).

TABLE 1

Means (M), Standard Deviations (SD) and Zero-order Correlations of Study Variables (N=65)

Measure	M	SD	1	2	3	4	5	6	7
1. Verbal IQ	101	17							
2. DNS	85	14	-.165						
3. TAAS	8.5	2.9	.168	.275*					
4. Word Attack	93	13.1	.083	.508**	.412**				
5. Basic Read	90	13.1	.137	.616**	.349**	.772**			
6. Comprehension	89	11.9	.241	.458**	.430**	.521**	.686**		
7. Dictation	88	10	.238	.616**	.449**	.724**	.760**	.600**	

Note: DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills; Word Attack= a nonsense word decoding task; Basic Reading= a real word reading task; Comprehension= a reading comprehension task; Dictation= a spelling task.

Correlations

The inter-correlations among the measures are presented in Table 1. As expected there is strong correlation among these measures of literacy. The weakest correlations are between verbal IQ and the literacy measures. Because verbal IQ did not correlate at a significant level with any of the literacy measures reported it was not used in further analysis. *DNS* and *TAAS* are the variables used to measure the identified underlying cognitive processes of rapid naming and phonological processing, respectively. The correlation between these two variables was significant at the .05 level but weak (r=.28). This suggests that these measures are indeed measuring different skills. Given the stronger correlations between these two variables (*DNS* and *TAAS*) and

measures of literacy (*Dictation*, *Basic Reading* and *Reading Comprehension*) than between the two variables themselves, it was expected that they would have independent contributions to predicting performance on these measures. In addition, both variables were more strongly correlated with *Word Attack* than with each other.

Regression analysis

Regression analysis was used to test the predictive power of rapid naming, as measured by the *DNS*, and phonological processing, as measured by the *TAAS*, to *Dictation*, *Basic Reading* and *Reading Comprehension*. Each analysis was done in the same manner as described below.

- First, stepwise regression was performed with the selected literacy measure as dependent variables and both *DNS* and *TAAS* entered as independent variables. Stepwise regression determines the strongest predictor and builds models based upon the predictive value of each possible variable.
- Next, two-step forced entry regression was performed entering the weaker of the two predictors first to check for its contribution to prediction.
- To further analyze the independent and overlapping contributions of the two independent variables, partial correlations with the dependent variable were computed for each independent variable.

Basic Reading. The results of the regression analysis with *Basic Reading* as the dependent variable and *DNS* and *TAAS* as predictors are presented in Table 2. Only *DNS* contributed significantly to the prediction of the *Basic Reading* score. In this analysis, *DNS* accounted for 40% of the variance in performance on Basic Reading. Adding *TAAS* to the equation did not add any significant predictive power. When the order was reversed and *TAAS* was entered into the regression equation first, it accounted for 12% of the variance. , when entered into the regression equation second, it contributed an additional 31%. Partial correlation statistics revealed that both variables correlated significantly with *Basic Reading* independent of the other variable. Those values are also presented in Table 2.

TABLE 2

Regression Analysis Predicting WIAT Basic Reading

Variable	R^2 (Change)	F Change	Sig. F Change	Partial r^2
DNS	.400(.400)	42.592	.000	.632
	Forced Order with TAAS First			
TAAS	.117(.117)	8.471	.005	.226
DNS	.430(.313)	34.643	.000	.596

Note: DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills; WIAT = Wechsler Individual Achievement Test

Reading Comprehension. The results of the regression analysis with *Reading Comprehension* as the dependent variable and *DNS* and *TAAS* as predictors are presented in Table 3. Both *DNS* and *TAAS* contributed significantly to the prediction of the Comprehension score. *DNS* was the strongest predictor, accounting for 22% of the variance in scores. The *TAAS* accounted for an additional 9% when entered after *DNS*. When the order was reversed and *TAAS* was entered into the regression equation first, it accounted for 19% of the variance. *DNS*, when entered into the regression equation second, contributed an additional 13%. Partial correlation statistics revealed that both variables correlated significantly with *Reading Comprehension* independent of the other variable. Those values are also presented in Table 3.

TABLE 3

Regression Analysis Predicting WIAT Reading Comprehension

Variable	R^2 (Change)	F Change	Sig. F Change	Partial r^2
DNS	.223(.223)	16.911	.000	.397
TAAS	.316(.094)	7.934	.007	.347
		Forced Order with TAAS First		
TAAS	.188(.188)	13.701	.000	.347
DNS	.316(.128)	10.845	.002	.397

Note: DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills; WIAT=Wechsler Individual Achievement Test

Dictation. The results of the regression analysis with *Dictation* as the dependent variable and *DNS* and *TAAS* as predictors are presented in Table 4. Both *DNS* and *TAAS* contributed significantly to the prediction of the *Dictation* score. However, *DNS* was clearly the strongest predictor, accounting for 40% of the variance in scores. The *TAAS* accounted for an additional 7% when entered after *DNS*. When the order was reversed and *TAAS* was entered into the regression equation first, it accounted for 19% of the variance. *DNS*, when entered into the regression equation second, contributed an additional 28%. Partial correlation statistics revealed that both variables correlated significantly with *Dictation* independent of the other variable. Those values are also presented in Table 4.

TABLE 4

Regression Analysis Predicting WIAT Dictation

Variable	R^2 (Change)	F Change	Sig. F Change	Partial r^2
DNS	.395(.395)	41.174	.000	.585
TAAS	.466(.071)	8.198	.006	.342
		Forced Order with TAAS First		
TAAS	.188(.188)	14.567	.000	.342
DNS	.466(.278)	32.277	.000	.585

Note: DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills; WIAT =Wechsler Individual Achievement Test

Word Attack. *Word Attack* can be considered both a predictor of other literacy skills as well as a foundational literacy skill. Examination of the correlations presented in Table 1 shows that *Word Attack* was the variable most highly correlated with performance on the common markers of literacy: Basic Reading, *Reading Comprehension*, and *Dictation*. In addition, the correlations between *Word Attack* and both *DNS* and *TAAS* were stronger than the correlation between *DNS* and *TAAS*. This gives support to the proposal that *DNS* and *TAAS* are measuring independent cognitive processes, but that both are important in developing decoding skills. To further analyze the part that rapid naming and phonological processing play in developing decoding skills and likewise the part that decoding skills play in predicting literacy, regression analysis was performed with *Word Attack* included with *DNS* and *TAAS* as predictor variables. The results are presented in Table 5. Word attack proved to be a strong predictor of *Dictation* and Basic Reading. It also predicted scores on the *Reading Comprehension* measure.

TABLE 5

Regression Analysis Predicting WIAT Scores Including Word Attack Scores

Variable	R^2 (Change)	F Change	Sig. F Change	Partial r^2
		Predicting WIAT Basic Reading		
Word Attack	.616(.616)	94.486	.000	.695
DNS	.677(.061)	10.977	.002	.399
		Predicting WIAT Dictation		
Word Attack	.531(.531)	66.845	.000	.565
DNS	.612(.081)	12.143	.001	.398
TAAS	.799(.026)	4.178	.046	.261
		Predicting WIAT Comprehension		
Word Attack	.278(.278)	21.203	.000	.341
TAAS	.362(.084)	7.099	.010	.291

Note: Word Attack= a nonsense word decoding task; DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills; WIAT=Wechsler Individual Achievement Test

Word Attack was also a stronger predictor for *Basic Reading* than either *DNS* or *TAAS*. It accounted for 62% of the variance in scores on Basic Reading. *DNS* added 8% to the predictive power of the model. *TAAS*, however, did not add to the predictive value of the model after the variance accorded to *Word Attack* and *DNS* was accounted for.

In predicting *Reading Comprehension*, *Word Attack* was also the strongest predictor of the three variables. However, its predictive power was much less: stepwise regression resulted in an R^2 of .28 with *Word Attack* as the

only predictor. At the next level, *TAAS* was found to significantly add to the power of the equation resulting in an R^2 change of .08. The addition of *DNS* to the model did not add significantly to its predictive power.

Finally, *Word Attack* was a more potent predictor of *Dictation* than either *DNS* or *TAAS*, accounting for 53% of the variance in scores when entered alone. *DNS* added 8% more predictive value and the addition of *TAAS* as an additional predictor increased the amount of variance accounted for by 2%.

Word Attack was also investigated as a dependent variable, to measure the predictive power of rapid naming (*DNS*) and phonological processing (*TAAS*) to the development of decoding skills. *DNS* was the strongest predictor of performance on the *Word Attack* test (Table 6). It accounted for 26% of the variance in these scores. Adding *TAAS* to the model increased the amount of variance predicted by 7%. Partial correlations of *DNS* and *TAAS* with *Word Attack* indicated that both variables had significant independent correlation with *Word Attack*.

TABLE 6

Regression Analysis Predicting Woodcock-Johnson Word Attack Scores

Variable	R^2 (Change)	F Change	Sig. F Change	Partial r^2
DNS	.259(.259)	20.594	.000	.441
TAAS	.325(.066)	5.690	.020	.299

Note: DNS= Digit Naming Speed; TAAS= Test of Auditory Analysis Skills

DISCUSSION

This study sought to further exam the double deficit hypothesis and the unique contribution of rapid naming and phonological processing to different aspects of literacy. It was expected that phonological processing (*TAAS*) would be most strongly predictive of *Word Attack* and *Dictation*. It was also expected that both *TAAS* and *DNS* would contribute significantly and uniquely to all aspects of literacy measured.

The results were surprising because of the clear superiority of *DNS*, a measure of rapid naming, in predicting scores on tests of spelling, word reading and reading comprehension. For each of these variables *DNS* accounted for considerably more variance than did *TAAS*, whether entered first or second into the regression equations. Indeed, *TAAS* added no additional power to the prediction of Word Reading. In contrast to the results of this study, the bulk of previous research shows phonological processing to be a strong and consistent predictor of literacy. It is likely that the results of this study are counter to this trend because of the population sampled. Recall that the participants in this study were all students who had been referred for literacy-related problems. A review of their mean scores on the literacy-related measures reveals that these students were indeed performing below average on these tasks. With a Mean verbal IQ of 101, the group's mean scores on Word Reading, 90; *Dictation*, 88; and *Reading Comprehension*, 88 are lower than would be expected. Despite average verbal ability, these students are performing below average on literacy-related measures. Scarborough (1998) found that rapid naming was a stronger predictor of future reading success for disabled readers than for the normal reading population. The results of this study lend further support to the important role that rapid naming plays in developing reading for poor readers. However, it is still unclear exactly what these rapid naming measures are measuring. Shaywitz (2003) explains rapid naming as a measure of phonological accessing, Roberts and Mather (1997) as orthographic processing, and Fawcett and Nicolson (2000) as a variety of timing related deficits attributable to abnormal cerebellar functioning. It is clear that more research needs to be done to better understand this set of measures.

These results also strengthen the double deficit hypothesis. Rapid naming and phonological processing were found to have strong partial correlations with literacy measures, independent of each other. This provides support for conceptualizing rapid naming and phonological processing measures as markers for two

separate cognitive processes, rather than as markers of a general underlying phonological processing disorder.

These students were deficient in both rapid naming and phonological processing in comparison to their peers. The mean for *DNS* was 85 (M=100). On the *TAAS* the mean raw score was approximately two grade levels below the students' mean grade placement. As a group they exhibited significant deficits in phonological processing and rapid naming.

Decoding skills

The power of decoding skills as measured by *Word Attack* to predict success in reading and spelling was striking. It accounted for over 50% of the variance on both *Dictation* and *Basic Reading*. It was less strong in predicting reading comprehension, indicating that there are other important variables to consider as well. When *Word Attack* was entered into the regression equations predicting *Dictation* and *Basic Reading*, both *DNS* and *TAAS* lost much of their predictive significance. Understanding of sound-symbol relationships and the ability to use them on novel words is a strong predictor of reading success even for disabled readers.

The contribution of rapid naming and phonological processing to decoding skills was also analyzed. Surprisingly, rapid naming (*DNS*) was a stronger predictor of performance on the *Word Attack* test than was phonological processing (*TAAS*). However, with both variables in the model only 33% of the variance in scores was accounted for. It is possible that instructional differences may account for a significant amount of the remaining variance in decoding skills. The students were from many different schools; therefore, it is likely that the amount of direct instruction regarding phonics that the students received varied considerably amongst the participants.

Implications for school psychology practice

Referrals for reading difficulties are one of the most common referring problems encountered by school psychologists. Therefore, it is important for them to be aware of the cognitive processes that appear to underlie and predict success or failure in literacy activities. Such knowledge will lead to a more informed and useful diagnostic protocol. The results of this study suggest that psychologists should look beyond the overall measures of reading ability and assess underlying processes of rapid naming and phonological processing. This information will be useful in formulating interventions and projecting the level of support that might be needed. Several current tests provide measures of both phonological processing and rapid naming. These include comprehensive achievement test batteries such as the Kaufman Test of Educational Achievement II (Pearson Assessment) and the Woodcock Johnson Tests of Achievement and Tests of Cognitive Abilities (Riverside Publishing) and reading batteries such as the Comprehensive Test of Phonological Processing (Pro-Ed) and the Process Assessment of the Learner II (Psychological Corporation).

This study also emphasizes the importance of looking at the subskills of reading, particularly decoding of nonsense words. In doing so, diagnosticians will be have a more complete picture of a child's reading skill. The strength of decoding as a predictor of other reading related measures also underscores the importance of including direct instruction in decoding in the reading curriculum. This study suggests that it is particularly important for struggling readers.

Further directions

These results strengthen the case for investigating the double deficit hypothesis more intensely and for recognizing the critical role of rapid naming in developing literacy. It is particularly important to consider rapid naming when investigating the struggles that disabled readers have and how to differentiate among these students. Rapid naming appears to be a marker for a cognitive process for which a threshold level of proficiency is critical to becoming a successful reader. That is, one just needs to be "good enough." Differences in rapid naming wash out in the general population – more is not necessarily better. However, in the disabled reading population they are of central importance. Students who are strong in rapid naming may be able to compensate for poor phonological processing skills.

As an example, consider the role that rapid naming might play in developing the decoding skills measured by *Word Attack*. Understanding and being able to internally manipulate the sounds of language makes gaining decoding skills easier. However, if a student struggles with phonological processing, he can still learn common sound-symbol patterns through repeated exposures to their association. If he is quick at recognizing individual letters and then forming common digraphs, he will link the letters to the sounds in the word. This word will become a sight word and the letter-sound associations will form a part of his data bank, accessible for identifying like words. If he is impaired in naming speed, he will not label and recognize the letters and digraphs as quickly and these associations will form more slowly. When asked to decode novel words this student will have a smaller store of common sound-symbol patterns to access.

Though this study did not explore differential response to interventions based upon deficits in rapid naming and/or phonological processing other studies suggest differential response. This study, however, in demonstrating the important role that rapid naming plays in developing literacy for disabled readers, adds support to the need to further investigate differential response to intervention.

Finally, this study did not include a measure of reading fluency. However, studies suggest that naming speed measures are good predictors of reading fluency (Kame'enui, Simmons, Good & Harn, 2001; Petrill, Deater-Deckard, Thompson, DeThorne, & Schatschneider, 2006). Further research in this area is needed as being able to differentiate between the components of proficient reading and the processes that are predictive of each will promote more targeted interventions.

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A Consultation Model to Facilitate Reading Success

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Poor reading ability is associated with numerous negative consequences. School psychologists should provide teachers with resources and support to improve student reading ability and prevent these negative outcomes. This paper offers a guide for school psychologists to use in the consultation process when working with teachers to address students' reading difficulties. The paper delineates the important facets of instructional consultation and considerations to take into account including: entering the consultation relationship, effectively identifying the problem and underlying cause, identification of the appropriate intervention, monitoring implementation integrity, and the termination of the consultation relationship. Specific intervention strategies and resources are also provided to offer the school psychologist potential resources.

KEYWORDS: Consultation, Reading, Instruction, Intervention

As a key that allows access to many forms of knowledge and information, reading literacy is perhaps the skill most critical to learning. –2007 Nation's Reading Report Card

Reading is a core academic skill that not only lays the foundation for educational achievement, but also provides the groundwork necessary for life-long success. Unfortunately, adequate reading skills are not the norm. According to the 2007 Nation's Report Card, many students are experiencing significant reading difficulties (Lee, Grigg, & Donahue, 2007). The Nation's Report Card details the results of the National Assessment of Educational Progress (NAEP), a biennial assessment that evaluates student performance in general academic subjects. In terms of reading abilities, the skills assessed include: comprehension, interpretation, connecting information from the text to personal experience, and critical evaluation of text. These reading skills are evaluated through literature, informational reading, and reading involved in completing a task (e.g., bus schedules, maps, directions). Reading skills are reported in the categories of advanced, proficient, basic, or below basic in terms of reading performance for the skills that should be mastered at the given grade level (Lee et al., 2007).

The NAEP has periodically collected national data for over three decades, providing comparative data on national, state, and local levels. The most recent 2007 National Report Card highlights gains in reading scores, noting that reading performance is on an upward trend when compared to 1992. However, these results can be deceiving, as a large portion of the nation's students are still performing below what is considered a basic level of skill for their grade (Lee et al., 2007). The results of the NAEP reveal that nationally 34% of fourth grade students are reading below a basic level of skill for their grade, and 34% perform at a basic level. In eighth grade, 27% performed below the basic level, while 43% exhibited basic reading skills.

In comparison to national levels of reading skills, students in California are under-performing. Forty-seven percent of fourth grade students in California performed at a below basic reading level, and 30% are performing at the basic level. In the eighth grade, 38% were reported to be performing at the below basic

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level and 41% exhibited a basic reading skill levels. Overall, California is the fourth lowest performing state for reading in fourth grade, and the third lowest for eighth grade (Lee, et. al., 2007).

Low reading performance is a cause for concern. Literacy is not only an academic milestone, but also a growing societal demand (Meredith, Steele & Dawson, 1997). For children to succeed academically it is essential that they develop the foundational reading skills that will allow them to obtain knowledge fluidly through text and increased opportunities for learning (Joseph, 2006). Curriculum in elementary years and beyond assumes that children are literate and can accumulate critical knowledge via reading. If children struggle with reading skills, they will consequently struggle with other academic areas.

In terms of reading development, early literacy is a crucial component for future reading advances and academic success. Early literacy skills predict later reading and writing fluency as well as more extensive language development (Bowman et al., 2000; Lonigan, 2006). Early literacy is essential in that early school experiences situate the academic achievement trajectory, as academic success has been found to stabilize after the first grade (Entwisle & Hayduk, 1988). If a student is considered a poor reader by the end of first grade, it is likely that he/she may never catch up to peers who are able to read fluently (Torgesen & Burgess, 1998) and the achievement gap widens as children progress through their education.

There are several additional negative implications of poor reading abilities that underscore the importance of reading performance. Children who struggle in early reading often develop a negative attitude toward reading and tend to avoid the "unpleasant" task. The developed negative attitude leads to fewer attempts to practice and decreases the likelihood of the student developing essential reading skills (Lonigan, 2006). Furthermore, children who demonstrate early academic difficulties are more likely to display later academic difficulties. Academic difficulties are then associated with emotional distress and social problems, and it should be noted that links between academic difficulty, childhood aggression and behavior problems have been well established (Ackerman, Izard, Kobak, Brown, & Smith, 2007). Children who struggle in school are at a higher risk for school failure, and exhibit higher dropout rates (Lynch, 2004; Walker & Shinn, 2002). The inability to read not only leads to missed educational opportunities, but missed social and vocational opportunities as well (Nelson, Benner, & Gonzalez, 2005). These missed opportunities can result in unemployment and lead to substantial financial burden later in life (Walker & Shinn, 2002).

The prevalence rates and long-term implications of reading difficulties make this a particularly important issue for school psychologists. According to a national survey of school psychologists, reading difficulties were the most common reason for academic referrals (Bramlett, Murphy, Johnson, Wallingsford, & Hall, 2002). The high referral rate for reading problems may be related to inadequate preparation of teachers to teach groups of students with diverse reading difficulties (Moats, 1994; Snow, Burns, & Griffin, 1998). On average, teachers take only three semester hours of training on how to teach reading, which does not leave teachers with the confidence that they are appropriately prepared to teach students with reading difficulties (Bos, Mather, Dickson, Podhajski, & Chard, 2001; Educational Testing Service, 1999). This lack of training is unfortunate, as evidence shows that properly trained teachers who employ proven teaching methods can teach all but 2-5% of students to read, a far cry from the roughly third of students in the nation who currently read below a basic level (Fletcher & Lyon, 1998; Lee et al., 2007). The National Reading Panel (NRP) found that teachers may need formal training in comprehension instructional techniques to teach comprehension effectively. Furthermore, the NRP concluded that teacher training and support was related to teacher use of effective instructional strategies in reading and subsequent higher student achievement in reading (NRP, 2000). While individual states and teacher education programs are in the process of modifying teacher training to address these needs, school psychologists are already in a position to collaborate with current teachers on empirically based reading instructional methods. In the current era of Response-to-Intervention (RtI) following the 2004 re-authorization of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), instructional consultation is particularly important (see for instance Jimerson, Burns, & VanDerHeyden, 2007 for a review of contemporary scholarship related to RtI).

This paper is designed to act as a guide for school psychologists to use in the consultation process when working with teachers regarding reading and intervening with students experiencing reading difficulties. The following details considerations to take into account when entering a consultation relationship including: how to enter the consultation relationship, how to effectively identify the problem at hand and underlying cause, how to identify the appropriate intervention and implement interventions with fidelity, and finally how

and when to terminate the consultation relationship. Additionally, a consultation checklist is provided as a quick and simple step-by-step reference to ensure proper use of the consultation process (see appendix A). Moreover, Tables 1 and 2 provide a comprehensive list of resources to consult when determining appropriate reading interventions to implement.

CONSULTATION MODEL

Effective consultation in the classroom must follow a well-developed and systematic approach (Dougherty, 2008; McKenna, 2005; Rosenfield, 2002). Rosenfield's (1987) instructional consultation model is a valuable guide to consultation in the school setting, as it places an ecological emphasis on collaboration as the driving force behind creating change. Unlike the traditional medical model of consultation that focuses on individual student deficits, the instructional consultation model takes a collaborative systems-based approach to both diagnosing a problem and seeking to make improvements. Thus, if the task at hand is improving a student's reading performance, the problem-solving elements involve studying classroom and instructional variables in addition to individual factors, such as skill level and student background. The consulting relationship between the school psychologist and teacher is seen as non-hierarchical and collaborative throughout this model (Rosenfield, 1987). The instructional consultation model can also extend beyond the school psychologist-teacher relationship and include other key players, such as other teachers in both general and special education, classroom aids, the principal, and parents. As the problem is identified and strategies are developed to intervene, additional people can be brought into the consultation and intervention process.

The term "instructional consultation" was coined by Bergan and Schnaps (1983), who likened the model to behavioral consultation, which is targeted at changing teachers' behavior rather than students' behavior. Rosenfield (1987) later refined the model into specific consultation stages. Throughout these stages, the consultant and consultee work together to build a collaborative relationship through good communication and interpersonal skills. School psychologists can build working collaborative relationships with teachers throughout this process. It should be noted that in order to be most effective, these stages of consultation should be followed in a subsequent order, where one does not move to the next stage without successful completion of the former. The following provides a step-by-step guide delineating the important facets of instructional consultation both in general and geared toward consulting regarding reading problems.

Entry and Contracting

Typically during the entry stage in the instructional consultation model, a teacher requests assistance or support from the school psychologist. This differs from the medical model of consultation in which a student is referred for individual deficits; referrals for instructional consultation request assistance for the teacher to handle a student problem. School psychologists can design a simple referral slip that asks for general information, including the student's name, a brief description of the identified concern(s), and a convenient time and place to meet and discuss the issue in person.

During the initial meeting, the school psychologist and the teacher discuss their individual perspectives on the problem, expectations of each other, and issues on which to focus (Cherniss, 1993). During this time the school psychologist should begin to evaluate the reading problem in terms of the nature of the referral, the data used to make a decision to refer, interventions and instructional strategies currently in place, and next steps. This is crucial for the establishment of a collaborative relationship.

Additionally, as part of the initial meeting process, it is important to collaborate to develop a working contract, which outlines the process of problem solving and sets boundaries for the consultee-consultant relationship (Dougherty, 2008). Contracts may be formal (written), or informal (verbal) in nature. However, they should include the following components: (a) explanation of the problem-solving stages, (b) introduction of the instructional triangle (explained later in this article), (c) clarification of roles and collaborative nature of relationship, (d) time involvement, (e) explanation of data collection, and (f) limits of confidentiality (Conoley & Conoley, 1992; Dougherty, 2008). Contracts serve as a guiding document for the working relationship that can be returned to throughout the course of the consultation process, as well as a method for obtaining informed consent.

The initial meeting should conclude with a decision to continue or discontinue consultation. It has been suggested to consider six important issues when making this decision (Cherniss, 1993; Dougherty, 2008). The first one relates to the congruence between the school psychologist and the teacher. For instance, whether both the teacher and the school psychologist support empirically based reading interventions will likely influence the consultation process. The second issue deals with resources, their availability, and who provides them. Questions to address include when and for how long will each team member need to devote to the interventions? Will aides or other school staff be involved in the interventions? Third, both the teacher's and the school psychologist's characteristics should be considered. It may be important to evaluate the compatibility of both team members' personality traits and work styles.

The fourth issue to be considered is the teacher's perception of the actual need for change, as this will influence the perceived importance of the consultation relationship. For instance, is the teacher slightly resistant to change in the classroom? If so, what specific variable is he or she resistant to change, and can consultation be done effectively around this? How will the school psychologist's role be affected by this? Fifth, both parties should share their expectations for the consultation process. For example, the teacher and the school psychologist should discuss each of their roles in the process as well as the involvement of any other individuals. Finally, the teacher and school psychologist should agree on the specific population with whom the psychologist will be working. For instance, the teacher and school psychologist may determine that the school psychologist consult regarding two students experiencing reading difficulties as opposed to consulting regarding class-wide instruction. Each of these six issues should be carefully addressed, as a failure to do so can result in both ineffective consultation and unnecessary conflicts during the process. If a decision to proceed with consultation is made, the team can proceed to the problem identification and analysis stage.

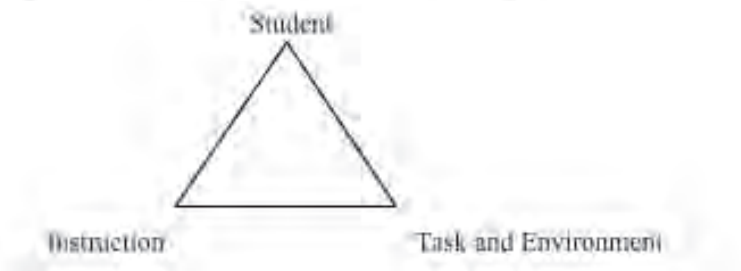
Problem Identification and Analysis

Although both the teacher and school psychologist may enter the consultation relationship with preconceived notions about the problem at hand, it is important to identify the problem collaboratively through both data analysis and discussion. The process of examining the reading problem should be comprised of a balance between personal perspectives of the problem and objective information gathered from baseline data.

Reading problems, as well as other academic and/or behavioral challenges, occur within a dynamic and multidimensional school context. It is thus important for school psychologists to consider the environmental influences placed on students, rather than solely focusing on student deficiencies as the reason for the problem (McKee & Witt, 1990). This multilayered relationship is best displayed by the Instructional Triangle developed by Gravois, Rosenfield, and Gickling (1999) see Figure 1.

FIGURE 1

The instructional triangle (adapted from Gravois, Rosenfield, & Gickling, 1999)



According to the instructional triangle, the student is viewed as one part of a three-way relationship between student, instructional method, and the task and environment. The problem-solving stage focuses on

altering the different variables within the instructional triangle. Thus, when evaluating a student for reading difficulties, discussion should be directed toward malleable variables such as skill level, rather than those variables commonly believed to be stable across time (e.g., intelligence).

The second point in the triangle, refers to the environmental demands placed on the child, such as reading a certain number of chapters in a book or answering comprehension questions. Teachers often evaluate students' progress in reading and language arts based on their performance and completion of these tasks. When consulting about a student's reading problem, the school psychologist and the teacher should examine the match between the student's skill level and the instructional task. Oftentimes, a discrepancy between these two factors may result in poor performance and student frustration (Rosenfield, 2002).

Finally, the reading problem should also be examined by assessing the instructional strategies used. Researchers have demonstrated the positive impact of instructional factors (e.g., setting appropriate academic goals for students and engaging in ongoing progress monitoring through data collection) on academic achievement (Fuchs, Deno, & Mirkin, 1984; Lentz & Shapiro, 1986; Rosenfield, 2002). Thus, it is essential to examine instructional strategies as a third point in the triangle. Considering all three factors included in the instructional triangle is important as it can lead to a more accurate assessment of the reading problem and can help avoid reliance on subjective inference.

Problem identification must be data-driven. The consultation team should first define the problem in descriptive, observable, and measurable terms, such as a discrepancy between a student's current reading level and expected reading level (e.g., does the reading problem involve fluency? The inability to blend sounds? How far below the expected standard is the student currently performing?).

A data collection method should be established, including the reading probes to be used, how often reading probes are administered, and how progress is measured. Baseline measurements should be taken, and short- and long-term goals should be set. As instructional consultation does not merely focus on individual student behavior, a functional analysis will also identify any other classroom variables that may be contributing to the problem. The teacher and school psychologist should then determine if instructional tasks match the student's baseline reading level through curriculum-based assessment. Data from these observations are subsequently charted or graphed.

There are several methods to gather data including record and document inspection, observation (e.g., antecedent-behavior-consequence data), questionnaires and surveys, and interviews. The method chosen largely depends on the nature of the problem. In regard to reading difficulties, record and document inspection, as well as reading assessments may be preferred. For example, the school psychologist can examine students' academic tests, past reading assessments, or even vision exams, as these may reveal important information concerning the problem (Dougherty, 2008). Another way in which a school psychologist can obtain information about reading difficulties is through curriculum based measures (CBM) (Shinn & Bamonto, 1998). Such assessments can provide an accurate measurement of a student's reading ability within his or her current academic curriculum. Moreover, CBM measures provide useful information, such as overall reading ability, reading fluency, and blending ability, which can be used to conceptualize the expected and current performance discrepancy.

Intervention Planning

After operationally defining the problem and collecting data on it, the school psychologist and the teacher are ready to develop goals. As with problem definition, goals need to be clearly stated, specific, and measurable. For example, "improving reading fluency to adequate levels" is not an adequate goal, since neither improvement nor adequate reading fluency is defined. Instead, defining improvement in terms of reading a specific amount of words per minute by a given date may be a more desirable goal. Seven key steps should be taken when developing goals (Locke & Latham, 1984): (a) specify the task or objective, (b) specify how the task or objective will be measured, (c) specify the target or standard to be reached, (d) specify the time span involved, (e) prioritize possible goals, (f) rate goals with respect to difficulty and importance, and (g) determine necessary coordination requirements. Finally, effective goals should be measurable, cost-effective, and appropriate for the specific classroom of the teacher (e.g., culturally sensitive).

Once goals are set, the teacher and school psychologist can develop interventions based on the specific deficit in reading. Oftentimes, when the reading problem has been conceptualized as a component of a specific learning disability, special education may seem like the appropriate answer for the general education teacher. However, if the reading problem has been defined as a specific and measurable deficit in reading performance, teachers can typically generate a wealth of interventions that may help boost performance in that specific skill. The school psychologist and the teacher should examine any interventions implemented in the past, evaluate interventions currently in place, and consider new empirically based interventions (Dougherty, 2008). The interventions used should be supported by research, and tailored to the specific instructional demands of the classroom. A specific plan should include who will implement the intervention, how often and when they will implement it, what other materials are required, what data collection methods will be used, and when progress will be measured.

Daly, Witt, Martens, and Dool (1997) provide a model for directly testing possible causes of poor academic performance for individual children in classrooms. Functional analysis may be performed to test common causes of poor academic performance for individual children. Daly and colleagues provide common causes of poor performance that can be directly tested, including: (a) students have not had enough practice to perform the skill correctly, (b) students are not sufficiently motivated to perform the skill correctly, (c) students have not had enough help to correctly perform the skill, (d) students have never been asked to perform the skill in that way before, or the task is too hard. In this article each potential cause is linked to an intervention that makes sense (e.g., if the child has not had enough practice performing the skill, provide extra practice). Each of these possible causes of poor performance may be tested by providing the intervention and measuring the child's response. See Table 1 for potential causes and proposed interventions provided by Daly and colleagues.

TABLE 1

Suggested Interventions (Adapted from Daly et al., 1997)

Possible Causes	*Proposed Interventions*
Student is not motivated	Provide incentives, use naturalistic instructional strategies as much as possible when teaching the skill (i.e., conduct training in context where performance "matters" to the student), provide the student choices in activities.
Student is not actively responding	Estimate current rate and increase student responding by using structured tasks, quickly paced instruction, allocating enough time for instruction, intervening at the correct task difficulty level so that the student can respond successfully and gradually increase task difficulty as student skill improves, providing immediate feedback, and setting criteria and reinforcing faster and more accurate (i.e., fluent) performances.
Not enough prompting and feedback active responding	Use response cards, choral responding, flashcards with praise/correction, peer tutoring.
Student shows poor accuracy in skill	Increase modeling and error corrections (read to student, practice with error correction use cover-copy-compare).
Student shows poor fluency in skill	Increase practice and provide incentives for the student "beating their score."
Student does not generalize the skill	Teach multiple examples, teach skill in natural setting, self-monitoring, use natural incentives.
Materials do not match curricular objective	State objective, and identify related lessons that promote the use of the skill in natural context.
Skill is too hard for the student	Identify student accuracy and fluency and use materials that encourage a high rate of responding.

Reading interventions may need to be considered in multiple levels. The first level to consider is in the area of core instruction.

Core Instruction

The first step when consulting with teachers on reading is to ensure a research-based core curriculum is being implemented. Instructional skills have been linked to student progress in reading skill development.

Research indicates that explicit instruction in phonics, phonemic awareness, fluency, vocabulary, and comprehension are essential aspects of a core curriculum, and including these components leads to improved student learning (NRP, 2000). Using a quality core curriculum and effective instructional practices can potentially rule out poor instructional techniques as a cause for student reading issues. When providing reading instruction to students at-risk for reading failure, it is extremely important that the instruction be delivered in a planned and explicit manner that integrates early literacy research and learning principles (Manset-Williamson & Nelson, 2005).

A Sound Instructional Environment

Schools that provide effective core reading instruction as well as additional intensive instruction to students at-risk have seen significant growth in student achievement. Torgesen (2002) reviews the results from a school in Florida where over the course of 5 years the number of students performing below the 25th percentile in reading by implementing effective reading instruction was reduced. Torgesen (2002) reported some effective instructional strategies including: explicit teaching, phonemic awareness, phonemic decoding, fluency in reading and comprehension, oral vocabulary, spelling, and writing.

Foorman, Francis, and Fletcher (1998) studied three instructional strategies (i.e., direct, embedded, or implicit) to determine which strategy resulted in the greatest and most rapid student gains in reading. Students received one of three different instructional interventions and their growth was measured. Direct instruction explicitly taught the target skill of decoding phonemes the letter-sound association was explicitly trained. Embedded instruction included the skill of decoding phonemes by providing instruction on sound-spelling relationships. The letter-sound association was less explicitly taught by embedding the letter-sound association within a more naturalistic task in the classroom. Implicit instruction included the skill of decoding phonemes by providing instruction in the alphabetic code while reading connected text. In this condition, the letter-sound association was not explicitly taught and students were required to generalize training knowledge to successfully make the association. Results indicated that students who received direct instruction of letter-sounds in decodable text increased their word reading skills significantly faster than children taught with the other two intervention types. This study revealed that when selecting reading interventions for students at-risk for reading failure, direct instruction is more effective than embedded or implicit instruction. The consultant should ensure the teacher is trained to implement reading interventions in an explicit and highly structured manner. Overall it is suggested that reading interventions for students at-risk should be designed using direct instruction and implementation of interventions should be observed by staff to ensure treatment integrity (Foorman et al., 1998).

Students who do not make adequate progress in reading despite quality instruction and evidence-based curricula may need to receive more intensive instruction. Several studies have shown that participating in small-group remedial instruction leads to increased student learning and prevented further reading difficulties from developing.

Intensive Intervention

After steps have been made to ensure that the instructional environment is sound, and it has been determined that a student still does not meet academic expectations as compared to his/her peers, more intensive intervention may be needed. Once the problem is identified, school professionals may explore various intervention options and evaluate the interventions' effect on the student's learning. If the "causes" of the behaviors are identified (i.e., the task is too difficult), intervention may be linked to this identified cause. Throughout this process assessment can be used to identify and direct interventions. In other words, assessment will inform the intervention and each plan will be based on the data obtained. Instructional or environmental variables may be altered to promote the success of the student. For example, the intervention could require that the teacher provide more corrective feedback or praise during instruction. To ensure positive outcomes, research-validated interventions should be used. Furthermore, schools should have a variety of interventions available to address the full range of performance problems that are typically presented by students. Table 2 provides valuable resources that can act as a good starting place when exploring various interventions.

TABLE 2

1. *Intervention Central*
www.interventioncentral.org/
Description: This site provides free resources, strategies, and tools to support positive classroom behaviors for effective learning. Publications of effective research-based practices are also available to download .

2. *The savvy teacher: Reading interventions that really work* (Wright, 2001).
http://www.jimwrightonline.com/pdfdocs/brouge/rdngManual.PDF
Description: This manual is compilation of evidenced-based classroom-friendly reading interventions cited from the National Reading Panel. Interventions are inclusive and creative. The manual provides techniques, tips, and worksheets needed to design an effective reading intervention plan.

3. *Beginning Reading What Works Clearinghouse—Institute of Education Sciences*
http://ies.ed.gov/ncee/wwc/reports/beginning_reading/
Description: Reviews the effectiveness of beginning reading programs in alphabetics (phonemic awareness, phonological awareness, letter recognition, print awareness, and phonics), reading fluency, comprehension, and general reading. A valuable resource to use to determine what interventions best promotes beginning reading in each of these categories.

4. School wide strategies for managing reading
http://www.jimwrightonline.com/php/interventionista/interventionista_intv_list.php?prob_type=reading
Description: This site provides strategies for managing reading interventions at a school wide level and how to implement interventions. The interventions are research based and links provide step-by-step instructions for implementing various intervention strategies.

5. *Building, implementing, and sustaining a beginning reading improvement model: Lessons learned school by school* (Simmons et al., 2002)
Description: This chapter outlines how to create and implement a beginning reading intervention model within a school system. The model outlines stages of intervention and how to effectively implement the intervention plan and sustain results considering the complexities of the school.

6. *Reading and Math Intervention Protocols*
www.gosbr.net
Description: This site provides links to numerous scientifically based interventions including reading interventions and progress monitoring. The site provides tools and guidelines needed to implement the interventions.

School-based teams can easily and rapidly identify students who are at-risk for reading failure by assessing phonics, letter-sound understanding, and vocabulary. By measuring student progress frequently, students who are at-risk can be identified early and be provided with intensive instruction (Torgesen, 2002). When intervention is required it is important to clarify the term intensive intervention. Although many studies imply that one-on-one intervention is more intensive than group intervention other researchers have not found significantly greater effects. Elbaum, Vaughn, Hughes, and Moody (2000) conducted a meta-analysis in which results indicated that when comparing individual interventions with small-group instruction there did not appear to be an advantage to individual-intervention programs.

Ideally, intensive instruction provides more daily academic engaged time focused on reading instruction and practice for students who are at-risk. Peer strategies such as class-wide peer tutoring and peer-assisted learning have been found to improve the reading skills of students who are at-risk. Small-group instruction and individual instruction provided in addition to core reading instruction time has been found effective in improving the skills of at-risk students. Torgesen (2002) suggests that instruction must be provided incrementally with guidance. Specifically, the learner should be instructed slowly and deliberately with support from the teacher. In this context, the teacher guides the lesson and the student responds frequently while being assisted by the teacher in creating his/her answer.

Some students may require certain elements of an intervention package, while other might require multiple intervention components. Begeny and Silber (2006) conducted a study to examine four group-based treatment packages containing two or more interventions: repeated reading, listening passage preview, and practicing difficult words in isolation. Findings suggested that the combination of all three components was most effective for those particular students.

Although special education may be considered the most intensive intervention, it is important to try to meet the child's need within general education first to provide the child with the least restrictive instructional environment. Lennon and Slesinski (1999) investigated whether special education placement could be prevented by identifying students at-risk via a letter-naming task and intervening using a ratio of 1 teacher to 2 students in a tutoring model with kindergarten students. Classroom teachers were also provided training in research-based reading instructional techniques at the onset of the study and on a monthly basis. Pairs of students were assigned, but pairs were changed when one participant was making more progress than the other. Tutors conducted the daily 30-minute tutoring sessions with students for 10 weeks. Results indicated that students who received the tutoring grew faster than control group students. Middle-performing students who received tutoring grew faster than low-performing students who received tutoring. In addition, many middle-performing students performed the same as high-performing students by the end of the intervention sessions, at the 10-week assessment period. A two-year follow-up of the tutored cohort determined lower special education placement rates compared to previous cohorts. This implies that daily 30-minute sessions of tutoring focusing on reading and writing instruction with at-risk kindergarten students, can produce significant student gains in beginning reading skills.

McMaster, Fuchs, Fuchs, and Compton, (2005) studied the improvement of reading performance of first grade students not responding to a class-wide reading intervention called Peer Assisted Learning Strategies (PALS). Students who did not respond to this particular intervention received one of three interventions: (a) additional PALS, (b) modified PALS or (c) tutoring by an adult. Modified PALS had the same components as PALS but involved the introduction of fewer words and sounds per session, and more modeling and practice opportunities. Results indicated that tutoring for students who did not respond to class-wide interventions was probably the most effective intervention compared to providing the student with other in-class interventions. Although results were not statistically significant for this intervention, results were stronger compared to the other interventions implemented with students classified as non-responders.

Intervention Implementation

Just as it has been an important component throughout this model thus far, collaboration and the use of data play a key role during the intervention implementation stage. Barnett, Daly, Jones, and Lentz (2004) provided a model for using single-case designs to aid in making decisions about reading interventions for students. Within a multi-tiered model, single case designs that focus on the intensity of the intervention and the student's response to the intervention should be used. Two types of variables were measured as part of the assessment: (a) a meaningful outcome variable that can be measured frequently across time; and (b) measure to assess the intensity of the intervention. School psychologists can look at the times per day the intervention occurs and the length of the intervention. In addition, if an intervention was reward based, the percentage of times the behavior occurred can be calculated (e.g., the number of times a teacher praised a student for appropriate behavior).

With regard to intensity, interventions are considered more intensive if they require more adult supervision or an increased amount of modifications to the curriculum. Intervention components can be added or subtracted to find the most effective, but least intrusive intervention. There are two designs that can be used to determine if an intervention is working and what the student needs. Increasing intensity designs are used when the intensity of treatments can be increased by extending, adding, or altering intervention components. The least intrusive intervention is used and components are added (as needed) until the objective of the intervention is accomplished. A decreasing intensity design can be used when students are engaging in high-risk behaviors, or when a student with intensive services is being reintroduced into general education. It begins with a multi-faceted effective intervention, and facets of the intervention are systematically removed to see if the intervention effect is maintained. Overall, it is suggested that evidence-based interventions must be used and control conditions should be applied (getting baseline information, or briefly withdrawing the intervention to document the effects; Barnett et al., 2004).

Intervention Integrity

Perhaps the most serious threat to attaining the results that are possible with use of empirically based interventions is the degree to which correct implementation occurs. Interventions should be implemented as designed and the process with which they were chosen and students identified should be implemented as intended. Intervention integrity is the degree to which interventions have been correctly implemented as planned (Gresham, 1989).

It is important to directly monitor intervention integrity. Intervention integrity needs to be assessed to know if behavior change is a result of the intervention. A prevalent mistake on the part of school professionals is to conclude that an intervention has not been successful in the absence of intervention integrity information, and then to provide a more complicated or intensive intervention to replace the first intervention. Intervention integrity should always be measured prior to concluding that an intervention has not been successful.

Gresham (1989) wrote a foundational article that enumerated serious concerns about intervention integrity for students. This article discussed two empirical studies conducted by Gresham and colleagues and questioned the practice of monitoring only outcomes in research and practice when the implementation of the intervention was ignored. Gresham reported five factors that weaken intervention integrity: (a) treatments that are too complex, (b) treatments that require too much time, (c) treatments that require materials that are not easily accessible, (d) treatments that are not perceived to be effective by those who must implement the treatment, and (e) intervention implementer is not motivated to use the treatment.

When creating a written intervention plan, the plan should describe each step of the intervention in observable terms. The plan should be given to the interventionist and used by the observer to assess integrity. School psychologists should review: (a) intervention implementation data and (b) intervention effects with interventionists on a frequent basis. Direct observations of the intervention must be conducted. Self-report data concerning treatment integrity have not been determined to be reliable nor sensitive indicators of actual treatment integrity at this time. In fact, several follow-up studies have found that classroom teachers tend to overestimate integrity of intervention implementation (Gresham, 1989).

Mortenson and Witt (1998) reiterated that treatment integrity is critical to pre-referral intervention effectiveness, but also challenging to ensure. Previous research has demonstrated the effectiveness of performance feedback when provided on a daily basis. Performance feedback is defined as systematically measuring the percentage of correctly implemented intervention steps in a protocol and providing information to the teacher (usually verbally via the consultant) about the degree to which the intervention was correctly implemented. In addition, discussing correct implementation is used to ensure adequate integrity (e.g., re-training the teacher, providing new materials). Performance feedback is delivered in a supportive manner or tone, but the content of the feedback is specific and determined by direct measurement (i.e., steps implemented correctly and strategies for enchasing integrity).

Resolution and Termination

If the student's reading performance has improved to a satisfactory level, then the problem has been successfully addressed. Procedures for involving the school psychologist as a consultant again can be outlined in the event that problems resurface or in the event that a similar problem occurs with another student.

If reading performance has not improved, then the school psychologist and teacher may need to revisit the stages and revise the original plan. Perhaps the method of measurement was not accurate enough to detect improvement, or perhaps the potential cause of the reading problem was identified incorrectly. Additionally, it may be beneficial to include other team members in future problem-solving efforts, such as after-school tutors or parents.

The school psychologist and teacher should document all actions taken throughout the intervention, including the concern, relevant assessment results, description of the intervention, intervention integrity data, and the intervention results. The school psychologist need not write a formal report, but a brief summary of the problem-solving process can suffice for student records, and it can also be helpful information for the student's future teachers.

CONCLUDING REMARKS

As it has been noted throughout this paper, unaddressed reading difficulties are a serious issue that carries the negative consequence of impeded student performance in school and throughout life. School psychologists should consult with teachers to provide resources and support to thwart these negative outcomes. The use of a comprehensive model in the consultation process is efficient and ensures that all questions are asked and all steps are covered. The consultation model outlined in this paper can act as a valuable resource for school psychologists to use in the consultation process when working with teachers to help improve student reading performance.

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Increasing Reading Fluency through Student-Directed Repeated Reading and Feedback

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In order to increase reading fluency, a research-based tutoring method using repeated reading was implemented over a 10-week period with two second-grade students. Two high school students were trained to be the tutors. In addition, one parent and one older sibling were trained to repeat the tutoring process at night. Treatment integrity was monitored through observation and tutor contact. The six, 30-minute sessions per week were associated with significant increases in sight word vocabulary, fluency and comprehension. Limitations, future research directions, and implications for practice are discussed further.

KEYWORDS: Reading fluency, Intervention, Tutoring, Repeated reading, Elementary students, High school students

Reading is an essential component of education which has been linked to an individual's overall achievement and success over the lifetime. With more than half of all school-aged children in the United States reading below grade level, a national emergency has been declared to promote reading skills (Scholastic, 2006). Additionally, it is estimated that over 75% of all referrals for special education assessment are related to poor reading skills (Kavale & Forness, 2000). It is no wonder that reading is the focal point for both No Child Left Behind (NCLB) and the re-authorization of Individuals with Disabilities Education Act (IDEA).

The 2004 re-authorization of IDEA builds off of the major principles of NCLB. Moreover, the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 supports a response by students to proactive, research-based interventions, which is referred to as the Response to Intervention or RtI model (Lichtenstein & Klotz, 2007; Jimerson, Burns, & VanDerHeyden, 2007). This suggests providing intervention services for all children at an early age before they continue to experience frustration and failure as well as reducing the unnecessary labeling and misdiagnosis of students as learning disabled. Despite the promising shift in theoretical thinking, the logistics of the RtI model have yet to be fully conceptualized and operationalized, leaving many unanswered questions relative to the effective implementation of RtI treatments, such as: 1) Who will implement the intervention? 2) Where will it take place? 3) What method will work the best for whom? 4) How long do we implement the intervention? In an attempt to develop best practices for the RtI

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model for improving reading fluency, this paper (a) defines the concept of fluency, (b) discusses the most widely used strategies for enhancing fluency skills, as well as the challenges encountered while upholding treatment integrity and acceptability for fluency interventions, (c) describes an intervention implemented over a 10-week period, and (d) reports the student outcomes associated with the reading intervention.

In the report completed by National Reading Panel (National Institute of Child Health and Human Development, 2000), five subcomponents of reading were identified: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Table 1 provides a brief description of each of these five reading subcomponents. The panel deemed that of these five dimensions, fluency was the area least understood and most often neglected in comprehensive literacy programs (Kame'enui & Simmons, 2001). Fluency is defined as "the ability to read connected text rapidly, smoothly, effortlessly, and automatically with little conscious attention to the mechanics of reading, such as decoding" (Meyer & Felton, 1999, p. 284). Though efficient and accurate word decoding and recognition are important components of fluency, comprehension is the ultimate objective of reading. Comprehension therefore is linked to fluency through prosody, which is commonly known as "reading with feeling" or incorporating the various aspects of oral expression (Rasinski, Blachowicz, & Lems, 2006). Fluent readers are able to read text fluidly with proper expression and actively make sense of, or construct meaning from, the text.

TABLE 1

Reading Subcomponents as Identified and Defined by the National Reading Panel

Reading Subcomponents	Description
Phonemic Awareness	The manipulation of individual sounds in words
Phonics	A system of relationships between letters and sounds
Fluency	Reading words in a smooth, accurate, and expressive manner
Vocabulary	Words that are recognized in print
Comprehension	The level of understanding after reading a passage or text

Conversely, non-fluent readers stumble through text word by word and read unexpressively, with little meaningful comprehension occurring. While the average student reads approximately six-to-eight minutes per day, it is estimated that poor readers engage in even less reading time (Goodlad, 1984; Strzepek, Newton, & Walker, 2000; Trelease, 2006). As a result, these students may experience what Stanovich (1986) called the "Matthew Effects," after the biblical story where the "rich get richer and [the] poor get poorer" (p. 360). That is, as non-fluent readers avoid reading entirely, they exhibit deterioration in skills and a widening of the knowledge gap with their peers.

Fluency is considered to be a critical component in overall reading achievement as determined by the National Reading Panel (2000) and two main categories in reading fluency improvement strategies have been identified from the literature. Academic teaching strategies attempt to increase time spent on reading through repeated reading techniques and the provision of feedback during guided reading time (Welsch, 2007). Instructional planning involves matching the levels of teaching materials (both content and vocabulary) and reading ability of the student (Welsch, 2007). According to Welsch, the selection of the most efficacious strategy is driven by the reading needs of the referring student.

With the increasing demands on reading standards and accountability, an emphasis on home-school collaboration encourages professionals to integrate parental involvement in the schools (Esler, Godber, & Christenson, 2004; Sheridan, Napolitano, & Swearer, 2004). Parent involvement assists students in increasing the amount of time reading, being exposed to reading materials, presenting more opportunities for repetition and learning, and finally, providing more chances for success. The presence of parent involvement with literacy skills has received positive empirical support (Baker, 2003; Grande, 2004; Kelly-Vance & Schreck, 2002).

Tutoring with students showing academic delays has been suggested as an important tool in remediating academic deficiencies, especially reading (Vaughn, Linan-Thompson, & Hickman, 2003). However, the implementation of a successful reading tutoring program is not without challenges, and not all programs have been successful. Powell-Smith, Shinn, Stoner and Good (2000) implemented two parent tutoring programs over a 15-week period. Although some individual students made slight reading gains, few significant effects were found.

Whereas many reading tutoring programs exist in the elementary school setting, what is most commonly missing is a consistent method that tutors can follow, whether the tutor is a parent, older student, college student or adult volunteer. Consequently, most tutoring sessions are minimally effective, at best, because there is no systematic method to examine whether the intervention is implemented as designed in order to provide guidance or feedback (e.g., intervention fidelity or treatment integrity). Moreover, without repeated assessment of targeted skills, it is impossible to determine if the treatment was responsible for any gains made (Gresham, 1989). In addition to treatment integrity, another important issue is treatment acceptability, which states that if the intervention is cumbersome or not easily followed, it is unlikely to be used continuously (Elliott, 1988; Telzrow & Beebe, 2004).

The purpose of this study is to combine multiple effective practices into a simple and systematic reading fluency instructional program. Each of the crucial elements that have been identified by Welsch (2007) was included in this study. Due to the dynamic nature of reading fluency, all of these components have been included, modified and integrated into a step-by-step approach for tutoring non-fluent readers in an effort to meet their heterogeneous needs. Repeated oral reading with feedback has been found to be one of the most effective ways to improve reading fluency in poor and good readers alike (Chard, Vaughn, & Tyler, 2002). Additionally, this program accommodates the need for the six-to-seven repeated readings to occur for automaticity to take place through numerous sessions within the home-school collaborative partnership (Resetar, Noell, & Pellegri, 2006).

METHOD

The present study involved a total of four students in a K-12 charter school in northern Colorado. The two second grade subjects were referred for reading difficulties and were chosen because they failed to respond appropriately to the regular classroom program (Tier 1 intervention). Also, these two students demonstrated basic decoding ability such that decoding and phonemic associations would not have to be the focus of the tutoring sessions.

Intervention

Each student was paired with one high school student who volunteered to be a reading tutor as part of community service requirements for graduation. The intervention was implemented over a 10-week period in the spring of the school year. The two high school reading tutors in addition to the parent of one student and the older sibling of the other student were trained by the first author to repeat the tutoring process verbatim in the afternoon or evening so that the student would have at least six opportunities for repeated readings. Student and family tutors were given explicit instructions for the three sessions per week including modeling, feedback, rehearsal, comprehension checks and communication with each other.

Measures

The initial reading level for both subjects was established by using a pre-test with the Flynt-Cooter Reading Inventory (1993), a commonly used criterion-reference test by elementary teachers to determine levels and progress. Words correct per minute (WCPM) were calculated from established passages prescribed by the Colorado Department of Education for monitoring student progress using standard curriculum-based assessment (CBA) practices. The most common 100 high frequency words per grade level were also used as a measure of progress.

Procedures

The repeated reading intervention, as indicated, was taught to both high school students as well as the parent and older sibling tutors by the first researcher through demonstration using actual materials supplied by the classroom teacher. Books used instructionally were provided by the tutees' teachers based on their knowledge of student interest and reading level, and were literature-based so that students felt they were reading consistently with other students. Titles included *If You Give a Mouse a Cookie, Toad and Frog are Friends*, and *Amelia Bedelia*. The individual lessons began with the student tutors writing down the book title and page numbers. The student tutor modeled appropriate fluency for the tutee by reading three-five pages. The tutee then read the exact same passage with prompting from the tutor. Prompting included encouraging the use of strategies to identify words, and giving the student the word read correctly if the tutee read the word for appearance incorrectly. The tutor wrote down the missed words on the paper for review after the first reading. If more than 10 words were missed, the passage was deemed too difficult and another book was identified in consultation with the teacher. After the first reading by the tutee, the missed words were gone over in various random orders until the tutor felt the tutee had memorized the words. The tutee then read the passage a second time, with the process being repeated and the tutor noting missed words for a second time. After going over the missed list the second time, the tutor asked five comprehension questions that he/she had written during the three repeated readings. If the student answered less than three correctly, the passage was again deemed too difficult and a new book was found. After the session, the tutor made a copy of the worksheet to send home with the student, as well as the book, for the same process to occur at home, including the same questions. The tutors at home constructed their own missed words lists.

Treatment integrity

Treatment integrity was examined by having all tutors demonstrate actual tutoring, and subsequent check-ins and observations with corrective feedback at two later times during the 10-week period, with 91% agreement between observers and intervention guidelines noted in the Table 2 checklist. It is important to note that, as with most academic intervention programs, the intervention was an additional academic program, as an established reading protocol existed in the classroom.

RESULTS

Changes over a 10-week period (Table 3) were all in a positive direction. Both students made significant increases in terms of WCPM (combined = 16.5, ES = .74). However, even though the effect size was of a significant magnitude according to Cohen, it has been suggested elsewhere (Vaughan et al., 2003) that average readers gain two words a minute per week. These results fall somewhat short of that mark. However, both students were not average or normal readers.

TABLE 2

Instructional Method Checklist for Treatment Integrity

1. Tutor at school writes down title of book and date, as well as pages and passages.
2. Student tutor/parent tutor reads 3-5 pages for tutee for modeling purpose.
3. Tutee reads out loud the same passages/pages. Tutor helps tutee make out any difficult words and corrects incorrectly read words, noting them on data sheet.
4. After first reading, tutor and tutee go over incorrectly read words, randomly mixing up words until tutee correctly identifies them.
5. Tutee reads exact same passage again, with tutor again indicating incorrect words and noting them, helping tutee correct them.
6. The tutor writes down 5 comprehension questions to ask after 3rd reading, or second by tutee.
7. The tutor goes over any missed words the second time.
8. The tutor asks 5 questions, indicating comprehension with a plus. At least 3 of 5 must be answered correctly, or the passage is too difficult.
9. The tutor makes a copy of work sheet, sends it home with book, and keeps a copy.
10. The parent repeats steps 1-9.

The increase over a 10-week period in sight words was very significant (combined = 145.5, ES = 5.24). Although this is not a usual measure of fluency, it is viewed as a positive intended effect. Sight word knowledge may not only contribute to fluency but comprehension as well. An increase in reading vocabulary may allow the reader greater access to a larger general lexicon, facilitating comprehension. As an external anchor measure to CBA indicators, the Flynt-Cooter Reading Inventory's pre and post level differences indicated an increase of one grade level in a 10-week period in both Oral Reading Accuracy and Comprehension. Although accuracy was not necessarily a goal of the repeated reading strategy, it is certainly a welcome outcome Increased comprehension is a natural benefit of increased reading fluency, and thus the results are viewed as significant. Comprehending what we read is the ultimate intentional outcome of reading.

DISCUSSION

The results of the present study can be contrasted to a recent study involving repeated reading strategies with junior high school students. In the study reported by Strong, Wehby, Falk and Lane (2004), repeated reading was combined with a formalized corrective reading curriculum. Additional differences in terms of repeated reading strategies included the number of times the passages were read (4 versus 6), peer modeling versus cross-age tutors, and corrections and feedback provided by the same-age peer. In the Strong and colleagues study, whereas more students were involved, the results were mixed, with some students not improving. The current strategies were gleaned from the most recent reviews of evidence-based practices for increasing fluency through repeated reading, and seem to warrant further examination.

TABLE 3

Pre and Post Criterion Measures

	Pre				Post			
	WCPM	Sight Word	Flynt-Cooter Oral Reading Accuracy	Flynt-Cooter Comprehension	WCPM	Sight Word	Flynt-Cooter Oral Reading Accuracy	Flynt-Cooter Comprehension
Student 1	69	114	Level 1	Level 1	86	264	Level 2	Level 2
Student 2	41	115	Level 1	Level 1	57	256	Level 2	Level 2
Students Combined	55	114.5	Level 1	Level 1	71.5	260	Level 2	Level 2

Note. WCPM and Sight Words are raw scores; Levels are grade levels.

The tutoring strategies used in this study seem to hold several advantages to enhance reading fluency. They are easy to implement as well as easily replicable. A number of persons could serve as tutors both in and out of school (such as students, parents, grandparents, community service personnel). The classroom teacher is a collaborative partner in the implementation of the strategies, and provides support and materials throughout the process. Parents are also partners in providing opportunities for repeated reading, and learn a simple method for helping their children become better readers. The present tutoring method is easy to monitor in terms of progress, and is consistent with best practices relative to data collection. The tutorial method also serves as both a Tier 2 RtI intervention and a possible Tier 3 intervention as well.

Limitations of the present study include the small number of participating students, and the fact that they were both elementary students. The present study warrants replication in other settings with other tutors. A difficulty with the method might be finding someone at school to do the tutoring. Also, the one-on-one format may be difficult to attain, and choral reading or silent reading are not appropriate ways to provide feedback. Another possible problem is the integrity of home participation. Although parents and older siblings indicate they are implementing the program conscientiously and consistently, it is difficult to discern to what degree their efforts are consistent with the specified intervention strategies.

In summary, the student-directed repeated reading and feedback intervention was successful in demonstrating positive results. The intent was to offer a simple intervention strategy that could be easily implemented, emphasizing current knowledge about improving reading fluency with repeated reading strategies. The current method bears further implementation and investigation with other students at other levels. A larger scale, after-school program implementation may provide greater opportunities for a larger number of students. It is hoped that others will want to implement variations of the current program, and use curriculum-based assessment measures to document progress.

This paper reports the results of an innovative program to bring science to practice, in an effort to enhance student outcomes. With a current focus on evidence-based practice, the importance of the scientist-practitioner model is emphasized for school psychologists. In order to substantively address complex issues of reading, developing intervention strategies that are research-based and gathering data to examine student outcomes, in addition adhering to treatment integrity, are necessary to enhance the success of all students.

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School Psychologists as Instructional Consultants in a Response-to-Intervention Model

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The 2004 authorization of the Individuals with Disabilities Education Improvement Act affords an opportunity to shift the classification of Learning Disabilities (LD) from a "refer-test-place" to a Response-to-Intervention (RtI) service delivery model. As a result, there are implications for the professional activities of school psychologists. School psychologists, who historically devoted much of their time to testing struggling learners for learning disabilities, will need to engage in a different type of practice, specifically providing instructional consultation in a tiered assessment and intervention model. This article describes instructional consultation skills and knowledge school psychologists must possess to promote the learning outcomes of students with achievement deficits, including students with disabilities. Survey data collected from 249 California school psychologist practitioners highlight the need to modify school psychology pre-service training and on-going professional development to enable school psychologists to become effective instructional consultants.

KEYWORDS: Response to Intervention; RtI; Instructional Consultation; School Psychology Service Delivery.

The Response-to-Intervention (RtI) zeitgeist emerged with the 2004 re-authorization of the Individuals with Disabilities Education Improvement Act, which provided states the option of determining whether a "child responds to scientific, research-based intervention" for identifying underachieving students with specific learning disabilities (SLD; IDEIA, 2004). SLD eligibility under RtI is determined when a child's academic performance fails to improve even when increasingly intensive, empirically supported interventions have been implemented (Hagans-Murillo, 2005; see Jimerson, Burns, & VanDerHeyden, 2007 for a review of contemporary scholarship related to RtI). The reauthorization specifically requires a data-based decision-making process for identifying and serving students who are referred for learning difficulties, including students who are English Language Learners (ELLs; IDEIA, 2004). One of the greatest challenges currently facing the field of special education and related services is training personnel to effectively meet these new requirements for identifying children with LD using a RtI model (Canter, 2006; Graden, 2004; Kratochwill, Volpiansky, Clements, & Ball, 2007; NJCLD, 2005).

Most RtI service delivery models are based on three tiers of intervention with a student progressing from one tier to the next if quality interventions at each level fail to stem the student's persistent or worsening academic skill deficits (Fuchs et al., 2008). RtI is grounded in the provision of instructional consultation at each level of service, and represents a major paradigm shift from the traditional psychometric activities associated with a "refer-test-place" model (see Table 1). Instructional consultation and problem-solving models upon which RtI are based have been researched (e.g., Bergan & Kratochwill, 1990; Jimerson, Burns,

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& VanDerHeyden, 2007; Rosenfield, 2002) and used in practice for many years in states such as Iowa (Ikeda, Rahn-Blakeslee, Niebling, Gustafson, Allison, & Stumme, 2007), Minnesota (Marston, Lau, & Muyskens, 2007), and Illinois (Peterson, Passe, Shinn, & Swerdlik, 2007). Despite being practiced and researched, RtI remains relatively new to many school psychologists; as such their knowledge and ability to support empirically based instruction and monitor a child's response to that instruction may be limited. However, school psychologists' knowledge of assessment and access to multiple instructional contexts makes them ideal candidates to assume the role of instructional consultant. In short, to move from a refer-test-place model to a RtI model of service delivery, school psychologists must move from providing primarily psychometric services to delivering consultation services within a tiered instructional model.

TABLE 1

Comparison between Two Models of School Psychological Services to Address Learning Deficits

Learning Deficits

Refer-Test-Place	Response-to-Intervention Model
Psychometric skills	Instructional consultation skills
Related services focus on testing	Related services focus on instructional consultation
Knowledge of evidence-based academic interventions is helpful, but not essential	Knowledge of evidence-based academic interventions is essential.
Administer published, norm-referenced tests of cognitive, psychological processing, and achievement (e.g., WISC-IV, WJ-III)	Administer instructionally-related assessments (e.g., FAAB, CBM, EAAP)
Nomothetic (inter-individual) assessment - battery of tests administered in a few testing sessions	Idiographic (intra-individual) assessment procedures - repeated measures to assess progress over time
Tests are commercial, standardized, and norm-referenced and require substantial inference about applicability to achievement	Tests are direct, require little inference; and based on local normative expectations, grade-level standards and/or intra-individual comparisons
Refer-Test-Place	Response-to-Intervention Model
Focus on determining special education eligibility	Focus on identifying effective interventions
Specific learning disabilities defined by an IQ/achievement discrepancy	SLD defined by a dual discrepancy definition (i.e., below average performance and low rate of response to intervention)
Psychoeducational reports focus on describing and interpreting scores to match special education eligibility criteria	Psychoeducational reports focus on summarizing assessment results, linking results to interventions, and monitoring intervention outcomes

The purposes of this article are to outline the training and professional development needs of school psychologists for successful implementation of a RtI model, with particular emphases on the theoretical and practical components of early identification and intervention with students with academic skill deficits (i.e., Tiers 1 and 2). We begin with the results of a survey of California school psychologists that highlights the need for practitioner training in RtI methods.

California Practitioner Survey Results

The description of school psychologists engaged in instructional consultation within an RtI model contrasts sharply with contemporary practices. Currently, psychometric models dominate school psychological practice, with a focus on determining eligibility rather than identifying and monitoring instructional interventions (President's Commission on Excellence in Special Education, 2002; Reschly, Hosp & Schmied, 2003; Reschly & Ysseldyke, 2002). A 2005 on-line survey by Busse, Leung, Powers and Siembieda, completed by 249 California school psychologists, highlighted the paucity of psychologists engaged in activities related to instructional consultation (i.e., utilizing curriculum-based assessments, evaluating intervention effectiveness with progress monitoring data). All members of the California Association of School Psychologists (CASP) were invited to complete the survey via email. The response rate was quite low; less than 10% of the approximately 3000 CASP members responded, and thus, the results should be interpreted accordingly.

The survey results presented in Table 2 indicate most respondents remained heavily engaged in traditional psychometric testing and few engaged in practices related to instructional consultation. For example, 79% of respondents administered a cognitive test at least once a week, whereas 2% administered a curriculum-based (CBM) measure as frequently, which can be used for determining students' response to instruction. The majority of respondents indicated that they "never" engaged in assessment activities relevant to instructional consultation. Lack of knowledge appears to be a major reason respondents did not engage in instructionally related assessments, as 16% indicated they do not know how to use CBM data, 24% expressed a lack of knowledge on graphing data, and 35% noted they did not know how to apply decision rules to analyze trends in progress monitoring data. In contrast, out of the 249 respondents, not a single school psychologist indicated that they knew next to nothing about cognitive testing. The survey results indicate that most respondents engaged in consultation with teachers, and 41% did so on a regular basis. The high percentage of psychologists who indicated that they did not know how to engage in instructionally relevant assessment activities is startling. With little to no progress monitoring data collected and minimal knowledge and experience in providing academic interventions (only 7% frequently provided academic interventions and 1 in 10 respondents reported knowing very little about academic interventions), the effectiveness of respondents' consultation is questionable.

School psychologists' under-developed instructional consultation skills is not solely a California phenomenon. School psychologists across the nation have reported valuing instructional consultation more than they actually provide this related service; and those who have assisted in academic intervention development reported they rely on experiential rather than empirical knowledge to inform intervention development (Porter, Batsche, Castillo, & Witte, 2006). For example, like California school psychologists, most practitioners responding to a similar national survey indicated they never engaged in progress monitoring to determine the effectiveness of interventions they helped to develop (Porter et al., 2006).

TABLE 2

CASP Practitioner Survey Results

	Frequently (1x week)	Never	I have not learned much about this
Psychometric Model or Refer-Test-Place Practices			
Cognitive Testing	79% (197)	1.2% (3)	0
Administering tests of psychological processing	70% (175)	2% (5)	3 (1.2%)
Response-to-Intervention Model or Instructional Consultation Practices			
Administer a curriculum-based measure (CBM)	2% (5)	52% (130)	15% (38)
Graph progress monitoring data	2% (6)	53% (132)	24% (59)
Use a decision rule (e.g., trend analysis) to evaluate progress monitoring data	4% (10)	63% (157)	35% (86)
Consult with teachers on implementing an intervention	.8% (2)	41% (102)	.4% (1)
Implement academic interventions	7% (17)	48% (120)	11% (28)

School psychologists must be trained to engage in these assessment and intervention activities to meet the full intent of RtI provisions of IDEIA 2004. Knoteck (2007) states that the basic skills needed to successfully operate within a RtI model are problem-solving skills, ability to successfully exchange ideas, data collection, and analysis of curriculum and instruction. Because most school psychologists do not regularly engage in even the most basic assessment and instructional programming activities related to RtI (i.e., gathering CBM data, graphing data, making data-based decisions), there is a great need to train school psychologists who are knowledgeable about basic and advanced assessment (i.e., experimental analysis of academic behavior, curriculum-based evaluation, dual-discrepancy criterion) and intervention methodologies.

Theoretical Assumptions of RtI

Generally, there are two assumptions inherent in a RtI model that drive the selection and implementation of assessment and intervention procedures: (a) interventions represent testable hypotheses that must be evaluated for each student, and (b) implemented interventions focus on alterable contextual variables that empirically relate to improved student outcomes (Hagans-Murillo, 2005). Conceptually, RtI methodology is based on the applied behavioral analysis (ABA) and single-subject research literature that promote the use of direct ongoing methods of assessment that measure socially important behaviors to make intra-individual, idiographic comparisons to evaluate the effectiveness of interventions (Baer, Wolf, & Risley, 1968; Gresham,

2007). Additionally, RtI's grounding in an ecological systems theory is based on the assertion that child outcomes are influenced by a reciprocal interaction between student characteristics and environmental conditions (Powers, Hagans, & Miller, 2007). As a result, the focus of the problem does not reside solely within the child and instead moves to an analysis of specific environmental conditions that support or thwart the development of academic competence (DiPerna & Elliott, 2002). Conversely, the identification and implementation of special education services traditionally operates from a deficit, child-centered model, with an assessment methodology that embraces and largely expects evaluations that measure within-person, unobservable, and unalterable characteristics that may minimally relate to the development of targeted interventions and improved academic achievement (Ysseldyke, 2002).

Although within-child and home variables significantly impact student learning, instructional programs must be selected based on evidence-based effectiveness with the target student population; systematically sequenced with new information introduced at a realistic rate; and adequate practice provided to enable students to develop accuracy and fluency in applying what they have learned (Carnine, Silbert, Kame'enui, Targer, & Junghohann, 2006). However, a serious misconception of teaching is that teachers simply deliver knowledge or information as prescribed in a curriculum lesson. For struggling learners, dispensing knowledge without significant adaptations only serves to promote further failure (Kame'enui & Simmons, 1990). Not all comprehensive instructional programs will meet the needs of all students; some will require modification such as explicit skill demonstrations and guided practice. Highly qualified school psychologists can provide an important related service by sharing knowledge of empirically based strategies with teachers who are delivering instruction to struggling students.

Scientific Support for RtI

Although convergent research over the past decade specifies essential ingredients for effective instruction (e.g., National Reading Panel, National Literacy Panel, President's Commission on Excellence in Special Education, National Council on Teacher Quality), an extensive gap exists between research and practice (National Council on Teacher Quality, 2006). There is a need to assist teachers in the design and delivery of instruction to provide quality instructional programs to diverse learners, especially students who enter school with varied formal and informal learning experiences. Additionally, instructional assistance is needed to help special education teachers provide quality and adequate instructional programs to increase special education exit rates of students already identified with a disability (Powers, Hagans, & Miller, 2007).

Instructional consultation is a collaborative problem-solving process focusing on general or special education teachers' concerns regarding the academic progress of individual or groups of students, or the failure of instructional programs to improve student outcomes (Rosenfield, 2002). The primary goal of instructional consultation is to create and maintain student success within the general education environment by supporting classroom teachers' application of evidence-based instruction and assessment to support struggling learners (Gravois & Rosenfield, 2006). To meet this goal, consultants must possess knowledge in the design and delivery of instruction, collaborative problem-solving skills, and the ability to analyze student data to inform instructional decisions.

The promise of RtI is much more than a new set of criteria for qualifying students for special education services. RtI is a model for providing primary, secondary and tertiary academic interventions to students with reading, writing, and mathematics deficits. Torgeson (2007) described RtI as:

> "…a complete model for organizing and delivering early reading instruction in elementary schools. In fact, it could be called the "response to intervention *instructional model*," as distinct from the "response to intervention *diagnostic approach*" which is referred to in the (IDEA) legislation" (p. 1, italic emphasis added).

Torgeson's intervention research found that applying a RtI model in the form of ensuring high quality instruction to all students, modifying academic interventions based on progress monitoring data, and providing "increasingly powerful 'tiers' of intervention based on student need" decreased the numbers of

students exhibiting severe underachievement. For example, in a study with 318 elementary schools in Florida, Torgeson reported that the proportion of Kindergarten students identified as having a learning disability was reduced by 81% within 3 years of applying the model. Similarly, the proportion of third grade students with significant reading difficulties was reduced from 26.7% during the first year of RtI implementation to 19.9% at the end of the third year. These results are consistent with previous research findings (Burns, Appleton, & Stehouwer, 2005; Jenkins, Peyton, Sanders, & Vadasy, 2004; Kovaleski, Gickling, Morrow, & Swank, 1999; VanDerHeyden, Witt, & Barnett, 2005) on the efficacy of RtI service delivery models for reducing grade retentions, referrals for special education, and increasing reading, spelling, and math skills.

Furthermore, research on RtI as a diagnostic service delivery model on the overrepresentation of minorities in special education is encouraging. Marston, Muyskens, Lau, and Canter (2003) found that replacing the "refer-test-place" service delivery model with RtI reduced disproportional representation of culturally and linguistically diverse students in special education in the Minneapolis Public School District. Similarly, Gravois and Rosenfield (2006) found a significant decrease in the risk of minority students being referred or found eligible for special education among schools that implemented instructional consultation teams.

Successful implementation of RtI is predicated on the ability of educators to identify evidence-based instructional practices for implementation at multiple instructional tiers, and the use of progress monitoring systems to gauge student progress and need (Glover & DiPerna, 2007). School psychologists are uniquely positioned to assist in the implementation of a tiered instructional model through the provision of instructional consultation services at each tier of the RtI instructional hierarchy, thereby fulfilling IDEIA mandates while improving the academic outcomes of struggling learners.

INSTRUCTIONAL CONSULTATION IN A THREE-TIERED RTI MODEL

There exists variation in how the three tiers of RtI are conceptualized, and no model has been shown to be superior to another (Burns, Deno, & Jimerson, 2007). Regardless of the model, the basic tenets of RtI are implementing increasingly intense interventions suitably matched to students' needs based on a failure to respond to less intense intervention. For example, in some models the provision of special education services is considered the third tier, whereas in others' tier 3 is another opportunity to remediate a student's academic deficit before determining that the child likely has a disability and requires special education services to make adequate progress in school. Therefore, depending on one's conceptualization of RtI, some assessment and consultation activities may fall within a different tier upon implementation. Potential school psychologist activities and contributions to the implementation of RtI in the schools within a three tiered instructional consultation approach are numerous (see Table 3). However, for the purposes of this article, we focus on describing Tier 1 and 2 activities and competencies because these levels typically are most conducive to instructional consultation as a method for ameliorating the need for special education placement.

TABLE 3

Potential School Psychologists Consultation Activities

Tier 1 Instructional Consultation Activities 1. Observe and consult with general education teachers to increase their instructional effectiveness; 2. Analyze and visually display school-wide data to identify students in need of differentiated instruction; 3. Collaboratively develop universal screening and standard protocol instructional programs; 4. Collect and interpret progress monitoring data, including applying decision rules to identify students in need of Tier 2 interventions.
Tier 2 Instructional Consultation Activities 1. Facilitate problem-solving Student Study Teams 2. Design, support and evaluate intense, systematic and targeted interventions 3. Collect and interpret progress monitoring data, including applying a dual discrepancy decision rule to identify students in need of Tier 3 interventions.

Tier 1 Instructional Consultation Services

Tier 1 assessment and intervention typically take place in the general education program and involve collaboration among many individuals, including the school psychologist. Ideally, Tier 1 includes effective delivery of a rigorous and empirically based curriculum, universal screening at least three times a year for early identification of students in need of intervention, and a standard protocol instructional intervention for students who fail to meet targeted universal screening benchmarks (Fuchs & Fuchs, 2006). Students may fail to achieve identified academic standards if these instructional components are not effectively in place or poorly implemented. School psychologists are in an ideal position to provide consultation to teachers regarding instructional delivery, classroom management, collecting and interpreting student data, and making data-based decisions regarding student educational needs and progress due to the training school psychologists receive in collaborative consultation, assessment linked to intervention, and understanding of learning and behavior.

Instructional Delivery. The research literature consistently demonstrates the powerful influence of instructional quality on achievement (Brophy & Good, 1986; Rosenshine & Stevens, 1986; Vaughn, Gersten, & Chard, 2000). Instructional quality, in turn, is affected by variations in teacher preparation and experience. Even teachers who have completed a credential program may not be prepared to provide effective instruction. For example, the National Council on Teacher Quality (NCTQ, 2006) found that many teacher preparation programs do not prepare teachers to provide reading instruction based on empirically validated methods. In this study, the NCTQ randomly selected 72 elementary education preparation programs from across the nation and reviewed over 200 syllabi from these programs. They found only 11 of the 72 schools included at least one syllabus that referenced the five components of effective reading instruction (i.e., phonological awareness, alphabetic principle, fluency, comprehension, and vocabulary), as cited by the National Reading

Panel (2000). Although there has been substantial convergent research over the past decade to specify the essential ingredients for effective instruction, particularly reading instruction, (e.g., National Reading Panel, National Literacy Panel, President's Commission on Excellence in Special Education), the NCTQ found few elementary education courses adhered to current scientific evidence. Furthermore, an emphasis on providing teacher preparation courses that are "fun" at the expense of rigor was found to undermine teachers' preparation (NCTQ, 2006). School psychologists can assist teachers in the delivery of effective instruction by directly observing and providing consultation to improve the classroom environment and instruction, and subsequent student learning.

Key indices of quality instruction (e.g., clear learning objectives, adequate and varied practice, immediate and specific feedback) may be assessed through direct observation of instruction and/or the use of published ecological assessments. During classroom observations, various time-sampling and frequency observation procedures may be used to analyze the instructional environment for factors known to impact learning, such as sufficient opportunities for students to respond to instruction, pacing of instruction, pre-teaching potentially difficult tasks, and maintaining students' attention during instruction (Kame'enui & Simmons, 1990; Salvia & Ysseldyke, 2007). The Functional Analysis of Academic Behavior (FAAB; Ysseldyke & Christenson, 2002), a published, semi-structured observation and interview tool, may be used to gather information on the interaction between a student and his or her learning environment, such as realistic but high student expectations, use of effective motivational strategies, and reasonable curriculum modification to accommodate specific instructional needs. Additionally, the degree to which a student's home environment supports learning is assessed, such as parent participation in learning at home or school, daily routines to facilitate completion of assignments, and perceptions of the value of education. Using data derived from both structured and unstructured observations, school psychologists and teachers can collaboratively identify ways to improve the content, delivery, and/or management of instruction to increase student achievement.

Measuring student engagement during instruction is another important consideration when attempting to identify learners' academic difficulties because of the strong positive relationship between the amount of time a student is actively engaged in learning activities and his or her achievement (Greenwood, 1991; Shapiro, 2004). Student engagement, or academic learning time, is the proportion of time a student is actively and successfully engaged in a learning task, such as writing, reading aloud or silently, and answering or asking questions. Convergent research evidence shows that students who are actively engaged during instruction experience more opportunities to respond to instruction, resulting in higher levels of achievement (DiPerna, Volpe, & Elliott, 2002). Factors such as instructional design and classroom management play a major role in students' rates of academic engagement. School psychologists have the opportunity to assist teachers in identifying and modifying variables in the classroom environment to maximize student learning (Gettinger & Seibert, 2002). A structured observation tool, such as the Behavioral Observation of Students in Schools (BOSS; Shapiro, 2004), may be used to measure students' engagement during instruction by observing the percent of time a student is actively or passively engaged, and off-task during instruction compared to a peer. Operational definitions of the above behaviors must be developed by the observer prior to observation. Response accuracy also should be assessed by examining student work (e.g., permanent products) to determine the instructional match and success of the student in the expected material.

Various interval or time sampling observational techniques are useful for recording continuous and high frequency behaviors (Alberto & Troutman, 2003) and are useful for measuring academic engagement. However, an operational definition of "academic engagement" must be developed before employing a time sampling observation to ensure that the behavior is measured consistently. A list of specific behaviors considered representative of "academic engagement" may be developed in consultation with the teacher. Behaviors considered the opposite or absence of the behavior of interest (i.e., academic engagement) also are useful in operationally defining behaviors (Lewis & Sugai, 1999). Subsequently, a specific time period during which the target behavior is likely to occur is determined (e.g., teacher-directed language arts instruction) and divided into equal intervals typically no longer than 30 seconds. Information regarding the occurrence, duration, and distribution of academic engaged time of a student or group of students may be inferred from the data (Alberto & Troutman, 2003).

Universal screening. Most students will make sufficient progress when provided high quality instruction, however, between 3% to 7% fail to respond adequately (Mathes, Denton, Fletcher, Anthony, Francis, & Schatschneider, 2005). The teacher of a class with a large number of underachieving students may require substantial consultation and professional development. To provide timely assistance, academic achievement data on every student in a school must be collected and compared to identify students who are failing to profit from general education instruction and curriculum. The results of large-scale assessments, such as the California Standards Test (grades 2 and up) and California Achievement Test (grade 3 and up), may be useful for making curricular changes when the data indicate specific skills are not sufficiently mastered in a grade level. However, these data are not collected frequently enough to provide early identification of academic difficulty for individual students. Test item difficulty also changes with each passing grade level, rendering it difficult to determine student progress. Universal screening of all students in the major academic areas (reading, mathematics, written expression) three times per year would enable school personnel to provide a timely response to the first signs of academic difficulty. Fuchs and Fuchs (1999) suggested that universal screening measures meet the following criteria: (a) sufficient evidence of reliability and validity; (b) capacity to model growth (i.e., multiple alternate forms that allow comparison across administration; sufficient range of skills are measured to avoid floor and ceiling effects for students with poorly or highly developed skills); (c) identified benchmarks for expected growth used to set a selection criterion; (d) treatment sensitivity (i.e., small gains in skill acquisition are detected, and gains can be compared to average growth rates to determine whether sufficient progress is being made); (e) capacity to inform teaching; (f) independence from a specific instructional strategy or curriculum (i.e., a universal screening should rely on tasks that are functionally equivalent to the material that has been directly taught and practiced, but the screening tasks themselves should be novel); and (g) feasible (i.e., easy to administer; takes a short amount of time to administer, score, and interpret). Mastery measures, such as Read Naturally assessment tools, reading inventories, and classroom or text-book tests of learning modules are readily available and therefore, very feasible. However, these instruments lack multiple equivalent forms and thus, impede monitoring of learning across time, and often are not independent from instruction. Published, norm-referenced tests, such as the *Woodcock-Johnson III Tests of Achievement*, are more independent from instruction, however, they lack treatment sensitivity and often are costly and time consuming to administer and score. Curriculum-Based Measures (CBM), such as Initial Sound Fluency (ISF) or Phoneme Segmentation Fluency (PSF) for measuring phonological awareness skills, Oral Reading Fluency (ORF) for measuring reading in connected text, Digits Correct Fluency (DCF) for measuring mathematics, and Words Written Fluently (WWF) or Correct Word Sequence (CWS) for measuring spelling and writing, meet most or all of these conditions (Shapiro, 2004). CBM resources may be found on a number of websites, including the sites for Dynamic Indicators of Basic Early Literacy Skills (DIBELS), AimsWeb, and Intervention Central. Although some curricula include progress monitoring measures for use by teachers, few teachers engage in progress monitoring due to time constraints (Bentz & Shinn, 1990), or aren't fully trained on how the assessments inform instruction or how to interpret the results so they can use the data to alter their instruction.(Santi & Vaugh, 2007). By familiarizing themselves with these resources and the empirical literature on CBM, school psychologists can be central figures in selecting appropriate measures for universal screening of all students in basic skill areas to inform instruction.

Tier 2 Instructional Consultation Services

Tier 2 involves a more refined definition of a student's academic problem, greater analysis of potential causes of the deficit, and more intense, empirically based interventions (Fuchs & Fuchs, 2006). Accordingly, school psychologists who provide instructional consultation may need to (a) conduct advanced individually administered academic assessments such as error analyses and Experimental Analysis of Academic Behavior (EAAB); (b) collaborate with a student support team on developing individualized intervention goals, supplemental instruction, and curriculum modifications; and (c) assist in collecting progress monitoring data and applying decision rules to determine if Tier 3 interventions are warranted.

Advanced assessment. Interventions often are developed on a 'trial-and-error' basis despite evidence that pre-intervention assessment data can identify differential responses to interventions (Noell, Freeland,

Witt, & Gansel, 2001 as cited in Duhon et al, 2004). The extensive research on Aptitude-by-Treatment (AtI) interactions indicate the best way to ensure treatment utility is to directly assess students' responses to academic tasks, rather than assessing cognitive processes that may or may not have an indirect effect on academic responding (Cronbach, 1975). Two direct assessment procedures that inform intervention development are error analysis and Experimental Analysis of Academic Behavior (EAAB). The former, which is rather wide spread, involves identifying the strategies or sub-skills that are underdeveloped and lead to errors in academic responding. For example, careful analyses of a child's oral reading errors may indicate she omits word endings; has trouble blending multi-syllabic words; and misreads some common, high-frequency sight words. This information is then used to identify the skills for which she will receive direct instruction in a one-on-one or small group setting.

EAAB involves the brief and direct assessment of an academic behavior under systematically manipulated conditions to identify the most effective intervention for a particular child (Daly, Andersen, Gortmaker, & Turner, 2006; Duhon et al., 2004; Jones & Wickstrom, 2002). EAAB is based on single-subject design, which requires repeated measures (most commonly CBM-reading) across conditions and over time (Jones & Wickstrom, 2002). Typically, the student's motivation to meet the demands of an academic task is assessed first by offering an incentive contingent upon making substantial improvement (for example, increasing his last oral reading fluency rate by 30%). If the students' performance does not significantly improve, then underachievement may be due to a skill rather than performance deficit. This is important information to share with teachers who often believe that a student could perform better if he or she "just tried harder." A student may have a skill deficit because they have not yet acquired the skill (acquisition), have had insufficient opportunity to practice the skill (fluency), or they fail to generalize the skill to functionally related tasks (Daly, Witt, Martens, & Dool, 1997). An acquisition problem is assessed by measuring improved performance on a probe after delivering brief direct instruction (e.g., modeling, guided practice, corrective feedback) on the content of the probe. A skill deficit due to poor fluency is assessed by measuring improved performance after repeated practice of the probe. By administering a probe that contains much of the same content as the instructional probe, a student's ability to generalize the skills they learned during the intervention is assessed. Long-term interventions are then based on providing interventions that address the performance or particular skill deficit.

Student support teams. Students who do not respond to the standard protocol interventions at Tier 1 are commonly referred to a multi-disciplinary team (often termed Student Support Team; SST) for more individualized problem-solving. By conducting assessments that inform intervention development, school psychologists can make substantive contributions to the SST that develops Tier 2 interventions. Through instructional consultation among the members, the SST:

1. Engages in systematic assessment of learning problems through curriculum-based and instructional environment measures.

2. Establishes an intervention goal that reflects a substantial improvement in the student's rate of learning (i.e., an ambitious goal) and can be reasonably attained by the end of a 6 to 8 week intervention.

3. Implements data-based supplemental instruction and curricular modifications that are likely to increase the student's number of successful learning trials.

4. Implements an intervention evaluation plan that includes progress monitoring of the student's academic performance and a method for assessing intervention fidelity.

Applying decision-rules. K-12 students who fail to respond to interventions at this tier may require special education services. To determine eligibility, the IEP team first must consider the appropriateness and fidelity of Tier 2 interventions. Next, the team evaluates whether the failure to respond to interventions may be caused by socio-cultural or language differences. Finally, the team determines whether the students' rate of progress and relative standing to grade-level expectations are significantly low enough to warrant placement in special education. This dual discrepancy is a critical component of a RtI model. Students who, despite well-implemented evidence-based interventions, do not respond at a *rate relative to their own and to peers' performance* may require special education (Fuchs & Fuchs, 2006).

CONCLUSION

School psychologists, who have historically devoted much of their time to testing students for learning disabilities within a psychometric model, will be required to engage in a different type of practice in a RtI model. This practice involves collecting systematic, instructionally relevant assessment data and consulting with teachers on how to apply these *data to design effective interventions that are appropriate for varying levels of individual need.* This practice will require in-depth knowledge of the principles of effective instruction, tiered assessment and instructional methodologies, progress monitoring, and data-based decision making. The responses of California practitioners indicate that the potential for school psychologists to fully contribute to ameliorating students' learning problems as instructional consultants, to date, remains under-realized.

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Viewing Response-to-Intervention through an Educational Change Paradigm:

What Can We Learn?

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Response-to-Intervention (RtI), a framework for improving academic and behavioral outcomes for all students, can be viewed as a current example of an educational change initiative. Given the difficulties that some schools may be experiencing when implementing RtI effectively, it is important to examine prior educational change conceptualizations and research for factors that may facilitate or impede current educational reform. The purpose of this article is to (a) present RtI as a current educational reform initiative, (b) use Fullan's (2007) theoretical model as a framework through which to present information related to educational change, and (c) provide suggestions regarding how such educational change literature can inform and improve the implementation and future sustainability of RtI in schools.

KEYWORDS: Response to Intervention, Educational Reform, Educational Change, Systemic Consultation

Since the National Commission on Excellence in Education (1983) published *A Nation at Risk*, widespread demand for educational reform has remained a dominant theme across the United States. As policy changes were enacted related to special education (e.g., reauthorizations of the Individuals with Disabilities Education Act, IDEA), significant changes within general education policy also occurred. Perhaps the most notable of these changes was passage of the No Child Left Behind Act (NCLB, 2002), which requires schools to provide high-quality instruction to all students through the use of evidence-based practices provided by highly qualified teachers. When Congress passed the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), further emphasis was placed on using systemic approaches that integrate general and special education into a unified system. Recent changes in these federal policies, combined with the proliferation of empirically based interventions designed to prevent problems and promote students' academic and behavioral success, have created an unprecedented opportunity for schools to expand their use of alternative service delivery models (Graczyk, Domitrovich, Small, & Zins, 2006).

At the present time, Response to Intervention (RtI) is a prominent alternative service delivery model receiving much attention in contemporary educational literature (see Jimerson, Burns, & VanDerHeyden, 2007 for a review of related contemporary scholarship). Although RtI has been given much attention as the result of the IDEIA, successful implementation requires collaboration among all educators, not just those involved in the process of determining special education eligibility (Fuchs, Mock, Morgan, & Young, 2003). RtI is defined as the change in behavior or performance as a function of an intervention (Gresham, 2002; 2007). More specifically, RtI is a service delivery approach for providing services and interventions to students at increasing levels of intensity based on progress monitoring and data analysis. Successful implementation of RtI requires the adoption of three essential components: (a) multiple tiers of interventions, (b) a problem-solving method, and (c) a data collection system to inform educational decision-making (Batsche et al., 2005). Furthermore, the fidelity with which a RtI model is implemented relies heavily on consistent behavior among educators (Gerber, 2005).

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RTI AS AN EDUCATIONAL CHANGE INITIATIVE

RtI cannot be characterized by one educational program or curriculum, but rather a transformation in the way that systems, schools, and professionals operate. As such, RtI represents a current educational change initiative. Aligned with directives called for within NCLB, as well as within provisions of the IDEIA of 2004, the application of RtI in schools has received legislative support. Unfortunately, research has suggested that even when supported by legislation, most educational change efforts result in limited implementation success (Berends, Bodilly, & Kirby, 2002), possibly due to the fact that programming decisions are based upon a top-down model of change. In fact, in an extensive study of comprehensive school reform prompted by NCLB, Vernez, Karam, Mariano, and DeMartini (2006) discovered that none of the 350 schools included in the study had fully implemented systemic change and student outcomes were less than optimal.

Challenges inherent in educational reform, coupled with compelling needs to improve schools and research on how to promote change, demand that school improvement efforts develop and operate with shared meaning and responsibility. Schools must emphasize conditions that build capacity of both the system (school) and the individuals (educators) who work within the system. From this perspective, the fundamental ingredients necessary for educational change are improving relationships and increasing the skill set of all involved, rather than relying on top-down reform. This concept of building capacity among systems and individuals is not new and led Sarason (1995) to conclude that,

> School reformers know one thing: *changing the attitudes and practices of school personnel* [italics added] is as difficult as it is necessary [and] I have never met a school reformer who did not struggle against the perception that he or she was trying to level a mountain with a teaspoon.

Presently, Sarason's (1995) analogy is likely resonating nationwide among administrators and practitioners in schools who are attempting to implement and sustain RtI practices. While some districts/schools appear to have solved many of the challenges of implementing RtI, others remain perplexed as to how to incorporate assessment and intervention practices into a systemic approach (see Jimerson, Burns, & VanDerHeyden, 2007 for a review of multiple implementation efforts across the country). Rather than continue with the status quo – namely partial or incomplete implementation of RtI with minimal prospect for sustainability, it is important for schools to begin exploring several questions that have the potential to improve how RtI is implemented. Three of these questions are as follows: What are the common barriers schools are facing when implementing RtI? Are there factors that promote or predict successful systemic change required to implement RtI? How can RtI become ingrained into school culture and maintained over time?

Although there are no known studies empirically examining the aforementioned questions, some answers can be gleaned from the literature related to implementation of School-Wide Positive Behavior Support (SWPBS). Because SWPBS shares several salient features with RtI (e.g., tiered approach to service delivery, ongoing progress monitoring, using data to make important educational decisions), and is often implemented concurrently, research related to the systemic successes and identified barriers of SWPBS has the potential to inform RtI implementation. For example, George, White, and Schlaffer (2007) examined two schools that successfully adopted SWPBS to determine common features that might have fostered implementation. They found that the following features were present in both schools: (a) stakeholder agreement regarding change, (b) a shared vision for change, (c) committed administrative leadership, (d) autonomous teachers, (e) school psychologist as leaders, change agents, and consultants, (f) financial resources committed to the cause, and (g) organizational restructuring. Similar results were found by Kincaid, Childs, Blaise, and Wallace (2007), who explored barriers and facilitators to SWPBS implementation among 70 educators representing 26 Florida schools. Using a modified nominal group process, the researchers identified 21 barrier themes and 19 facilitator themes. Absence of staff buy-in was the most significant barrier, followed by insufficient use of data, inconsistent implementation, inadequate reward system, insufficient time, elevated staff turnover, and philosophical differences between/among administrators and educators. District support was the most important facilitator, followed by factors such as SWPBS project support, effective use of data, administrative support, school-level/team trainings, plan implementation, and team membership. Together with the findings from George, White, and Schlaffer (2007), this research suggests that educational change can be successful when conditions that build the capacity of both organizations and individuals are created and the

culture of classrooms and schools are changed (D. Kincaid, personal communication, June 21, 2007).

Due to the current dearth of research examining factors that may promote or inhibit successful implementation of RtI, it is useful to review prior theoretical models and efforts of educational change with the intent of informing future educational practice. Specifically, this review will examine Fullan's (1991, 2001, 2007) theoretical model as a framework through which to resolve problems in the implementation of RtI. Although a myriad of theoretical models related to educational change exist (e.g., Professional Learning Community model, Learning Organization Model), Fullan's three-phase model of educational change has been formative in shaping educational change research and has provided direction to researchers, policymakers, and educators over multiple decades (Datnow, 2006). Moreover, Fullan's model appears to have direct applicability to the current practice of RtI.

FULLAN'S THREE-PHASE MODEL OF EDUCATIONAL CHANGE

Fullan (1991, 2001, 2007) suggested a three-phase model of educational change that is widely espoused throughout the educational research community. Phase I, often called initiation, includes the processes that result in a decision to proceed with change. This phase can range from a single decision by a district-level administrator to broad-based employee support. Phase II, referred to as implementation, involves the first experiences at attempting to implement educational change. The implementation phase, typically the first two or three years of a new program, is critical to a change program's success, in part, because level of implementation has been linked to degree of improvement in student outcomes (Datnow & Stringfield, 2000). Finally, Phase III, institutionalization, involves sustaining and continuing to build the program over time. Despite the best of intentions, many school change efforts do not reach Phase III. Moreover, limited research describes the process of change that promotes the continuations of reform within successful schools.

Perhaps the central notion suggested by this model is that change is not a linear event – it is a dynamic process (Fullan, 2001, 2007; Hall & Hord, 2001). That is, there are no shortcuts to this process, and events that transpire at one phase can easily alter decisions made at previous or future phases. Fullan has suggested that total time from Phase I to Phase III could range from 3 to 5 years for moderately complex changes, and 5 to 10 years for large scale initiatives. Furthermore, multiple factors, both facilitory and inhibitory, influence the overall outcome at each phase. The intensity and complexity of these factors can be determined, in part, by the specific nature of a change program.

Phase I

In Phase I, numerous factors can impact the decision to initiate educational change. These factors include teacher advocacy, existence of quality innovations, legislative or policy changes, and recommendations from external change agents (Fullan, 2007). In a testament to the importance of decision-making at Phase I as a unified process, Datnow and Stringfield (2000) found that schools that never achieved strong implementation of their chosen educational change initiative had initiated reform for opportunistic reasons (e.g., funding was provided, to gain favor from a district-level administrator), rather than in response to a clear need for reform. Additionally, in an extensive analysis of 12 educational change efforts in 10 states, Huberman and Miles (1984) discovered that staff and administrative motives for adopting educational change were varied and multiple. For example, staff motives included seeking to adopt change in response to such factors as administrative pressure, professional growth, and social influence (e.g., learning about the success of a colleague implementing a change program). In contrast, administrative motives involved adopting a change in response to a current need, gaining additional resources, and improving results. The researchers also discovered that district office administrators were the key decision makers in 11 out of the 12 reform initiatives, and teachers were involved in the decision to adopt the initiative in only 6 of the 12 initiatives. Taken together, results from these two studies suggest that: (a) reasons for initiating reforms (i.e., Phase I) may be varied; (b) decisions to initiate educational reform efforts are more likely to emerge from administrators rather than from teachers; and (c) shared decision-making and vision between teachers and administrators, at Phase I, is typically not sought or achieved. Unfortunately, as prior research has suggested (George et al., 2007; Kincaid et al., 2007), lack of a shared vision among educators can inhibit or entirely thwart implementation of educational reform efforts.

RtI is currently supported not only through educational legislation (e.g., NCLB, IDEIA), but also various educational advocacy groups and research panels (i.e., National Reading Panel; National Summit on Learning Disabilities; National Research Council Panel on Minority Overrepresentation). As a result of this legislative and external support, many states have begun the process of reconceptualizing the special education referral process, as well as furthering the practice of early literacy instruction, early intervention, and ongoing data collection for all learners. Some states, such as Ohio, also have incorporated grants to assist school districts in the development and implementation of RtI practices within schools. What can be gleaned from such support is the undeniable conclusion that RtI is not "this year's new thing" and educators likely will continue to be presented with opportunities and challenges to adapt their educational practices. However, a more troubling conclusion is the fact that much of the call to action for RtI appears to be of a top-down approach. When used in isolation, top-down approaches are among the most commonly cited factors associated with failed attempts to reform education (e.g., Sarason, 1990; Fullan, 1994). Thus, what is paramount at this point, is a detailed discussion of how the practice of RtI in schools can move beyond from the apparent top-down initiation stage, toward understanding, acceptance, and implementation by all educators who share common attitudes and beliefs regarding the need for RtI. Although IDEIA is considered special education legislation, the implementation of RtI also has profound implications for the roles of general education teachers. As a result, it is essential to garner the coordinated involvement and support of both regular and special educators.

Phase II

At Phase II (i.e., implementation), additional factors can facilitate or inhibit educational reform efforts. More specifically, Fullan (2007) suggests that three interactive factors affect change at Phase II, including change characteristics, local characteristics, and external factors. A review of these factors is presented along with research from prior initiatives as the building blocks for conceptualizing how RtI will need to be implemented in order for full-scale change to occur.

Characteristics of Change

Within characteristics of change, four sub-factors influence Phase II implementation. First, a perceived need for change is critical. When all stakeholders recognize a need for the change, implementation is increased (Huberman & Miles, 1984). Second, clarity about the goals and procedures of the change process is important. Gross, Giacquinta, and Bernstein (1971) found a lack of clarity regarding teachers' own roles in reform both before and after implementation, suggesting an absence of clarity even among the individuals implementing change. Complexity, or the difficulty and extent of the proposed change, is the third variable influencing Phase II implementation. Although simple changes are easier to implement and result in reduced staff burnout, they minimize organizational change and staff enhancement (Huberman & Miles, 1984). Finally, the quality and practicality of the change initiative may influence implementation. For example, Sarason (1995) found that implementation of an innovative math program was not successful because teachers did not perceive that the program was practical or of quality.

In consideration of RtI, it is important to consider the degree of change necessary for educators to reach full implementation and sustainability. RtI represents a paradigm shift in both form of instruction and educational decision-making. Unfortunately, confusion exists among professionals regarding the process of RtI at advanced stages when making educational decisions (Fuchs, 2003; Fuchs, Fuchs, & Compton, 2004; Speece, Case, & Molloy, 2003). Moreover, many districts are grappling with how to fit RtI within their current system. Without clarity from leaders in the field and lack of procedural steps to assist districts, RtI likely is perceived as a very complex process and educators may feel uncomfortable adapting their own behaviors. In addition, teachers may not fully understand the nature of intervention inherent in RtI and feel that it is an unfair process for struggling students. Given the lack of clarity, complexity of procedural steps, and misinterpretation of what constitutes RtI, it will be essential for state departments of education, districts, and schools to provide a clear and compelling rationale for change rather than relying on legislative directives or

mandates. That is, RtI initiatives may be doomed for failure unless educators responsible for implementing change understand the need for such reform, as well as reflect on their own attitudes and beliefs related to practice.

Local Factors

District factors. Factors related to the school district are influential and often have lasting impact. For example, the more frequently individuals in a school district have had negative experiences with previous change attempts, the more cynical and oppositional they become regarding future change attempts (Fullan, 2007). In addition, without district-wide administrative support of an initiative, any change sought by district employees likely will not progress.

The relationship between district-level administrative support and change implementation is not a new concept and has been investigated during prior change efforts. For example, Datnow and Stringfield (2000) found a positive relationship between strong district-level support and degree of change implementation among 13 schools implementing educational change programs. Additionally, in an analysis of the barriers of systemic change within urban schools, McDermott (2000) demonstrated an inverse relationship between the tenure of leadership (e.g., superintendents) and the likelihood of implementing and sustaining school reform efforts. That is, newer superintendents were more likely to replace previous school reform initiatives with new ones, perhaps in an effort to set themselves apart from a faltering predecessor. Finally, Sarason (1995) found that teacher support and implementation may be lower when decisions are made at the top of the administrative hierarchy without regard for reactions of individuals and groups to how the decisions were made, announced, and implemented.

Clearly, for RtI implementation to be effective, districts and schools need to demonstrate support for change. However, it is more important for districts and schools to assess the degree to which their staff are part of the process of change. Recent decades have witnessed a plethora of education initiatives, most of which have been abandoned. Cynicism and opposition are likely very high, and without involving as many educators in the decision making process for implementing RtI, they likely will view reform less than enthusiastically.

School board and community. Characteristics of the board and the community also can influence Phase II effectiveness. As state governments are becoming more directive and supervisory, the role of the school board is blurred (Danzberger, Carol, Cunningham, Kirst, McCloud, & Usdan, 1987). Nevertheless, school boards do have the potential to affect large-scale change efforts indirectly. For example, school boards have the power to hire and fire superintendents who either support or oppose various change initiatives (Fullan, 2007). In addition, school boards can be influenced by hearing concerns – voiced by district staff, parents, and community members – regarding student outcomes, change efforts, and a host of other variables related to curriculum, behavior, and mental health concerns. In this way, school boards can act as a springboard for creating a shared vision within a community.

Community relations too, in particular parent-school relations, influence not only student achievement but also the success of school implemented educational change programs (Epstein, 1995). For example, in their study of reform initiatives in 350 schools, Vernez et al. (2006) found that "model" reform schools were more likely than their matched counterparts to implement family involvement initiatives. Sarason (1995) also investigated the role of parents who attended seminars on teaching math had on the success of a math curriculum. Specifically, parents stated that they were confused by the content in the seminars and, subsequently, dropped out. Later, these parents reported resentment that they had to spend so much more time with their kids doing homework and were having to relearn how math was taught. These factors may have ultimately contributed to the failure of the program in the school district.

For similar reasons, schools must begin to see parents as contributors to change and progress rather than barriers, and must seek programs that enhance involvement of parents (Epstein, 1995). The abundance of research on the importance of community-school relations led Matthews (1996) to conclude, "School reform may need to be recast as community building…certain things may have to happen in our communities before we can see the improvements we want in our schools (p. 3)." Such a statement remains true when attempting to implement RtI. In fact, families might help problem-solve initial concerns, as well as help

develop and implement intervention programs. Moreover, parents can monitor their children at home and provide external data as part of progress monitoring. Technically savvy districts and schools may even provide parents with access to web-based databases for tracking student progress. In this way, parents, teachers, and children may see the outcomes associated with their efforts almost instantaneously.

Building principals. Building principals strongly influence implementation of educational change. For example, Hall and Hord (2001) found that principals' leadership styles could greatly influence the success of implementation. Upon retrospectively examining teachers' implementation of an innovative science curriculum in a large school district over a two-year period, the researchers discovered that three groups of schools emerged based on their level of implementation, and that these groupings were explained by principal leadership style in the buildings. Specifically, they found that high implementing schools had Initiator principals. These principals provided very active support of the teachers in learning and utilizing the new curriculum. In contrast, the middle implementing schools had Managing principals, who did not push their teachers to do beyond the minimum requirements. Finally, the lowest implementing schools had Responder principals. Responders did not follow through with helping the teachers with the new initiative.

Teachers. Teachers also can affect Phase II effectiveness. Depending on their prior experiences and personality characteristics, teachers may be more or less open to change processes. Although there are exceptions, teachers often report feeling misperceived, misunderstood, misled, and powerless in relation to administrators, parents, students, and the general public; ultimately, these feelings can impact their openness to change (Sarason, 1995).

In a study of a large urban school district introducing an inclusion model, Weiner (2003) asked teachers involved in the project to complete a forced-choice survey on the conditions necessary to support an inclusion model. The researchers found that over 74% of the responding teachers reported that teachers' attitudes toward the students was the first or second most important condition necessary for successful inclusion. These results suggest that teacher support, or "buy-in," is important to consider when implementing educational change. Research on SWPBS initiatives also suggests the importance of teacher buy-in; specifically, it has been suggested that buy-in from 80% of staff in a building is necessary to achieve implementation success (Horner & Sugai, 2005).

So, if teacher buy-in to a program is critical, what factors influence buy-in? Turnbull (2002) studied this question. Six hundred and seventy one teachers who were involved in educational change efforts in one of two cohorts from three New Jersey school districts completed surveys assessing buy-in. Turnbull found that seven variables accounted for a significant percentage of the variance in teacher buy-in: training, administrator buy-in, developer support, resources, knowledge of budget, influence in school-level implementation, and control over classroom implementation. Additionally, this study showed the importance of gaining teacher support initially, as buy-in from year one was the most significant predictor of buy-in at year two.

Sarason (1995) also examined teacher involvement in the change process. He found that classroom teachers were minimally, if at all, participating in decision-making. It turned out that teachers felt administrators forced the program upon them. The lack of participation in decision-making may have contributed to the resistance encountered by teachers and ultimate failure of the program.

Teachers also need adequate professional development in order to obtain the skills necessary to implement the desired change effort. Knoff and Batsche (1995) explored the results of an educational change initiative, Project ACHIEVE, over a three-year period. Specifically, the researchers compared a school that implemented Project ACHIEVE to a matched control school during the same time period. Results suggested that staff training and follow-up was critical to the success of Project ACHIEVE. Specifically, regular education teachers benefited from multidimensional training that had clear goals, a multi-year perspective, and a mastery/skill-based orientation.

In their examination of 12 school reform initiatives, Huberman and Miles (1984) also examined the role of professional development and ongoing technical assistance in increasing implementation. The researchers concluded that, "Large-scale, change-bearing innovations lived or died by the amount and quality of assistance that their users received once the change process was under way" (p. 273). Specifically, they discovered benefits in providing ongoing opportunities such as external conferences, in-service trainings, team meetings, materials, peer consultation, external consultation, and access to central office personnel.

Taken together, the four aforementioned subfactors – districts, boards and community, principals, and teachers – are critically important in achieving desired change. Moreover, these factors can be quite malleable. Just because a school is lacking in one or more of the areas does not mean the change is doomed to failure; rather, it means that intervention is necessary to affect the changes necessary to facilitate change. It is crucial for researchers, districts, and schools to consider such internal factors with regard to RtI implementation. That is, in order for RtI to be implemented and, more importantly, sustained, each of these factors will need to be assessed and subsequent professional development activities will need to occur.

Phase III

Unfortunately, many schools do not progress to Phase III (institutionalization). Datnow and Stringfield (2000) found that only one of 13 schools was continuing to implement their chosen reform by the third year of the change program. Even among those schools that do progress to Phase III, there has been minimal research on the factors that may support sustainability over time due to the time and resource intensive nature of such investigations. Despite a relative dearth of research on Phase III, several factors might influence the decision to continue and institutionalize an educational change program. For example, Huberman and Miles (1984) found that solid institutionalization depends on a variety of factors, including administrative pressure, a lack of significant staff resistance, low staff turnover, embedded changes in the system infrastructure (e.g., policy, funding, and personnel), and teacher-administrator harmony. The researchers also discovered that sites that failed to reach strong institutionalization exhibited vulnerability. For example, these sites did not establish structures to protect the program from funding crises or administrative turnover. These sites also were prone to indifference, and undertook few planned actions to stabilize and secure the program over time. Programs abandoned at Phase III include those that lacked fidelity of implementation from the start, as well as those that once implemented change well, but lost government funding (Fullan, 2007). Reasons for abandonment at this stage include a lack of interest or ability to fund the project, as well as a lack of interest or support from both district- and building-level administrators. Regarding funding and resources, a common complaint from educators is that they do not have the resources to sustain change programs (Sarason, 1995).

LOOKING TO THE FUTURE: CRITICAL PRACTICE NEEDS

Often, educational professionals are so intrigued by a promising educational change program, and its potential to improve and revitalize student performance, that they jump full force into the program with little concern for systemic factors. Instead, what is needed is forethought and planning to facilitate systemic match with the initiative in order to avoid setting it up for failure. The implementation of RtI practices in schools is perhaps even more demanding of planning. RtI represents a significant paradigm shift for educators. By considering Fullan's model of educational change and the factors within it that may support or impede the change, practitioners can better accomplish this end. Whether a school is considering implementing RtI or has already attempted implementation with limited success, there are several steps that can be taken to maximize the likelihood of implementation success. These factors are presented as part of a model that can be adopted by school-based professionals.

Step One: Evaluating Needs

Although previously discussed barriers and facilitators are important to consider, it is equally important to assess the degree to which each barrier or facilitator manifests itself in a particular setting before creating and implementing a plan to enhance RtI implementation. For example, what are teacher beliefs and knowledge regarding RtI? Do principals actively support RtI? Do district-level administrators support RtI? How are the board and community involved in RtI implementation efforts? What external factors may be, or are, facilitating or impeding RtI efforts? In addition to examining facilitators and barriers suggested by educational change research, it is also necessary to consider hypothesized barriers and facilitators unique to RtI initiatives. For example, are there established collaborative problem-solving teams? Are there adequate interventions at each

tier? Are there mechanisms to ensure progress-monitoring data is collected frequently and reliably? Has there been adequate professional development to enhance knowledge and skills related to RtI?

In order to answer these questions, it is important to collect and analyze multiple sources of data using a democratic decision-making model. A collaborative planning team can determine specifically what types of data are needed and how they will be collected. For example, creating and distributing a stakeholder survey on perceptions of RtI within the district can provide useful information related to these issues. The survey could address the presence and absence of facilitators and barriers as well as their perceived importance in RtI implementation. In addition, focus groups and interviews with teachers, administrators, board members, and the larger community may help clarify these issues. Finally, direct observations of processes and resources may help identify strengths as well as areas of needs.

Step Two: Developing a Plan

Once specific needs have been established, the true challenge involves intervening in the areas that may be impeding success. Prior to doing so, a plan should be developed that outlines (a) specific goals for each area of need, (b) methods for meeting the goals including considerations of time, resources, and personnel, (c) a timeline for meeting the goals, and (d) ongoing and specific methods for evaluating progress. When creating this plan, it is important to consider the long-term nature of RtI implementation and sustainability, establishing challenging yet achievable goals over a multi-year time span. Following are practical suggestions for addressing several common barriers to RtI implementation.

Teacher knowledge and beliefs. If teacher knowledge is found to be a barrier, it is important to identify the specific skill or knowledge deficits and plan professional development to address this need. In fact, as a result of the variety of professionals involved in the implementation and monitoring of RtI, coupled with the variety of skills necessary to implement RtI well, continuous professional development is necessary even when a deficit in knowledge is not readily apparent (Brown-Chidsey & Steege, 2005).

Batsche et al. (2006) provided useful recommendations for planning professional development activities related to RtI. Specifically, they suggest that successful professional development programs adequately address beliefs and attitudes, knowledge, and skill. Regarding beliefs and attitudes, research has suggested that two factors predict successful implementation of a new skill: understanding the need for the skill and believing that one has the necessary skill (Sarason, 1990). Additionally, any professional development program on RtI should build a strong knowledge base. For example, teachers should have a solid understanding of the difference between assessment for identification and assessment for intervention, the range of interventions available at each tier, the importance of progress monitoring measures in RtI, the relationship between problem-solving and RtI, and the importance of using data to determine appropriate interventions (Batsche et al.) Finally, it is crucially important to assess the skill sets of educators responsible for the basics of RtI implementation. Skills needed to implement RtI may include assessing for intervention, interpreting assessments, matching intervention to student needs, presenting intervention outcomes to others, and engaging in the problem-solving process.

Although Batsche et al. (2006) address the content of professional development, an additional consideration is the delivery format. Showers and Joyce (1996) suggest four levels of professional development: awareness, conceptual understanding, skill acquisition, and application of skills. Awareness can be increased through didactic instruction that increases a trainee's knowledge and principles, conceptual understanding can be addressed using modeling and demonstration techniques, and skill acquisition can be enhanced through simulated practice exercises that are observed and critiqued by a facilitator. Finally, application of skills is reached when the trainee can successfully apply the new concept or intervention with fidelity in his or her school.

How can such information be presented and reinforced? In their evaluation of Project ACHIEVE, Knoff and Batsche (1995) discussed an effective professional development system that consists of (a) clear goals and outcomes, (b) a multi-year focus, (c) an initial focus on specific intervention skills followed by a later focus on decision-making skills and processes, (d) convenient scheduling, and (e) scaffolded instruction. Specifically, the authors initially conducted two three-hour teacher trainings separated by three weeks.

After this initial training, teachers were provided with follow-up support from a "master teacher" who would provide modeling and performance feedback. Finally, the "master teacher" was available "on-call" for further support during the year. During the second year of implementation, teachers were also provided with "booster sessions" to reinforce concepts taught in the initial professional development sessions. Using such a comprehensive approach to professional development delivery, coupled with the content proposed by Batsche et al. (2006), has the potential to maximize the effectiveness of RtI professional development efforts.

Development of collegiality. It is critically important to develop collegial working relationships and a shared sense of responsibility among school staff and administrators. RtI is not an individual effort; rather it represents a collective initiative that requires systemic change and participation. One way to address this issue is to provide stakeholders with multiple opportunities to participate in democratic decision-making and planning from the decision to adopt the initiative through the institutionalization phase. This may involve opportunities to participate in decision-making committees or focus groups. Another strategy is to promote and reinforce teaming processes in the building that support shared decision-making and responsibility. For example, establishing grade-level teams as well as student problem-solving teams would be appropriate. Finally, increased teacher-administrator communication and shared decision making has the potential to improve outcomes.

Supportive leadership. Another area that can promote RtI implementation is supportive leadership. As proposed by Fullan (2001), support for RtI from three administrative domains can particularly facilitate educational change: district leadership, building leadership, and the school board. Supportive leadership is critical because it can: (a) provide a much needed accountability mechanism, (b) result in policies that will directly impact the degree to which RtI will be mandated within the school, and (c) facilitate a collegial systems-level focus necessary to implement and sustain RtI.

If administration is a barrier to RtI, it is first necessary to evaluate why. If it is due to lack the knowledge or beliefs about RtI, consider alternative methods for incorporating administrators into the previously mentioned professional development methods. In doing so, ensure that professional development also addresses those interests and concerns most relevant to administrators. For example, many administrators are interested in the legislative mandate for RtI, the impact of RtI on outcomes and statewide testing, and issues related to personnel, resources, and funding. Alternatively, if administrative support is lacking for other reasons (e.g., lack of perceived time to dedicate to the initiative), it is important to develop a plan to work collaboratively to seek mutually appropriate solutions.

Shared vision. As previously mentioned, it is important for individuals within a school or district to converge on a shared vision of RtI. One way to accomplish this is through involving all stakeholders in decision-making. For example, having stakeholders participate in a needs assessment, assist in developing a plan, and have a voice throughout the implementation are all beneficial. Additionally, it may be useful to create a school or district "vision statement" related to RTI based on stakeholder thoughts. This vision statement can be posted prominently for staff to see, and can be reviewed frequently. Actions can then be evaluated on the degree to which they align with the vision. Finally, collaboratively setting realistic goals in each of the three phases of the reform will help solidify the vision and resultant action.

Technical assistance and support. Like many other educational change initiatives, the likelihood of maximizing RtI implementation may be related to the amount of technical assistance and support provided to school staff. Although these needs are similar to the previously discussed professional development needs, technical assistance and support also includes such needs as materials, technology, funding, and assistance implementing policies and procedures. In addition to technical assistance and support provided by the district, it is important to explore other resources. For example, there may be resources available through grants, state or regional education agencies, and special education regional resource centers. When developing a plan, it is important to specify what support will be provided, how it will be provided, and who will provide it.

Step Three: Implementation, Evaluation, & Future Planning

Once a solid plan to address the aforementioned needs is developed, it is critical to monitor implementation and evaluate results frequently. If evaluation data suggest interventions are not successful at enhancing RtI implementation, it is important for educational teams to examine the reasons why this is so and reformulate interventions to address hypothesized causes. If interventions are successful at enhancing RtI implementation, it may be time to consider longer-term planning aimed at building infrastructures to support RtI sustainability and institutionalization over time. For example, it would be important to consider how RtI could be maintained in the face of a loss of a key stakeholder in the system, funds to support RtI, or other crises. In addition, it is important to consider how to continue to build the capacity of both the system and individuals to progress to higher levels of RtI implementation.

FUTURE RESEARCH NEEDS

When considering RtI, it appears on the surface level that many of the same factors that impact the success of generic educational change may be relevant. For example, it is clear that legislation, parents, teachers, and administrators all have unique roles to play in supporting RtI implementation. In addition, it appears that the presence of some components of alternative educational change models such as a shared vision, increasing staff capacity, and a sense of community may inform RtI efforts. However, these assumptions have not been examined empirically. As a result of the difficulty many schools are having in implementing and sustaining RtI, it is critical that this examination is undertaken. One way for this issue to be explored is to examine qualitatively the differences between schools that are implementing RtI well and those who are not. Another method may be to examine barriers and facilitators to RtI. Regardless of the method chosen to examine these issues, educational change models (e.g., Fullan, 2001) can serve as a guide for what types of barriers and facilitators to explore.

SUMMARY

Despite the potential for RtI to effect positive change in students and systems, additional planning is needed to prepare systems and individuals for its implementation. Because research has shown that the first year of implementation of an educational change initiative predicts ultimate implementation success (e.g., Vernez et al., 2006), it is especially important to devote sufficient time and resources to properly planning RtI initiatives at all three phases of the change process: adoption, implementation, and institutionalization. Failing to plan effectively may result in haphazard decision-making that could lead to the ultimate demise of the initiative, as has happened with so many educational reforms in the past. Using Fullan's theoretical model of educational reform this review has provided several practical recommendations for planning effectively for RtI initiatives. Important elements to ensure when planning include supportive leadership, collegiality, affirmative teacher beliefs and knowledge, and sufficient capacity of both systems and individuals. It is hoped that these recommendations can be used as a starting point to ensure a future for RtI that departs from many of the failed educational initiatives of the past.

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"Old Habits Die Hard:" Past and Current Issues Pertaining to Response-to-Intervention

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When Congress passed the Individuals with Disabilities Education Improvement Act in 2004 (IDEIA 2004), local educational agencies (LEA) were permitted to use a Response-to-Intervention (RtI) approach for identifying children with possible learning disabilities for special education. Furthermore, IDEIA 2004 no longer required LEAs to establish an IQ-achievement discrepancy for determining a Specific Learning Disability (SLD). Although federal law no longer mandates the need for a discrepancy for determining an SLD, some researchers suggest that intelligence tests should continue to be used for children at-risk for SLD who do not respond to interventions within the initial phases of an RtI approach. The current paper: (a) provides a brief review of the IQ-achievement discrepancy model, (b) reviews some of the major criticisms regarding the IQ-achievement discrepancy model, (c) reviews concerns of using intelligence tests within an RtI framework, and (d) provides a rationale for applying RtI in school districts in California.

KEYWORDS: Response-to-Intervention, IQ-achievement Discrepancy Model, Intelligence Testing

In December 2004, Congress passed the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), which permitted local education agencies to use a Response-to-Intervention (RtI) approach for identifying children with possible learning disabilities for special education. With the passage of IDEIA, 2004, educators were essentially given the choice of using the traditional IQ-achievement discrepancy model or RtI for identifying students at-risk for a Specific Learning Disability (SLD). Unfortunately the passage of IDEIA, 2004 has not resolved the debate regarding the best approach for identifying children with SLD. On one side of the debate some scholars argue that RtI should be used for identifying children with suspected learning disabilities for numerous reasons including: (1) RtI relies on early screening and identification, which leads to better intervention outcomes; (2) RtI employs empirically validated screening and progress monitoring procedures such as curriculum-based measurement (CBM), Dynamic Indicators of Basic Early Literacy Skills (DIBELS), Screening to Enhance Equitable Placement (STEEP), and AIMSWEB; (3) RtI employs assessment procedures that are directly linked to intervention; (4) RtI relies on evidence-based interventions for both younger and older children in areas such as reading fluency, reading comprehension, mathematics, and written expression; (5) RtI moves the field away from Refer-Test-Place logic to Refer-Assess-Intervene-Evaluate logic; and (6) RtI moves the field away from a highly questionable and highly

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inferential within-child explanation of learning difficulties (Fletcher et al., 2002; Fuchs & Fuchs, 1998; Gresham, 2002; Gresham, 2007; National Association of State Directors of Special Education [NASDSE], 2005). For reasons that will be discussed in more detail, many researchers have called for the abandonment of the IQ-achievement discrepancy model and intelligence tests for the purposes of identifying learning disabilities (Fletcher, Coulter, Reschly, & Vaughn, 2004; Fletcher et al., 2002; Gresham, 2002). On the other side of the debate, at least three scholars have argued that the IQ-achievement discrepancy model affords educators with the most valid approach for preserving the construct of SLD and identifying those students with "real" learning disabilities (Kavale, 2002; Mastropieri & Scruggs, 2002). Despite a viable second option for the assessment of children at-risk for SLD, most states and local school districts continue to use the IQ-achievement discrepancy model. School personnel may persist in using the IQ-achievement discrepancy model for a number of reasons including waiting for state code and regulations on RtI to be developed, guidance on how best to transition to and implement RtI, and insufficient RtI-related knowledge and skills. The purpose of the current article is to (a) provide a brief review of the discrepancy model, (b) provide a compendium of the issues related to the IQ-discrepancy model for school psychology practitioners in California, (c) review the issues related to the use of intelligence tests within an RtI model, and (d) provide a rationale for applying RtI across school districts in California.

The Discrepancy Model

In general, the discrepancy model employed in most states including California requires that the following four criteria are met before determining eligibility for SLD: (a) establishing a significant discrepancy between intellectual/cognitive ability and academic achievement, (b) identifying the existence of a psychological/cognitive processing deficit, (c) determining if the child's educational needs can or cannot be met without special education and related services, and (d) exclusionary considerations. Once these four criteria are met, the student may be eligible for Special Education services as a child with SLD. Most school psychologists and educators involved in this type of assessment would agree that the IQ-achievement discrepancy and identification of psychological or cognitive processing strengths and weaknesses are the most heavily weighted considerations. Although this type of assessment process is not always so simple and clear-cut, it demonstrates a common assessment process used daily by thousands of school psychologists and multi-disciplinary teams (MDT) across the United States. Interestingly, the Education for All Handicapped Children Act (1975; renamed the Individual with Disabilities Education Act [IDEA] in 1990) did not require the assessment of intelligence or psychological processing for determining eligibility of SLD. Although IDEA never required this type of assessment as part of SLD, the IQ-achievement discrepancy model was implemented in an arbitrary fashion in the 1977 federal regulations as a way to operationalize the construct of SLD and prevent a de facto prevalence cap of 2% from being enacted automatically (U.S. Office of Education, 1977).

From its inception, the discrepancy model has been problematic for numerous reasons. Over the past 30 years dozens of research articles (many of which will be discussed below) have provided empirical evidence of the problems inherent with the IQ-achievement discrepancy model. As previously stated, the forthcoming discussion is meant to provide practitioners with a compendium of the issues related to the IQ-achievement discrepancy model and a brief review of the research literature supporting each of the points.

First and foremost, use of the IQ-achievement discrepancy model has made early identification and intervention of children with suspected SLDs difficult. For the most part, young children experiencing academic problems in kindergarten, first, and second grades do not demonstrate the IQ-achievement discrepancy necessary to meet eligibility as SLD (Speece, 2002). As a result, it is not uncommon for these students to continue to fail for an additional two or three years, and often longer, before their academic achievement is sufficiently low compared to their IQ and they are eligible to receive special education services. In fact, special education identification rates indicate that the odds of being classified as SLD peaks in the third and fourth grades (Lyon, Fletcher, Fuchs, & Chhabra, 2006). This model represents a "wait-to-fail" approach, which results in students not being provided with the appropriately intense general and/or special education interventions in a timely manner (Fletcher et al., 2002; Gresham, 2002; Torgeson et al., 2001). For example, in the area of reading, children at-risk for later reading difficulties can be reliably identified

as early as the beginning of first grade (Juel, 1988). When these children are not intervened upon early in their academic careers, there is a high probability (>70%) that they will continue to be poor readers into the secondary grades and beyond (Fletcher & Lyon, 1998). On the other hand, when educators are able to meet the academic achievement needs of children early on, the likelihood of positive, long-term educational outcomes is greatly increased (Fletcher et al., 2002; Stanovich, 2000). Furthermore, when educators are able to meet the academic needs of children early on, the likelihood of negative long-term outcomes such as school drop-out, delinquency, and unemployment are significantly reduced (Alexander, Entwisle, & Horsey, 1997; Williams & McGee, 1994). Although the ability to provide early intervention and prevention for all children at risk for school failure alone should justify moving to an RtI approach, it is just one of many problems with the IQ-achievement discrepancy approach for identifying SLD.

A second major criticism of the IQ-achievement discrepancy model is that there is little scientific basis for using this approach (Francis, Fletcher, & Stuebing, 2005; Stuebing et al., 2002). That is, empirical evidence demonstrating reliability and validity of the ability-achievement discrepancy model for identifying SLD is virtually non-existent (Fletcher et al., 2002; Stuebing et al., 2002; Vellutino, Scanlon, & Lyon, 2000). On the contrary, a rather substantial body of evidence has concluded that ability-achievement discrepancy models do not accurately identify SLD (Hoskyn & Swanson, 2000; Stuebing et al., 2002; Peterson & Shinn, 2002; Vellutino et al., 2000). With respect to the reliability of the ability-achievement discrepancy model, Fletcher et al. (2002) concluded that making a decision based on a single test score, at a single point in time, with an instrument that has measurement error is not a reliable or psychometrically sound practice. Since a student is generally administered a measure (e.g., IQ or achievement test) only once, the repeated measures necessary to establish the reliability (consistency) of their performance cannot be determined. Without repeated measures, issues such as examinee characteristics, examiner characteristics, and situational conditions are difficult to account for, making the reliability of ability-achievement discrepancy models particularly problematic. In discussing the unreliability of the discrepancy approach, Shepard (1980) proposed that students be administered at-least four separate combinations of IQ and achievement tests in order to derive a reliable estimate of students' discrepancy scores. However, this procedure would take school psychologists up to 12 hours of testing just on IQ and achievement tests, which does not have much practical appeal.

A substantial body of research has concluded that using an ability-achievement discrepancy model is not a valid approach for identifying SLD (Fletcher et al., 2002; Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Hoskyn & Swanson, 2000; Vellutino et al., 2000). Most researchers would agree that discrepant and non-discrepant low-achievers differ to some degree. The central issue is to determine whether those differences are meaningful enough to warrant continued research and to influence practice. A consistent theme when reviewing the research literature pertaining to discrepant versus non-discrepant low-achievers is how to distinguish "real LD" students from low-achieving students. It appears that we have become so intent on preserving the construct of LD, as arbitrarily operationalized by the discrepancy model, that we seem to have forgotten that the more important goal is to help children who are struggling academically. Whereas studies comparing IQ discrepant and non-discrepant students have demonstrated no meaningful differences between the two groups, studies of students defined as responders and nonresponders to interventions using RtI procedures have clearly demonstrated differences on key variables among the groups. For example, a number of studies found that nonresponders to early intervention differed from responders in both preintervention achievement scores and preintervention cognitive tasks (Stage, Abbott, Jenkins, & Berninger, 2003; Vaughn, Linan, Thompson, & Hickman, 2003; Vellutino et al., 2000). Moreover, Fletcher et al. (2004) found through neuroimaging procedures that intervention nonresponders tend to have deficient left hemispheric activity in areas of the brain that are consistent with the development of reading skills, providing further evidence of the differentiation between responders and nonresponders to high quality interventions. Previous research also suggests that the discrepancy approach lacks strong evidence of external validity with respect to achievement, behavior, neuro-biological factors, prognosis, and response to intervention (Fletcher et al., 2002).

A third criticism of the ability-achievement discrepancy model for identifying SLD is the inconsistent manner in which this approach is applied by practitioners. Gresham, MacMillan and colleagues concluded that over half of the school-identified SLD children included in their study did not meet federal or state eligibility criteria (Gresham, MacMillan, & Bocian, 1996; MacMillan, Gresham, & Bocian, 1998; MacMillan

& Speece, 1999). That is, many of the children included in this study did not demonstrate a significant discrepancy, had IQ scores below 75 (i.e., mild mental retardation [MMR]), or were Emotionally Disturbed (ED). In addition, Gresham, MacMillan, and colleagues reported that an unknown number of children who did in fact meet the criteria as SLD, were not identified as such. Furthermore, a number of researchers have concluded that SLD eligibility criteria are not uniformly applied within and across states and local school districts (Bocian, Beebe, MacMillan, & Gresham, 1999; Gottlieb, Alter, Gottlieb, & Wishner, 1994; MacMillan et al., 1998; Peterson & Shinn, 2002). Although well-intentioned, when school personnel select children for special education in such an inconsistent and subjective manner, they negate the very objectivity and precision the discrepancy model proposes to offer. Furthermore, it is reasonable to assume that school personnel will continue to identify students for special education based on their perceptions regarding the individual needs of their students.

A fourth criticism of the ability-achievement discrepancy approach is that many students that experience long-term academic achievement problems never receive special education services because of below average intellectual ability (i.e., slow learner). This is a problem with which school psychologists working under an ability-achievement discrepancy mandate are all too familiar. For example, a child with an IQ score of 85 and a reading decoding score of 70 is not likely to receive special education services. In this scenario, the student's IQ score is not low enough to warrant special education placement as MR, nor do they demonstrate the necessary discrepancy between ability and achievement to qualify for special education as SLD. Although few would argue that such a child demonstrates an urgent need for the type of support available from special education, school psychologists and educators have been hamstrung for nearly 30 years by laws and regulations from helping a child with this all-to-common profile. The result of this scenario is that school psychologists and educators are presented with a serious, ethical dilemma. That is, to qualify a child for special education as SLD who does not meet the criteria for such a placement or to not qualify a child for services from which they would clearly benefit. As a result, many school psychologists engage in questionable practices in their effort to address the academic achievement needs of such children. This conclusion is consistent with those of MacMillan, Gresham, Lopez, and Bocian (1996) and Gottlieb et al. (1994) who indicated that school personnel tend to base their decisions on an "absolute low achievement" criterion, thereby ignoring the discrepancy component. Although use of the ability-achievement discrepancy approach is problematic due to the previously described issues inherent in this approach, perhaps the more troubling part of the ability-achievement equation is the use of intelligence tests for the identification of SLD at all.

A fifth criticism questions the use of intelligence tests in any manner as part of the SLD definition. Originally the rationale for including intelligence tests as part of the definition of SLD was to determine if a student's underachievement in a given area of academic achievement was expected or unexpected. This conceptualization can be traced to the Isle of Wright studies by Rutter and Yule (1975). These authors identified two types of reading underachievement difficulties that they termed general reading backwardness (GRB) and specific reading retardation (SRR). GRB was defined as reading below the level expected of a child's chronological age, whereas, SRR was defined as reading below the level predicted by a child's intelligence (i.e., discrepant underachievement). This conceptualization formed the basis for current notions of expected and unexpected underachievement.

The concept of unexpected underachievement has been a central premise in the conceptualization of SLD. That is, it is reasonable to expect that if a child performs within the average range on some measure of intelligence, that his or her ability in the various areas of academic achievement should also be in the average range. Following this logic, it is also reasonable to assume that if a child performs within the average range on some measure of intelligence, but his or her performance in an area of academic achievement is significantly below average, then his or her performance in that area would be unexpected. The latter scenario represents the most fundamental component of the construct of SLD. The logic of this, however, is based on the faulty premise that IQ and academic achievement are perfectly correlated. In fact, at best, the correlation between measures of cognitive ability and academic achievement rarely exceed .60, thereby accounting for only 36% of shared variance (Sattler, 2001). Although determining expected or unexpected underachievement was a major reason for including intelligence tests in the identification of SLD, over the past 30 years the use of intelligence tests has evolved into a realm far beyond its original intent.

IQ Tests and RtI

A number of researchers have argued that IQ tests should continue to be an integral component of a comprehensive assessment for identifying children with suspected learning disabilities (Flanagan, Ortiz, Alfonso, & Dynda, 2006; Hale, Naglieri, Kaufman, & Kavale, 2006). More specifically, these researchers posit that children who do not respond to research-based interventions within an RtI framework should be given intelligence tests to help school psychologists and other invested professionals identify the cognitive or psychological processes that are adversely impacting each child's academic performance. With this perspective in mind, we believe that there a number of reasons why IQ tests should not necessarily be included as part of the assessment process for children who have not responded to interventions in the initial phases of the RtI process.

First, as previously stated, the authors and publishers of popular intelligence tests such as the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV; Wechsler, 2003), Cognitive Assessment System (CAS; Naglieri & Das, 1997), Kaufman Assessment Battery for Children-Second Edition (KABC-II; Kaufman & Kaufman, 2004), and Woodcock-Johnson III Tests of Cognitive Ability (W-J III COG; Woodcock, McGrew & Mather, 2001) assert that their measures can assist school psychologists and other educators in identifying the cognitive or psychological processes that have lead to a child's academic underachievement (Kaufman & Kaufman, 2004; Naglieri & Das, 1997, 2005; Woodcock et al., 2001). Furthermore, these researchers posit that once these underlying processing strengths and weaknesses are identified, instructional treatments can be developed to produce positive academic achievement outcomes. The assumption that instructional treatments can be matched to aptitudes or cognitive processes to produce unique and positive academic outcomes is not new. This idea can be traced back to Cronbach's research on aptitude x treatment interactions (ATI; Cronbach, 1957, 1975). The basic logic of ATIs is that instructional treatments can be matched to aptitudes or modalities (e.g., auditory processing, visual processing). It is believed that if instructional treatments are matched to processing strengths or that if aptitude weaknesses are targeted for remediation, improved academic performance will result. Although the idea of matching instructional treatments to aptitudes is intuitively appealing, empirical evidence supporting the existence of ATIs is spurious and for the most part, nonexistent (Ayers & Cooley, 1986; Cronbach, 1975; Gresham, 2002; Kavale & Forness, 1987; Torgeson, 2002). For example, Torgeson (2002) concluded that speculation about processing weaknesses as they relate to a child's academic difficulties are often not supported by scientific evidence and represent "psychometric phrenology" that has limited reliability and instructional utility. To our knowledge, there is not a single randomized clinical trial using the Institute for Educational Sciences (IES) evidence-based standards that has related processing strengths to effective intervention outcomes. Despite the fact that there is a paucity of research supporting the existence of ATIs, school psychologists continue to focus on cognitive strengths and weaknesses and their presumed relevance to treatment. We have reached a point in school psychology and education that when we discuss a child's achievement difficulties, we automatically attribute the child's difficulties to some "processing deficit" inherent within the child. Although intelligence tests were originally developed to determine individuals' overall cognitive ability and used by educators to determine special education eligibility (i.e., expected versus unexpected underachievement), school psychologists now regularly use and "interpret" intelligence tests for the purposes of identifying the processing strengths and weaknesses that "cause" a child to perform poorly in some area of academic achievement.

Popular intelligence tests such as the CAS (Naglieri & Das, 1997), WISC-IV (Wechsler, 2003), KABC-II (Kaufman & Kaufman, 2004), and the W-J III COG (McGrew et al., 2001) actually discourage the use of their overall scores (i.e., Full Scale IQ) and strongly urge the user to use their tests for the purposes of identifying processing strengths and weaknesses. These authors imply that their tests are not necessarily measures of intelligence, but rather measures of processing. Ironically, when these tests were validated, they were not validated against other tests purporting to measure similar constructs such as auditory processing or memory, but rather, against other well-established tests of intelligence. Although advocates of intelligence testing argue that the core procedure of a comprehensive evaluation of LD is an objective, norm-referenced assessment of the presence and severity of any cognitive processing strengths and weaknesses (Flanagan et al., 2006; Hale et al., 2006), there is no corpus of evidence to support such a practice to enhance SLD identification, control prevalence, translate

into more effective instruction, or improve prediction of the outcomes of interventions (Cronbach, 1975; Fletcher et al., 2002; Gresham, 2002; Gresham in press; Torgeson, 2002). Absent such evidence, the benefits of intelligence and psychological process testing simply do not outweigh the costs in terms of school personnel time, resources, and student outcomes (Gresham & Witt, 1997; Reschly & Wilson, 1995).

A second important issue regarding the use of intelligence tests within an RtI framework pertains to the manner in which the authors of intelligence tests recommend that we use their measures. As previously stated, the authors and publishers of intelligence tests have assured us that by using their methods of interpretation, not only can their tests help us to identify processing strengths and weaknesses, but that in doing so we can create instructional interventions that will help children who are struggling academically to improve their academic performance. Methods of interpretation recommended by Kaufman and others include ipsative or profile analysis (i.e., subtest analysis; Kaufman, 1994). The two common methods of subtest analysis involve: (a) comparing individual subtest scores to the unique mean subtest score of the child and (b) directly comparing one subtest score to another for the purposes of identifying specific patterns of subtest scores. Proponents of subtest analysis posit that subtest scores that are significantly higher or lower than a child's own average are considered relative and/or cognitive strengths and weaknesses. Additionally, certain subtest patterns are thought to be unique and indicative of learning and emotional problems. Although a thorough review of the subtest analysis literature is beyond the scope of this paper, research on the topic has reached the following conclusions. First, subtests have low reliability and specificity, therefore, making decisions regarding cognitive strengths and weaknesses based on the scores produced from these measures is an unsound practice (Macmann & Barnett, 1997; Watkins et al., 2005). Second, ipsative subtest scores do not contribute anything to the prediction of academic achievement not already accounted for by the global Full Scale score (Macmann & Barnett, 1997; McDermott et al., 1990). Third, ipsative scores cannot be interpreted as if they possess the same psychometric properties as normative scores; therefore, such interpretation is not recommended (McDermott & Glutting, 1997; Watkins et al., 2005). Fourth, it is not uncommon for children to demonstrate a considerable degree of variation across subtests; thus, using score differences obtained from subtests should not be used to make diagnostic decisions. Fifth, not all children from a particular diagnostic category will exhibit the profile thought to be unique to that diagnostic category (Watkins et al., 2005). Overall, proponents of subtest analysis have not demonstrated that this practice has adequate reliability, diagnostic utility, or treatment validity. Despite overwhelming evidence to the contrary, many school psychologists continue to use, or rather, misuse intelligence tests in a manner that is inconsistent with these research findings.

A third issue regarding the use of intelligence testing within an RtI framework is the assumption that RtI alone will not provide the information necessary to develop appropriate interventions for students who do not respond sufficiently to initial attempts to prevent or remediate their academic difficulties. Proponents of intelligence testing argue that without IQ tests and other measures of psychological processing, school psychologists and teachers will not have the necessary information needed for developing interventions for children experiencing academic difficulties (Flanagan et al., 2006; Hale et al., 2006). Specifically, these researchers argue that children who do not respond to research-based interventions within an RtI framework should be given intelligence tests to help identify the cognitive/psychological processes that are causing their academic underachievement. Although recently a number of these researchers have conceded that the discrepancy approach for identifying SLD is flawed beyond repair, they insist that measures of intelligence and psychological processing complement RtI. Many proponents of RtI would argue that traditional SLD assessments that incorporate the use of intelligence tests lack treatment validity or instructional utility (Fuchs & Fuchs, 1998; Gresham, 2002; Reschly & Ysseldyke, 2002). Whether used within a discrepancy approach, measures of intelligence and/or psychological processing do not add information necessary for developing instructional interventions (Fletcher et al., 2004; Gresham, 2006; National Association of State Directors of Special Education, 2005; Reschly & Ysseldyke, 2002). In short, many proponents of RtI take issue not only with the use of IQ tests within a discrepancy approach, but with the use of IQ tests in and of themselves for the purposes of identifying SLD. It is precisely because of the failure of measures of intelligence and psychological processing to provide school psychologists and teachers with the information necessary to develop instructional interventions that researchers were compelled to seek and explore alternative

approaches for identifying SLD. One such approach was RtI. Within an RtI approach, instead of asking, "what kind of processing deficit does the child have?" we ask, "what kind of problems is the child demonstrating, where and when do they occur, and what can we do about it?"

Response to Intervention

Proponents of RtI acknowledge that this approach is unlikely to address the academic needs of all children in its initial phases and that some children will require long-term intensive interventions. It is, however, important to recognize that RtI serves a number of important functions. First, RtI allows educators the opportunity to address the academic needs of children at the first signs of problems. The only criteria necessary for a student to receive additional support within an RtI framework is that they demonstrate a need. Concerns such as discrepant versus non-discrepant underachievement, expected versus unexpected underachievement, processing strengths and/or weaknesses, and levels of intelligence become non-issues within an RtI approach. Since we are referring to the long-term academic health of our children, this point cannot be over-emphasized. As previously stated, educators are often forced to wait for children to continue to fail in order to provide them with the support they need and are legally entitled, however, such unwillingness or inability by educators to act in a timely manner is equivalent to educational malpractice.

Second, RtI is a decision-making framework predicated on a systematic assessment process. By employing a problem-solving approach within an RtI framework, school psychologists and teachers are able to directly and accurately identify a child's problems, analyze and determine why the problems are occurring, develop and implement interventions to address the child's needs, and monitor the effects of the interventions. RtI will allow educators to gather meaningful information that is directly related to the child's academic underachievement, thereby reducing the amount of inference necessary when making decisions based on the results of tests of intelligence and processing. Perhaps the most compelling aspect of RtI assessment practices is that they allow educators to proactively provide assistance to students on an as-needed basis before they have developed a well-ingrained pattern of academic problems and failure. Moreover, when data show that a student has not responded to a well-delivered set of empirically sound intervention strategies, the intervention team has, at their fingertips, a comprehensive collection of data by which they can make well-informed decisions as to the need for more intensive services and supports including, but not limited to, special education and related services (Gresham, 2004).

Third, due to the previously described problems with the discrepancy model, RtI provides educators with a viable alternative for the assessment and treatment of children at-risk for SLD. In addition to questionable empirical support, incorporating measures of intelligence and processing into an RtI framework runs counter to the core principles of RtI. At the foundation of RtI is an assessment process that employs direct, repeated measures of a student's academic progress. A traditional assessment approach that uses measures of intelligence and processing employs indirect measures that are typically administered only once. When school psychologists and other educators use indirect measures such as tests of intelligence and processing that require unacceptable amounts of inference and guesswork for making educational decisions, the likelihood of making incorrect educational decisions is significantly increased. A secondary, but equally important premise of RtI is providing research-based interventions to students demonstrating academic underachievement, whereas, the focus of the traditional testing models is classification and compliance. Since RtI uses direct measures of assessment such as CBM, DIBELS, and STEEP for evaluation of a student's difficulties, the likelihood of developing an intervention that actually addresses the student's needs is greatly increased. That is, RtI has treatment validity since it employs assessment measures that are linked to intervention. As previously stated, the authors of intelligence and processing tests have not empirically demonstrated that matching instructional treatments to cognitive processes or aptitudes leads to positive educational outcomes.

Fourth, from a logistical viewpoint, incorporating testing into an RtI approach presents school psychologists and other educators involved in the special education eligibility process with a time-management and organizational nightmare. School psychologists and educators involved in this process must decide how best to use their time. If in addition to their responsibilities within an RtI approach school

psychologists are also expected to conduct evaluations that include a battery of tests that will yield little, if any additional useful information, the likely result is a poorly executed RtI model. For RtI to be successful, school psychologists must be allotted the time to consult with teachers throughout the course of the RtI approach, which will not be the case if testing loads remain as they have for the past 30 years. School psychologists have historically operated from an assessment and/or diagnosis-based orientation, however, it is of utmost importance that school psychologists shift their thinking to an intervention-based perspective. This shift in thinking must move from a Refer-Test-Place logic to a Refer-Assess-Intervene-Evaluate logic. School psychologists, educators, and parents must learn to trust in the empirical research to guide practice, otherwise, conducting research becomes an activity with no practical implications.

Fifth, an RtI approach is likely to reduce identification biases. A teacher's decision to refer a child for SLD assessment is typically guided by the student's performance relative to the modal performance of the other students in the class or to that of other low-performing students (MacMillan & Siperstein, 2002). This method of referral is based largely on teacher opinion, which is likely to lead to differential rates of referrals due to teacher tolerance, teacher's perceptions of student progress, and teacher's optimism about his or her capacity to effectively teach a student within the context of a larger group (Zigmond, 1993). Furthermore, teacher referral may also be influenced by factors such as student's gender, socioeconomic status, and/or ethnicity (MacMillan & Siperstein, 2002). Donovan and Cross (2002) contend that an RtI approach to referral has the potential to reduce and possibly eliminate the overrepresentation of certain minority groups in special education from the biases inherent in the teacher referral process. Universal screening of all students incorporated into a problem-solving model within an RtI framework has the potential to reduce disproportionate identification of academic difficulties by ethnicity and gender and is superior to other identification methods such as teacher referral (Donovan & Cross, 2002; VanDerHeyden, Witt, & Naquin, 2003).

Sixth, the focus of RtI is on child outcomes. RtI emphasizes direct measurement of achievement and the instructional environment as the focus of a comprehensive evaluation of a child's academic difficulties. RtI emphasizes assessment of measurable and changeable aspects of a child's academic performance and instructional environment. Within an RtI approach changeable aspects of a child's instructional environment that are considered in the assessment process include; instructional variables, alterable factors such as pace of instruction and opportunity to respond, prior and current instructional opportunities, and application of evidence-based instructional strategies (National Reading Panel, 2000; Witt, VanDerHeyden, & Gilbert, 2007). Clay (1987) suggests that many children learn to be learning disabled because they are exposed to ineffective or marginally effective general education reading curricula and instruction that either have not been empirically validated or have been implemented with poor integrity (National Reading Panel, 2000). Treatment integrity is also a key component to RtI and must be directly measured over time to ensure that interventions are being implemented as planned (Gresham, 1989).

To reiterate, the primary contention proffered against employing an RtI model without the use of tests of intelligence or psychological processing is that RtI methods alone do not constitute a comprehensive evaluation (Hale et al., 2006). That is, individuals supporting this position insist that the administration of IQ and/or psychological processing tests is a necessary condition for a comprehensive evaluation. However, what these individuals fail to understand is that the resulting student response data from RtI procedures are not the only components of an RtI-based comprehensive evaluation. Rather, data obtained from record reviews, interviews, direct observations, rating scales, and/or medical screenings are combined with student response data to serve as the comprehensive evaluation and to inform decisions as to whether the student has an underlying disability and need for special education services (Gresham, 2002; Gresham et al., 2004). It is likely that knowing a child's overall cognitive ability will be deemed important for some special education referrals. However, the notion that tests of intelligence and/or psychological processing are necessary for all children who are at risk for a learning disability that may need long-term, intensive intervention(s) is without empirical merit. The key features of a comprehensive evaluation under an RtI model are the direct measurement of achievement, behavior, and instructional environment in relevant domains. This alters the focus of assessment from a search for a within-child pathology to one concerned primarily with the assessment of measurable and changeable aspects of the instructional environment that are related to child

outcomes. The authors of the current paper concur with the many researchers who have called for the abandonment of intelligence tests for the purposes of identifying children with SLD.

CONCLUSION

Many researchers and practitioners in school psychology and special education would agree that moving from a classification and/or eligibility-based assessment approach to one that focuses on intervention would be in the best interest of children experiencing academic achievement difficulties (e.g., Burns & Ysseldyke, 2005; Fuchs, Mock, Morgan, & Young, 2003; Gresham, 2001, 2002, 2005; Kovaleski & Prasse, 2004). In light of the numerous problems with the IQ-achievement discrepancy model, RtI may offer the most viable approach for making this shift. RtI has not only garnered the support of many researchers and practitioners across the country, but it has been endorsed by the President's Commission on Excellence in Special Education (PCESE, 2001) and the National Association of School Psychologists (NASP, 2007).

RtI offers an improved approach to assessment that allows educators to help children they know are struggling and does not include circumventing the problems that many school psychologists and special education teachers must face when using the IQ-achievement discrepancy approach. Further, an RtI approach to eligibility determination moves away from using measures that yield minimal benefits with respect to treatment and instead focuses on direct measures of student achievement and the instructional environment that produce data that are in the best interest of both the children served and the educators that serve them. The data resulting from the application of RtI methods allow school psychologists and teachers to focus on issues related to intervention, rather than issues related to classification and eligibility. Although RtI is not a perfect system, it is an approach with promising empirical support, which is not the case for the traditional, testing-oriented IQ-achievement discrepancy model. The authors of this paper have been unable to locate an empirically based rationale for the inclusion of measures of intelligence or psychological processing within a properly conducted RtI approach. Old habits die hard, but when it becomes clear that old habits are also bad habits, then, the time for making the paradigm shift that Reschly and Ysseldyke (1995) spoke of over a decade ago is truly upon us.

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Promoting School Success for Lesbian, Gay, Bisexual, Transgendered, and Questioning Students: Primary, Secondary, and Tertiary Prevention and Intervention Strategies

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Lesbian, gay, bisexual, transgendered, and questioning (LGBTQ) students are likely to be in every classroom in every secondary school in the United States; yet, their needs are often overlooked. LGBTQ students are at risk for developing academic, social, and emotional problems due to harassment and bullying experienced at school. Although schools have an ethical and legal duty to provide a safe educational experience for all students, few schools implement policies and programs to support LGBTQ students. School psychologists, with training in adolescent development, counseling, consultation, and systems change, are in a unique position to help schools be more responsive to the needs of LGBTQ students. By adopting a public health framework that focuses on primary, secondary, and tertiary levels of prevention and intervention for LGBTQ students, school psychologists can implement strategies and make recommendations for school-wide changes to promote positive development for all students. This article highlights challenges faced by LGBTQ students and presents methods for responding to the needs of this minority group using the public health framework.

KEYWORDS: Lesbian, Gay, Bisexual, Transgendered, Questioning, Students, Prevention, Intervention, School, Counseling

On February 12, 2008, Lawrence King, a 15 year-old student, was shot in the head at his junior high school in Oxnard, CA (Saillant & Covarrubias, 2008). Lawrence openly identified as gay and reportedly had begun wearing make-up and clothing considered feminine. He allegedly had altercations about his sexuality with Brandon McInerney, the 14-year-old boy who was arrested for shooting Lawrence during class. Two days after the shooting, Lawrence was declared brain dead and was removed from life support machines. Brandon is currently being charged as an adult with first-degree murder with the special allegation of a hate crime.

Students who identify or are identified by others as lesbian, gay, bisexual, transgendered, and questioning (LGBTQ) often face challenges in school due to longstanding social prejudices and discrimination. These students are at greater risk for harassment, victimization, and potential development of a number of emotional and behavioral problems (Savin-Williams, 1994; Savin-Williams, 2001). School psychologists, along with teachers, administrators, and counselors, can play a key role in promoting positive emotional development and academic success for LGBTQ students.

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Merrell, Ervin, and Gimpel (2006) suggest that programming to support and promote social/emotional wellbeing and resiliency should follow a public health framework, which includes providing three levels of services simultaneously. Primary prevention efforts are those that reach all students in school in order to create an environment that promotes safety, respect, and acceptance. Secondary prevention efforts target a select group of students who are most at risk for developing mental health problems, such as those experiencing harassment or family conflicts. Tertiary prevention efforts are more intensive and are directed at students who are already experiencing more serious emotional problems. By using this framework to develop prevention and intervention programming, school psychologists can help reduce the number of LGBTQ students who experience academic, emotional, and behavioral problems and promote positive development.

BACKGROUND

Questioning one's place along the sexuality spectrum typically occurs during adolescence (Williams, Connolly, & Pepler, 2005). While it is estimated that approximately 10 to 20% of adolescents have engaged in a same-gender sexual experience (Eisenberg & Resnick, 2006; McFarland & Dupuis, 2003), the exact number of students who identify as LGBTQ is difficult to determine due to the social stigma associated with revealing one's sexual identity (Rotheram-Borus & Langabeer, 2001). It is very likely, however, that there will be students in every secondary school classroom who identify as LGBTQ even if they do not do so openly.

Although students who identify as transgendered follow a different developmental trajectory than students who identify as lesbian, gay, or bisexual, as the former group is managing issues related to gender identity while the latter group is defining their sexual orientations, all LGBTQ students represent a sexual minority at school and face a social stigma that complicates their school and personal adjustment. Sexual minority students are perceived as "different" by the larger school population, and this provides the basis for harassment and victimization, including verbal and physical harassment, threats, and intimidation (Bontempo & D'Augelli, 2002; Crothers, 2007; Williams, et al., 2005). Sexual minority students report higher frequency of homophobic teasing as compared to their heterosexual counterparts, with questioning students reporting greatest victimization (Espelage, Aragon, Birkett, & Koenig, 2008). Almost 90% of sexual minority students report hearing derogatory remarks directed toward sexual minority students in the schools, and almost 40% report being physically harassed due to their sexual orientation (Gay, Lesbian, and Straight Education Network [GLSEN], 2005). Literature related to homophobia and bullying suggests that teachers often fail to intervene for a variety of reasons, such as limited knowledge of how to intervene, normalization of bullying, or homophobic attitudes (Conoley, 2008). For many sexual minority students, school is perceived as unsafe, and thus their focus turns from academic achievement to survival (Weiler, 2004).

LGBTQ adolescents also experience harassment and victimization at home and in the community. While revealing one's sexual identity to a parent is considered a significant step in the development of sexual minority adolescents (Savin-Williams, 1998), this may not always be a safe thing for adolescents to do. Over 35% of sexual minority adolescents report being verbally abused by a family member because of their sexual orientation (Rivers & D'Augelli, 2001).

Sexual minority students report more emotional and behavioral adjustment difficulties than heterosexual students, including higher rates of substance abuse, prostitution, truancy, encounters with law enforcement, and running away from home (Espelage et al., 2008; Savin-Williams, 1994; Savin-Williams, 2001). Additionally, sexual minority students experience greater feelings of depression, hopelessness, helplessness, worthlessness, alienation, extreme loneliness, and suicidal ideation (Crothers, 2007; Espelage et al., 2008; Savin-Williams, 1994), and some students lose friends because of their sexual identity (Crothers, 2007). One recent study of nearly 14,000 high school students found students who are questioning their sexual orientation to be at the greatest risk, reporting higher victimization, depression, suicidal ideation, and substance abuse, poorer school climate, and lower parental support, when compared to both heterosexual students and those identified as lesbian, gay, or bisexual (Espelage et al., 2008). As a result of cumulative stresses, LGBTQ students are at a particularly high risk for suicide, which is the leading cause of death among LGBTQ adolescents (Eisenberg & Resnick, 2006; Savin-Williams, 1994). In fact, researchers have found that up to 40% of sexual minority youth have attempted suicide (Hershberger & D'Augelli, 1995).

Additionally, because LGBTQ students often experience fear, anxiety, and isolation at school, they may be unable to concentrate on academic tasks and learn effectively (Crothers, 2007). They are five times as likely as the general population of students to report skipping school because of safety concerns, and they are twice as likely to report no plans for post-secondary education (GLSEN, 2005).

CULTURAL CONSIDERATIONS

As schools become increasingly diverse, it is important that school psychologists understand the intersection of gender identity, sexual orientation and culture for students. Sexual minority students are not only dealing with stressors related to their gender identity and sexual orientation, but also those related to acculturation and adaptation to the mainstream culture (Fukuyama & Ferguson, 2000). In the United States, the LGBTQ community is predominately white and middle-class, and it reflects the values and experiences of that dominant culture (Chung & Katayama, 1998). Sexual minority students of color may face what is called "double" or "triple" minority status (sometimes called double or triple jeopardy), meaning that they may experience more harassment, discrimination, and marginalization because of their sexual minority status, ethnic minority status, and, in the case of adolescent girls, gender status (Fukuyama & Ferguson, 2000; Greene, 1994). LGBTQ students of color may struggle with balancing the norms and expectations of different communities, each of which can reject them at any moment, but from both of which they may derive valuable support (Rust, 1996).

There are cultural differences in the acceptance of LGBTQ identity. Cultures that subscribe to a collectivistic identity, one in which the family and ethnic community plays a more prominent role than the individual's desires and needs, tend to emphasize family, respect for elders, and more traditional gender roles (Fukuyama & Ferguson, 2000; Greene, 1994). This is true for Asian and Latino cultures, in which homosexuality is often seen as a direct threat to the family system and individuals are expected to relegate personal desires for family concerns (Chung & Katayama, 1998; Fukuyama & Ferguson, 2000; Rust, 1996). While Native American cultures also subscribe to a collectivistic identity which may inhibit individual expressions of sexuality or gender, as these set the individual apart from the group, they also tend to have more fluid views of sexuality and gender, allowing for the possibility of greater acceptance of sexual minority individuals (Bridges, Selvidge, & Matthews, 2003; Fukuyama & Ferguson, 2000). In the African American culture, heterosexual privilege tends to be valued, and those who openly identify as lesbian, gay, bisexual, or transgendered are often rejected and risk losing a support system that helps buffer the effects of racism (Bridges, Selvidge, & Matthews, 2003; Fukuyama & Ferguson, 2000). In fact, the literature suggests that sexual minority African Americans may identify more strongly with the African American community than with the LBGTQ community, and this impacts their decisions about revealing their gender and sexual identities (Bridges, Selvidge, & Matthews, 2003).

Culture and ethnicity are important factors to consider when working with LGBTQ students (Bridges et al., 2003; Chung & Katayama, 1998; Greene, 1994; Rust, 1996); however, it is essential to recognize individual differences that exist within cultural groups.

THE ROLE OF THE SCHOOL

Schools have a legal and moral obligation to provide a positive and safe school environment for LGBTQ students. Guidelines developed by the Office of Civil Rights of the United States Department of Education prohibit sexual harassment and the creation of a sexually hostile environment, including for those students who identify as LGBTQ (McFarland & Dupuis, 2003). In the past 10 years, courts have held that schools must provide equal access for all students and must protect them from harm and harassment (e.g., *Davis v. Monroe County Board of Education,* 1999; *Nabozny v. Podlesny*, 1996; *Wagner v. Fayetteville Public School,* 1998, as cited in McFarland & Dupuis, 2003). Despite such legal protections and precedents, bullying of sexual minority students in schools is widespread; yet educators are generally unaware of the degree of victimization and often fail to intervene when bullying occurs (Crothers, 2007; Espelage et al., 2008).

By using the public health model to develop prevention and intervention programs at the primary, secondary, and tertiary levels, schools can be more responsive to the rights and needs of LGBTQ students and can create a safe place for these students to succeed academically and socially. School psychologists, with expertise in adolescent development, counseling, consultation, and systems change, can take a leadership role in developing, implementing, and evaluating programs and practices that support LGBTQ students.

Primary Prevention and Intervention

Primary prevention refers to school practices that promote positive social/emotional development for the entire school community (Merrell et al., 2006). Such practices include developing and implementing policies and procedures to promote a positive school climate and an environment of acceptance and safety for all students, including sexual minority students. School climate is an important component in creating an environment that fosters healthy interactions between students, which are conducive to learning (Murdock & Bolch, 2005) and contribute to better adjustment overall (Espelage et al., 2008). However, researchers have shown that "many school climates foster norms, values, and belief systems that communicate rejection and intolerance to some students" (Nichols, 1999, p. 505). Additionally, research suggests that even the social support of family and friends does not adequately buffer LGBTQ students from a negative school environment (Murdock & Bolch, 2005).

One way for schools to promote a climate of acceptance for LGBTQ students is by educating students and staff about gender identity and sexual orientation and integrating accurate information about sexual minority issues into the curriculum (Weiler, 2004). As of 2005, less than 40% of school districts offered any kind of education about sexual orientation, and only 30% of schools offered staff development activities (Rienzo, Button, Sheu, & Li, 2006). It is important for school staff, including teachers, administrators, and auxiliary personnel, to support the school's commitment to provide a positive climate for LGBTQ students (Weiler, 2003). This includes educating school personnel about institutionalized discrimination, helping them understand social and legal issues that relate to the education of LGBTQ students, developing protocols to respond to LGBTQ students who need help, and responding to students who engage in verbal or physical harassment aimed at sexual minority students or school personnel (Weiler, 2003).

Policy development. While there are few laws and policies that specifically protect the rights of LGBTQ students, several federal and state statutes make clear the need for all students to have equal access to a safe, harassment-free school environment. Schools that receive federal funds are legally mandated to address sexual discrimination and sexual harassment under Title IX of the Education Amendments of 1972, and this law requires that all school districts have policies that allow equal access for all students to all educational programs, have published guidelines on sex discrimination, and have formal procedures to address complaints (Young & Mendez, 2003). While less than a quarter of states have anti-bullying laws that specifically address harassment based on sexual orientation, there is a precedent for states to establish general anti-bullying laws that are applicable to the protection of all students (GLSEN, 2005). Moreover, courts have held that schools have a legal responsibility to protect LGBTQ students from harassment and bullying (McFarland & Dupuis, 2003).

School leaders must be aware of laws and policies that exist, and in the absence of these, school leadership teams can develop their own anti-bullying and harassment policies, which may specifically address the protection of sexual minority students. The formation of a committee devoted to coordinating policy development and implementation, including members from the LGBT community, is recommended (Felix & Furlong, 2008). It is suggested that schools take a strong stance against all discrimination and harassment, which includes taking action whenever a verbal remark or physical threat is made, including verbal comments in all languages (GLSEN, 2005). School leaders will need to determine and model appropriate disciplinary actions to be taken. Furthermore, administrators and lead teachers can model zero tolerance for bullying behaviors and not tolerate homophobic humor amongst staff in an effort to engender similar behavior in novice teachers (Conoley, 2008).

While research suggests that schools that have adopted a zero-tolerance policy for harassment against sexual minority students have had significantly fewer incidents of verbal harassment directed toward LGBTQ students (GLSEN, 2005), schools must consider the age of the students and the severity of the incident.

Young and Mendez (2003) recommend that school leaders, including school psychologists, develop protocols for responding to harassment and select "targeted, age-appropriate responses for violating the policy" (p. 17) while consistently sending the message that these types of behaviors will not be tolerated. Responses can range from education about the policy and school expectations for minor first offenses, to skills training for students who continually disregard the rights of others, to suspension and expulsion for chronic offenders or severe offenses. Along with policies related to the offenders, school personnel should establish policies to support those who are targets of harassment and bullying, such as ensuring confidentiality and having support groups and/or counseling available (Young & Mendez, 2003). It is also important that all school staff receive training in the policies, know how to respond when they hear or see an act of harassment, and understand how to respond when a student tells them about witnessing or experiencing harassment (Young & Mendez, 2003).

Curriculum. Just like teachers are encouraged to include people of color in curriculum to promote diversity and allow students to see people like themselves in lessons, teachers can include age-appropriate information about LGBTQ individuals and issues in curriculum (McFarland & Dupuis, 2003). For example, in elementary school, discussions and activities can focus on different kinds of families. In high school, students might study the persecution of sexual minority individuals during the holocaust or study the civil rights movement for sexual minority individuals. Additionally, students might be encouraged to read works by sexual minority authors, be given the opportunities to write papers on famous or influential sexual minority individuals, or create projects representing issues of heterosexism during lessons on diversity. School psychologists might meet with grade-level or subject-specific teaching teams to develop such curriculum and projects.

Staff Development. Although teachers are often exposed to multicultural issues in their teacher preparation programs, issues related to sexual minority individuals, when addressed, are often met with resistance (Robinson & Ferfolja, 2001). This is likely because of the social taboo about and the discomfort in talking about sex in general, and homosexuality in particular. However, research suggests that teachers play a large role in the experience of sexual minority students in school, with reports of teacher supportiveness contributing significantly to sexual minority students' positive attitudes about school and their overall sense of wellbeing at school (Murdock & Bolch, 2005). Additionally, because teachers spend large portions of the day with the students, they are often the ones who hear derogatory remarks and see the verbal and physical bullying of sexual minority students. Teachers have the opportunity to respond to this harassment in a way that supports sexual minority students, but they need training in how to recognize what is happening, to educate and discipline offenders, and to support sexual minority students and other students in the school community (McFarland & Dupuis, 2003).

Staff development should focus on educating staff about homophobia and other issues faced by LGBTQ students, informing them about school policy related to discrimination, harassment, and bullying, soliciting their buy in, and training them how to respond when incidents occur (GLSEN, 1999; Young & Mendez, 2003). Young and Mendez (2003) suggest that these trainings should be "concrete and detailed" (p. 18) and should employ the use of case-studies and role-plays so that staff can develop a comfort with the language they are expected to use and the actions they are expected to take.

One program developed to familiarize school staff with issues related to homophobia and to teach them how to respond to bullying is "Homophobia 101: Teaching respect for all" (GLSEN, 1999). This is a staff training workshop that provides basic information about sexual orientation and the stress, discrimination, and prejudice experienced by sexual minority individuals; addresses the impact this has on academic and emotional development; and provides teachers with strategies to use to reduce discrimination and to promote inclusive school environments (GLSEN, 1999). This workshop can be presented by school psychologists who have basic knowledge of LGBTQ issues and familiarity with conducting staff development activities. As outcomes of this workshop have not been documented, school psychologists might consider collecting data pre- and post-workshop to examine its impact.

School-Wide Education. Like all curriculum in schools, students' cognitive and emotional developmental levels should be considered when developing school-wide programs to increase knowledge about discrimination, harassment, and bullying and to promote a safe, affirmative school climate (Young & Mendez, 2003). Programs

do not need to focus on LGBTQ students solely; nor should programs fail to explicitly address harassment and bullying of sexual minority students. Effective programs provide students with the opportunity to talk about the issues and reflect on what they are learning and how they feel (Young & Mendez, 2003).

One example of a school-wide education program to increase knowledge about sexual minority issues and promote acceptance can be drawn from an alternative high school in Fort Collins, Colorado. According to Bauman and Sachs-Kapp (1998), a group of student leaders at this school were selected by the school counselors to develop and facilitate school-wide workshops on a number of topics to promote diversity, including one focused on sexual orientation. The student leaders received extensive training from the school counselors, which included activities to promote self-awareness, education about diversity topics, lectures from experts, and activities to improve their skills as workshop facilitators. The students, with support from the school counselors and school administrator, led a day-long workshop that included a guest speaker talking to the whole school community, smaller group activities with panelists, and small discussion groups facilitated by student leaders and school staff (students could choose to participate in an alternative workshop that focused on intolerance in more general terms; only about 5% of students chose the alternative workshop). Students participating in the workshop rated it as 3.8 on a 5-point Likert scale (with 1 being *Not Educational at All* and 5 being *Very Educational*); however, no other outcome data were reported.

Along with education about sexual minority issues, schools should ensure that all students know the policies and procedures related to harassment and bullying. As part of this, school personnel can educate students about what they expect witnesses of harassment to do and how they will protect witnesses who come forward (e.g., ensuring confidentiality for witnesses; Young & Mendez, 2003). Bullying prevention has been most successful at the primary level for comprehensive and collaborative school-wide approaches that involve not only educating staff and students in an effort to improve school climate; but also, programs that increase adult monitoring outside of the classroom, those that have achieved teacher buy-in and commitment, and those that are aligned with the school's mission (Felix & Furlong, 2008).

Secondary Prevention and Intervention

While primary prevention and intervention efforts are aimed at the entire school community, secondary efforts target a smaller group of students who are most at-risk for developing academic or emotional problems (Merrell et al., 2006). Many LGBTQ students may benefit from secondary prevention and intervention services because of the deleterious effects of discrimination, alienation, marginalization, harassment, and bullying (Crothers, 2007; Savin-Williams, 1994; Savin-Williams, 2001). This is not to imply that all LGBTQ students will develop emotional or academic problems; rather, they are at greater risk than the general population.

Support groups. The most common type of support group for sexual minority students in schools are Gay-Straight Alliances (GSAs), which are designed to provide safe, supportive environments in which students of all sexual orientations can meet and talk about issues that affect all students, such as heterosexism, homophobia, harassment, discrimination, and prejudice (Szalacha, 2003). GSAs are generally student-led with the support of a faculty advisor, which can be the school psychologist. Research suggests that 7 to 20% of high schools have GSAs (GLSEN, 2001 as cited in Snively, 2004; Rienzo et al., 2006). In schools with GSAs, sexual minority students report feeling safer and have less absences than in schools that do not (GLSEN, 2005), report less victimization (Goodenow, Szalacha, & Westheimer, 2006), and are better able to manage the negative effects of harassment and violence (Rivers, 2004). It is important to note that the support of administrators, school staff, and non-sexual minority students for GSAs promotes an overall school climate of support and inclusivity (Goodenow et al., 2006).

In response to concerns about the increased risk for school dropout and emotional problems for sexual minority students, "Project 10" was implemented at a high school in the Los Angeles Unified School District (Henning-Stout, James, & Macintosh, 2000). A large component of this program was to provide support groups for sexual minority youth, focusing on all aspects of their lives, including substance abuse, high-risk sexual behaviors, esteem building, and career planning (Henning-Stout et al., 2000). Project 10 has demonstrated success in helping sexual minority students improve academic performance and relationships (Henning-Stout et al., 2000).

Group counseling. Group counseling is appropriate for sexual minority students who are at-risk for or are already experiencing academic, social, or emotional difficulties. This may be those students who are targets of harassment or bullying, who lack adequate familial and peer support, or who have shown a decrease in academic performance. At a very basic level, group counseling should help students talk about their experiences, thoughts, and feelings, and help them develop coping strategies and make behavior changes (Shechtman, 2007). However, research needs to be conducted to measure outcomes for LGBTQ students who have participated in group counseling.

Muller and Hartman (1998) offer an example of a counseling group for sexual minority students. The goals they identified included helping students recognize and discuss their feelings related to identifying as sexual minority individuals, develop skills to cope with social and emotional stress and bullying, and identify and build support systems. The group consisted of 25 sessions, which included topics of family relationships, the coming-out process, connecting students with community resources and adult role-models, and interpersonal issues. Outcome research was not conducted.

It is important to note that many transgendered individuals do not identify as lesbian, gay, or bisexual but rather feel as if they are the incorrect gender (Zucker, 2006). For example, an adolescent who is biologically a girl but who identifies as a boy would describe being sexually attracted to girls as heterosexual and would not identify as a lesbian. This is important when considering the composition of groups for counseling and the topics covered, as transgendered students might feel alienated by groups designated for lesbian, gay, bisexual, or questioning students. Similarly, students who are questioning their sexual orientation present with needs similar to, but distinguishable from those of students who identify as lesbian, gay, or bisexual, likely because the latter group may perceive more support due to identifying with groups or individuals who share their experiences (Espelage et al., 2008). The unique needs of questioning students should also be considered when determining group composition.

Diversity room. According to research conducted by Goodenow et al. (2006), "sexual minority youth who asserted that there was no adult in the school they could talk to about a problem were more likely than others to have been threatened at school and to have made multiple suicide attempts in the previous year" (p. 584). Schools can help these students by identifying a safe space staffed by a well-trained, caring professional to support students and to help them mediate and resolve conflicts (Nichols, 1999). This space is termed the "diversity room" as it is open to all students on campus for all issues (Nichols, 1999). This room might also serve as a resource for all students, including sexual minority students, providing them a confidential space to talk about their needs and concerns, addressing immediate problems, and connecting them with school and community resources. A diversity room can be staffed by the school psychologist and school counselor who provide office hours for students to drop in to discuss any issues.

Tertiary Prevention and Intervention

Tertiary prevention and intervention strategies target a very small group of LGBTQ students who are experiencing significant social and emotional difficulties. These students need more intensive services than can be provided within a group setting, and this most often takes the form of individual counseling. While there is a growing body of literature addressing counseling/therapy with the LGBTQ population and/or victims of bullying, there is a dearth of research examining therapeutic outcomes. Furthermore, there is a serious need for empirical studies of clinical approaches to treating LGBTQ individuals.

It is critical to note that while there are unique challenges and stressors experienced by students who identify as LGBTQ, the emotional distress experienced by LGBTQ students may be directly, indirectly, or altogether unrelated to gender identity and sexual orientation (Hershberger & D'Augelli, 2000; Ryan, 2001). When providing individual counseling for sexual minority students, not only should school psychologists understand issues impacting sexual minority students, but they must also have an awareness of their ability to provide culturally competent services, have the capacity to develop appropriate treatment plans to support development and build coping strategies, and have the ability to attend to therapeutic processes directly related to the unique needs of sexual minority students (Barber & Mobley, 1999; Hershberger & D'Augelli, 2000).

Culturally competent practice. First and foremost, school psychologists need to examine their knowledge of the LGBTQ community and issues that impact LGBTQ students (Sobocinski, 1990). According to the findings of one study, mental health practitioners perceived as most helpful by their sexual minority clients were those who had educated themselves about issues of concern for sexual minority individuals (Liddle, 1996). School psychologists who acknowledge the limitations of their training and their capacity to serve LGBTQ students are in a position to seek accurate knowledge to fill any gaps (Matteson, 1996; Ryan, 2001), such as the use of appropriate terminology, a clear understanding of homophobia, historical forces that impact LGBTQ individuals, and sensitivity to issues surrounding marginalization and oppression (Dworkin, 2000). It is important for school psychologists to recognize that, historically, homosexuality has been treated as pathological, but that this view is considered unethical by most professional organizations today (Haldeman, 1994; Sobocinski, 1990). Similarly, transgendered adolescents often continue to be pathologized and are given the diagnosis of Gender Identity Disorder, which is characterized by feelings of being the wrong sex and a strong desire to have the biological and social characteristics of the other sex according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association [APA], 2000). Additionally, there is a need for school psychologists to be mindful not to pathologize nonnormative or nonconforming gender-type behaviors such as in the case of effeminate males or masculinized females (Dworkin, 2000).

A second important part of providing culturally competent services is for school psychologists to examine their own gender and sexual identity along with their attitudes, beliefs, and values about gender identity, sexual identity, sexual orientation, and sexual experiences (Dworkin, 2000; Matteson, 1996). Research suggests that positive outcomes from counseling can occur for sexual minority students regardless of the psychologist's sexual orientation, but that it is important to recognize heterosexual privilege within the counseling relationship (Liddle, 1996; Matteson, 1996). Along with this notion, it is critical that school psychologists avoid heterosexist attitudes, wherein heterosexuality is presumed (Hershberger & D'Augelli, 2000). This speaks to the need to be familiar with LGBTQ and sexual identity terminology so as to provide services with nonbiased language.

Finally, it is critical for school psychologists to develop an awareness of their own biases that may impair their effectiveness (Browning, Reynolds, & Dworkin, 1998) and work through any biases, homophobia or biphobia, myths, stereotypes, and prejudices, while continually educating themselves to be affirming mental health practitioners (Shannon & Woods, 1998; Sobocinski, 1990). Matteson (1996) suggests avoiding judging a student and his/her experiences against one's own sexual orientation and sexuality standards. Furthermore, in order to be effective, school psychologists should avoid imposing their own political views. School psychologists should also avoid misconceptions about LGBTQ relationships, such as assuming that any same-sex experience denotes that a client is gay or lesbian (which negates the possibility of bisexuality or questioning), assuming that monogamy is necessary for healthy relationships, or assuming that LGBTQ students who do not want to reveal their sexual identity are in denial or feel shameful (Dworkin, 2000).

Treatment planning. LGBTQ students seek counseling for a variety of concerns, which may include issues related to gender identity or sexual orientation (e.g., confusion, isolation, distress); general problems related to or exacerbated by gender identity or sexual orientation; or issues completely unrelated to gender identity or sexual orientation (Ryan, 2001). Thus, as with all multicultural or intercultural counseling, school psychologists need to listen to the student's voice in order to clearly identify the presenting problem and inform diagnosis and treatment, which involves assessing the role (if any) that gender identity or sexual orientation will have within counseling/treatment (Dworkin, 2000; Ryan, 2001). Additionally, the school psychologist needs to be informed about the impact of any other identities (e.g., ethnic minority status) and contextual factors at play, including family dynamics and any experienced or anticipated negative responses from family, school, and/or the community to the student's expressions of gender identity or sexual orientation (Dworkin, 2000; Hershberger & D'Augelli, 2000). Moreover, "it is important not to under- or overemphasize" (Dworkin, 2000, p. 175) the student's sexual minority status; rather, it is necessary to strike a balance between being sensitive to cultural differences and challenges based on LGBTQ status and treating the student the same as any other adolescent with similar adjustment or developmental issues or presenting concerns (Browning et al., 1998; Hershberger & D'Augelli, 2000).

In keeping with the notion of individualized experiences, it is important that school psychologists recognize the student's unique strengths and build on these as part of treatment. Despite experiences ranging from a lack of affirmation or acceptance to outright condemnation and abuse, the majority of LGBTQ students lead happy and productive lives (Barber & Mobley, 1999), and such signs of resiliency can be attributed to positive identity development and a strong sense of self worth (Barber & Mobley, 1999; Shannon & Woods, 1998). In fact, self-acceptance has been found to be the single best predictor of positive mental health outcomes for sexual minority adolescents and young adults (Hershberger & D'Augelli, 1995). A primary goal of counseling for sexual minority students who are experiencing emotional distress because of their gender identity or sexual orientation should be to build positive identities and self worth, which will help diminish their feelings of vulnerability and build greater resiliency, resulting in less shame and fewer risk behaviors (Ryan, 2001).

Given the critical need for developing a positive identity, it is helpful to a take a developmental approach to understanding the needs of sexual minority students. Identity formation is a major developmental task of adolescence (Barber & Mobley, 1999; Ryan, 2001), which can best be understood for sexual minority individuals by applying a model, such as Cass' Gay Identity Model. Barber and Mobley (1999) suggest the need to recognize the stage of identity development in order to assess the student's needs and intervene appropriately. According to Cass' model, an individual progresses through stages that are not necessarily fixed, which interact with racial identity, and impact how the individual responds to the world (Barber & Mobley, 1999). Cass' model suggests stages of confusion, comparison, tolerance, acceptance, pride, and synthesis, with the earlier stages being associated with feelings of loneliness, frustration, isolation, and depression and the later stages being associated with contentment and connectedness (Barber & Mobley, 1999).

Part of identity development for sexual minority students involves a process of defining and redefining what it means to be LGBTQ and developing a new self-concept amidst cultural stigmatization and discrimination (Browning et al., 1998; Hershberger & D'Augelli, 2000). Thus, the process of identity development may be disrupted by challenges posed by having a stigmatized identity, which can then lead to risk behaviors, adjustment problems, anxiety, depression, suicide risk (Ryan, 2001) or risk of homelessness (Barber & Mobley, 1999). LGBTQ students may feel a pull between what they think of themselves or their identity and what society thinks and expects of them (Barber & Mobley, 1999; Dworkin, 2000). Furthermore, a process of reciprocal interaction takes place between internal and external forces (e.g., societal norms), which contributes to the individual's identity development (Barber & Mobley, 1999). It is important for school psychologists to recognize that there are many developmental pathways to gender identity and sexual orientation development (Dworkin, 2000; Hershberger & D'Augelli, 2000), but what is critical in counseling is to help the students explore and discover their beliefs about themselves and how they can cope most effectively with societal expectations (Barber & Mobley, 1999; Dworkin, 2000).

Therapeutic process. As with any counseling, it is imperative that the school psychologist provide the LGBTQ student with a safe and supportive environment (Barber & Mobley, 1999; Browning et al., 1998; Ryan, 2001; Sobocinski, 1990); move at a pace consistent with the student's internal and external supports (Matteson, 1996); and consider ethical and professional obligations (Hershberger & D'Augelli, 2000). Most fundamentally, the school psychologist needs to convey a sense of affirmation, acceptance, and respect for both the student and his/her identity and experiences (Browning et al., 1998; Hershberger & D'Augelli, 2000; Matteson, 1996). An LGBTQ student is unlikely to disclose his/her identity due to distrust and suspicion until it is perceived safe to do so (Barber & Mobley, 1999; Dworkin, 2000; Ryan, 2001). Safety is contingent on the psychologist's ability to establish credibility and rapport, which are related to the psychologist appearing informed and knowledgeable and conveying a genuine sense of acceptance, sensitivity, and support (Barber & Mobley, 1999; Dworkin, 2000; Ryan, 2001).

Adequately addressing the needs of sexual minority students requires a heightened awareness of the challenges and resources of the student, both as an individual and as a member of a marginalized group (Ryan, 2001). Challenges related to gender and sexual identity that may contribute to mental health concerns include: invisibility; others' assumptions of defectiveness or deviance; stigma and oppression; assumptions that all sexual minority individuals are alike; lack of positive role models; negative self-concept resulting from a heterosexist and homophobic society; experiences of hatred, harassment, ridicule, or victimization; fear of

being judged, rejected, or alienated; fear of being "outed" or coming out; and lack of support and affirmation (Hershberger & D'Augelli, 2000). School psychologists must also keep in mind that pre-existing and/or unrelated vulnerabilities may predispose LGBTQ students to be less able to cope, placing them at greater risk due to a multiplicity of stressors (Ryan, 2001). Therefore, a focus on developing effective coping mechanisms is undoubtedly necessary, creating the need for a psycho-educational approach to share information about self-care strategies and help-seeking behaviors, to dispel myths, and to aid in understanding and managing stigma (Ryan, 2001).

Ryan (2001) suggests an anticipatory guidance approach, whereby the school psychologist provides information about anticipated challenges, typical life events, and changes expected. Such an approach can aid in normalizing the student's experiences, which may contribute to the development of a positive self-image (Matteson, 1996). Additional therapeutic approaches may involve reframing irrational beliefs, role-playing or rehearsal of behavioral responses to potential problems, and developing effective coping skills, including assertiveness training and the development of conflict resolution and/or decision-making skills (Browning et al., 1998; Ryan, 2001).

One topic that often arises in the course of counseling an LGBTQ student is the coming out process. The school psychologist can assist in helping the student examine meaning, motivations, goals, risks, potential costs and benefits, and alternative methods or strategies for disclosure (Browning et al., 1998; Hershberger & D'Augelli, 2000; Matteson, 1996; Shannon & Woods, 1998). While coming out is viewed as an important step in identity development, it involves a certain level of risk (Hershberger & D'Augelli, 2000; Shannon & Woods, 1998), and it is particularly risky for students given their dependence on parents (Barber & Mobley, 1999). Hershberger and D'Augelli (2000) note that a student may experience stress related to both concealing his/her identity and disclosing his/her identity, which further contributes to a sense of isolation and difference. The potential risks and costs of coming out involve rejection, isolation, discrimination, harassment, and violence (Hershberger & D'Augelli, 2000; Shannon & Woods, 1998), while the benefits include a deepening of relationships, less isolation, availability of supports, and a more integrated identity and life (Shannon & Woods, 1998). During the process of departing from a heterosexual identity and its corresponding expectations, individuals may attempt to pass as heterosexual by modifying their behaviors or exhibiting anti-gay attitudes as a result of internal conflicts and social pressures to conform to heterosexuality, internalized homophobia, or due to implicit or explicit barriers to expressing non-heterosexual attitudes and behaviors (Hershberger & D'Augelli, 2000; Ryan, 2001).

Being aware of the range of behaviors and attitudes that students may demonstrate is critical in order to adequately assess their needs and respond appropriately. Ultimately, however, school psychologists will need to deem whether it is necessary to refer a student to another professional for treatment, in which case, it should be made clear to the student that the referral is due to the psychologist's inability to be objective or effectively meet the student's needs (Matteson, 1996). When making referrals to outside therapists and/or community support groups, it is recommended that the school psychologist be aware of the agency's or professional's capacity to serve LGBTQ adolescents (Dworkin, 2000; Ryan, 2001).

CONCLUSION

All students have the greatest chance of academic and social success in safe, supportive school environments. While many students who identify as LGBTQ will not experience the deleterious effects of harassment and bullying, they are at greater risk than the general population for a number of emotional and behavioral problems, including depression, suicide, truancy, and academic failure (Crothers, 2007; Espelage et al., 2008; Murdock & Bolch, 2005; Savin-Williams, 1994). Thus, focusing some school resources on fostering resiliency in LGBTQ students is a priority.

The public health framework outlined by Merrell et al. (2006) provides a structure for school psychologists to work with school leaders, teachers, and other school personnel to develop prevention and intervention programming to address the needs of a diverse school community. Primary efforts focus on the entire school community and include policy development, educating teachers and students about diversity (including gender and sexual diversity), and integrating diversity into the curriculum. Secondary efforts provide

ongoing support for students who are at risk of experiencing problems and can take the form of a diversity room that serves all students, groups to support LGBTQ students and allies, and group counseling to promote identity development and coping skills. Tertiary efforts focus on those students who are already experiencing problems and include individual counseling services.

The most effective schools will incorporate primary, secondary, and tertiary prevention and intervention strategies to provide support for sexual minority students. One such example is The Safe Schools Program for Gay and Lesbian Students (SPP) developed in 1993 by the Massachusetts Board of Education to develop school policies to protect sexual minority students from harassment and bullying (primary), to train school staff in crisis management (primary/secondary), to establish Gay-Straight Alliances (secondary), and to provide counseling for sexual minority students and family members of sexual minority students (tertiary; Szalacha, 2003). Szalacha (2003) found that all students, including sexual minority students, perceived a positive impact on the school climate when any of the efforts were made, with a combination of all three leading to the largest impact on perceptions of climate.

School psychologists are in a position to begin the process of helping schools become more responsive to LGBTQ students. Drawing on their knowledge of adolescent development, diversity, and systems change and their skills in consultation, collaboration, and counseling, school psychologists can educate administrators about relevant laws and policies, conduct staff development activities, facilitate school-wide diversity trainings, serve as the advisor of a gay-straight alliance, conduct group and individual counseling, and evaluate outcomes.

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Promoting the Social and Cognitive Competence of Children with Autism: Interventions at School

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Addressing the needs of children with autism in the school context is an essential component of facilitating the success of these students. This article provides an overview of scientifically based and promising interventions that may be used to promote the social and cognitive competence of children with autism, focusing on the research base of these particular strategies. Brief descriptions and outcome data are provided for: a) Discrete Trial Training (DTT), b) Pivotal Response Treatment (PRT), c) Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP), d) The Picture Exchange Communication System (PECS), e) Incidental teaching, and f) The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). This article aims to bring science to practice through providing school psychologists and other educational professionals with a primer for selecting evidence-based approaches to address the needs of children with autism.

KEYWORDS: Autism, Social, Behavioral, Academic, Cognitive, Intervention, School

A review of prevalence studies published since 2000 indicated that recent studies provide converging evidence of approximately 60 per 10,000 children diagnosed with autism, a notable increase from previous estimates of 10 per 10,000 (Fombonne, 2003; 2005). Recognizing national and state-wide increases in the prevalence of individuals identified with autism during the past decade (Tidmarsh & Volkmar, 2003), it is important that school psychologists and other educational professionals are prepared to address the needs of these students (Williams, Johnson, & Sukhodolsky, 2005). Moreover, it is clear that "school professionals play a critical role in the development, monitoring, and implementation of successful intervention programs for students with autism" (Brock, Jimerson, & Hansen, 2006, p. 88).

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Autism is characterized by significant delays in communication and social interaction and the existence of repetitive and stereotyped interests (American Psychiatric Association, 2000). For over 60 years, a variety of treatments have been offered to address the neurological, behavioral, and developmental challenges associated with autism. While the cause(s) of autism remains elusive, numerous interventions have been developed in efforts to remediate symptoms of autism.

Published outcomes studies describing positive results from many of these intervention strategies can be found in the literature. However, it is imperative that school psychologists are aware of the methodological considerations related to previous studies, as well as the efficacy of particular intervention strategies. In the field of autism, treatments with little or no empirical support are sometimes promoted as all-encompassing or curative. School psychologists and other mental health professionals can help restore a focus on the empirical basis of interventions – as well as the need for individualized intervention plans. Given that the severity of behaviors (often classified as severe, moderate or mild, or low- and high-functioning) varies from child to child, intervention plans should be developed based on individualized assessment by a multidisciplinary team. Assessment, as an important first step of the process is discussed in further detail by Brock, Jimerson, and Hansen (2006).

Additionally, while professionals often select various elements from diverse intervention approaches to develop a single intervention plan, there is some evidence that such an eclectic practice may be associated with fewer gains as opposed to implementing one comprehensive evidence-based behavior analytic strategy (Howard, Sparkman, Cohen, Green, & Stanislaw, 2005). Further study is needed to determine potential usefulness of various eclectic approaches, but as it stands, caution is warranted when considering eclectic treatment. Another important consideration involves the fidelity with which an intervention approach is implemented. Outcomes of even the most empirically supported intervention strategies will be contingent on treatment fidelity of the program's implementation. As such, it is recommended that all intervention agents receive the necessary training to implement the chosen strategies, and that ongoing assessment of fidelity of implementation be conducted.

While there is no single intervention that has been identified to address the needs of all children with autism, there is growing consensus regarding the key characteristics of effective intervention programs (National Research Council, 2001). The emphasis is on providing appropriate services as early as possible, with key characteristics including: (1) Systematically planned and developmentally appropriate services targeting identified objectives should be provided at least 25 hours a week, 12 months a year; (2) Objectives must be measurable, observable, and monitored; (3) Interventions will generally emphasize functional communication, cognitive development, social skill instruction, and play skills. Key components to consider when developing comprehensive intervention plans for children with autism include: a) supportive and structured learning environments, b) family involvement, c) early intervention, d) specialized curricula focusing on communication and social interaction, e) integration with typical peers, f) functional approach to problem behaviors, g) planned transitions between preschool and kindergarten/first grade, h) individualization of support service, i) systematic carefully planned instruction, j) intensity of engagement, and k) developmentally appropriate practices (Iovannone, Dunlap, Huber, & Kincaid, 2003).

Students with autism are increasingly included in general education settings with typically developing peers (Williams, Johnson, & Sukhodolsky, 2005). Indeed, given the importance of typical peer models as well as the effectiveness and efficiency of natural environment training, this has been viewed by most education professionals as a positive trend. It is important to note, however, that successful inclusion requires individualized services and supports. Without these appropriate supports in place, the demands of the general education classroom could result in students with autism experiencing a variety of behavior problems and poor academic achievement. Hence, developing comprehensive school-based interventions that incorporate typical peers and promote the social and cognitive competence of students with autism is paramount.

This manuscript focuses on three intervention approaches that have been described as "scientifically based practice," as well as several approaches described as "promising practice" (Simpson, 2005). These classifications are based upon outcome studies considered methodologically strong for this field of study, including single-subject design (Simpson, 2005). Brief descriptions of the following intervention approaches, including outcome studies, will be provided for the three following "scientifically based practices:" a)

Discrete Trial Training (DTT), b) Pivotal Response Treatment (PRT), and c) Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP). Brief descriptions of the following three "promising practice" intervention approaches, including outcome studies, will be provided: d) The Picture Exchange Communication System (PECS), f) Incidental teaching, and e) The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH). See Table 1 for a summary of the central tenets and relevant research for each intervention approach.

TABLE 1

Summary of Scientifically Based and Promising Practices in Autism Intervention

STRATEGY	CENTRAL TENETS	DOCUMENTED POSITIVE OUTCOMES	RELEVANT RESEARCH
Scientifically based autism interventions:			
Discrete Trial Training (DTT)	One-to-one intervention, short and clear instructions, carefully planned prompts and fading of prompts, and immediate reinforcement for correct responses. Foundational in the provision of applied behavior analysis services.	Communication/language Social/play Cognitive/academic	Anderson, Avery, DiPietro, Edwards, & Christian (1987) Lovaas (1987) Birnbrauer & Leach (1993) McEachin, Smith, & Lovaas (1993) Smith, Eikeseth, Klevstrand, & Lovaas (1997) Sheinkopf & Seigel (1998) Smith, Groen, & Wynn (2000) Cohen, Amerine-Dickens, & Smith (2006)
Pivotal Response Treatment (PRT)	Focus on natural context, parent involvement, and early intervention in targeting pivotal areas to promote collateral change. Pivotal areas that have been identified include: motivation, self-initiations, responsivity to multiple cues, and self-management.	Communication/language Social/play Cognitive/academic	Koegel, Koegel, & Surratt (1992) Pierce & Schreibman (1995, 1997) Koegel, Camarata, Valdez-Menchaca, & Koegel, (1998) Koegel, Harrower, and Koegel (1999) Koegel, Koegel, Frea, & Green-Hopkins (2003) Baker-Ericzen, Stahmer, & Burns (2007)
Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP)	Inclusive preschool setting; scaffolded observational learning; training of teachers, parents, and peers. Additional key features: individualized and creative curricula, data-driven maximizing opportunities to respond.	Communication/language Social/play Cognitive/academic	Goldstein & Wickstrom (1986) Goldstein & Ferrell (1987) Schopler, Reichler, & Renner (1988) Strain, Kohler, & Goldstein (1996) Strain & Hoyson (2000)
Promising practices in autism intervention:			
The Picture Exchange Communication System (PECS)	Provides augmentative communication system for children with delayed verbal skills. Focus on teaching children to initiate requests by exchanging symbols for desired objects and activities.	Communication/language Social/play	Bondy & Frost (1994) Schwartz, Garfinkle, & Bauer (1998) Charlop-Christy, Carpenter, Le, LeBlanc & Kellet (2002) Ganz & Simpson (2004)
Incidental teaching	Classroom environments arranged as "zones" to create structured learning opportunities for particular skills; teachers use environmental arrangements to elicit child initiations; additional one-to-one instruction on skills.	Communication/language Social/play Cognitive/academic	McGee, Krantz, Mason, & McClannahan (1983) McGee, Krantz, & McClannahan (1985) McGee, Krantz, & McClannahan (1986) Haring, Neetz, Lovinger, Peck, & Semmel (1987) McGee, Almeida, Sulzer-Azaroff, & Feldman (1992) Miranda-Linne & Melin (1992) McGee, Morrier, & Daly (1999)
The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH)	Focus on structured classroom teaching and skill enhancement to improve school success. Additional focus on individualization of treatment, parent collaboration, and improving adaptive functioning.	Social/play Cognitive/academic	Ozonoff & Cathcart (1998) Panerai, Ferrante, & Zingale (2002) Van Bourgondien, Reichle, & Schopler (2003) Hume & Odom (2007)

By possessing knowledge of various scientifically based and promising practices for students with autism, school psychologists can help parents and educators in the often overwhelming task of selecting empirically and socially valid resources. This synthesis provides an overview of a handful of school-based interventions for children with autism, with a focus on the evidence base of these approaches. School psychologists aiming to implement a particular intervention approach are encouraged to obtain additional resources and training in order to implement the selected approach with fidelity.

SCIENTIFICALLY BASED PRACTICE

The following three intervention strategies (i.e., DTT, PRT, and LEAP) are presented under the category of scientifically based practice (Simpson, 2005). These approaches are supported by a rigorous empirical base and could likely provide a program of effective techniques for working with students with autism. It should be noted that applied behavior analysis is also considered a scientifically based practice (Simpson, 2005) but is not discussed at length in this manuscript because several of the other intervention approaches presented in this paper draw heavily from principles of applied behavior analysis. Although the treatment approaches in this section have demonstrated empirical support, it is important to remember the essential responsibility for school psychologists to consider contextual influences, such as each student's individual strengths, needs, and resources, when selecting an intervention approach.

Discrete Trial Training

Beginning in the 1960s, early behavioral studies applied operant conditioning to address behavioral challenges in children with autism (Lovaas & Smith, 2003). Generally, these studies were conducted in highly structured environments with few distractions, and numerous discrete trials were utilized to influence individual target behaviors. The importance of traditional behavioral approaches is that they demonstrated systematic gains for children with autism, and thus, are the basis for many current behavioral approaches that have emerged (National Research Council, 2001).

Discrete Trial Training (DTT) emerged following many years of research in applied behavior analysis. The UCLA Young Autism Project (YAP) appears to be among the most extensively studied program of early intensive behavioral intervention (Lovaas & Smith, 2003). Basic tenets of DTT include one-to-one intervention, short and clear instructions, carefully planned prompts and fading of prompts, and immediate reinforcement for correct responses (Lovaas & Smith, 2003). Today, many models of intervention for children with autism draw extensively from DTT (e.g., Alpine Learning Group, Princeton Child Development Institute), and there are over 10 sites throughout the United States and at least two in Europe that are implementing the UCLA model (Smith, Donahoe, & Davis, 2001).

In the YAP, children with autism receive approximately 40 intervention hours per week for approximately three years (Smith, Donahoe, & Davis, 2001). Although there is variability in the rate of progress across children, intervention generally moves through five stages of treatment (Lovaas & Smith, 2003; Smith, Donahoe, & Davis, 2001). The goals within each stage increase in sophistication and complexity. In Stage 1 (Establishing a Teaching Relationship), discrete trials are used to teach one-step instructions to reduce disruptive behaviors. In Stage 2 (Teaching Foundational Skills), discrete trials are used to teach imitation of motor actions, identification of objects, matching, self-help skills, toy play, and discrimination between different instructions. Beginning in Stage 3 (Beginning Communication), intervention addresses expressive language through verbal imitation of speech sounds and labeling of objects, as well as identification of actions and pictures, and expansion of daily living and play skills. Communication skills continue to be expanded in Stage 4 (Expanding Communication and Beginning Peer Interaction) and Stage 5 (Advanced Communication and Adjusting to School) with a particular focus on teaching in dyads using typically developing peers and in inclusive pre-school classrooms, respectively. Parents work alongside the therapist in the beginning stages of intervention at the UCLA YAP, and parents also work to implement incidental teaching procedures in which they set up opportunities to further skill development in their child's daily life (Lovaas & Smith, 2003).

DTT Outcome Data

Communication/language. In an evaluation of a home-based DTT intervention (15-25 hours per week), Anderson and colleagues (1987) found language and communication gains for 1_ to 5 year-old children with autism after one year of treatment. Smith and colleagues (1997) demonstrated gains in expressive speech for preschoolers with comorbid autism and severe mental retardation who had received intensive home- and community-based DTT (30 hours per week) as compared to less intensive DTT (10 or less hours per week), although differential behavioral improvements were not found.

Social/play. Anderson and colleagues (1987) found that children with autism who participated in a home-based DTT intervention achieved higher social age scores on the Vineland Social Maturity or Adaptive Behavior Scales after one year of treatment. Cohen and colleagues (2006) conducted a replication study of the UCLA model and found that preschoolers with autism who received intensive treatment (35-40 hours per week) had higher adaptive behavior scores after three years of treatment than control participants who received less intensive services—although significant differences between groups were not found for language comprehension or nonverbal skills.

Cognitive/academic. In a seminal yet controversial study, Lovaas (1987) reported that 47% of children with autism who received 40 or more hours per week of one-to-one DTT for two or more years achieved normal educational and intellectual functioning. McEachin, Smith, & Lovaas (1993) reported that these children maintained treatment gains in a follow-up study. Additionally, a number of replication studies have been published in peer-reviewed journals (Anderson et al., 1987; Birnbrauer & Leach, 1993; Cohen, Amerine-Dickens, & Smith, 2006; Sheinkopf & Seigel, 1998, Smith, Groen, & Wynn, 2000), further reporting impressive child outcomes (National Research Council, 2001). Lovaas (1987) reported that children with autism who received DTT experienced less restrictive educational outcomes. Anderson and colleagues (1987) had one participant at the beginning of their study already involved in a partially inclusive school placement, and they had several participants who were partially integrated at follow-up of their study. However, none of the children were involved in a fully inclusive classroom setting. Cohen and colleagues (2006) reported that higher numbers of children who had received DTT were fully or partially included in regular education following intervention, as compared to control participants.

Limitations and Conclusions. DTT has provided a valuable foundation for the provision of applied behavior analysis services for children with autism. However, critics have pointed out concerns with the body of research on DTT, including methodological limitations with respect to participant selection and outcome measures (Gresham & MacMillan, 1997, 1998). Selection bias problems have not been eliminated in recent studies of DTT (e.g., Cohen et al., 2006). Other issues that have been raised include the lack of spontaneity and generalization of DTT treatment gains (Gresham & MacMillan, 1998) as well as the cost and time inefficiency of treating individual target behaviors (Lovaas, 1977; Lovaas, Koegel, Simmons, & Long, 1973). Another consideration in using DTT in the schools is that the one-to-one format may limit treatment implementation in natural environments such as inclusive classrooms with typical peers. Additionally, Steege and colleagues (2007) caution against using school-based DTT programs for students with autism without providing the necessary amount of hours for a successful intervention. These authors draw attention to the importance of analyzing behaviors functionally and considering the influence of intervention on multiple domains, including the social domain.

While DTT is a form of applied behavior analysis (ABA), it is important to note that DTT and ABA are not synonymous. These terms are often erroneously used interchangeably, which could potentially turn schools away from using an evidence-based ABA program if they do not wish to use DTT. Thus, it is important that mental health professionals are able to provide information to educators regarding the difference between DTT and other ABA techniques.

Pivotal Response Treatment

Pivotal Response Treatment (PRT) is a service delivery model based upon applied behavior analysis that focuses on the child's natural context, parent involvement, and early intervention in order to provide

comprehensive services to children with autism (Koegel & Koegel, 2006; Koegel, Openden, Fredeen, & Koegel, 2006). Services are often delivered across settings (e.g., home, school, community), with a goal of delivering intervention in inclusive settings. Intervention efforts are focused on targeting pivotal areas to promote collateral changes in generalized areas of functioning (Koegel et al., 2006; Koegel, Koegel, & Carter, 1999; Koegel, Koegel, Harrower, & Carter, 1999). For instance, focusing on child motivation in teaching first words by pairing speaking opportunities with contingent natural reinforcers can improve expressive language and also facilitate additional gains in other areas of development. Pivotal areas that have been identified include motivation, self-initiations, responsivity to multiple cues, and self-management (Koegel, Koegel, Harrower, et al., 1999; Koegel, Koegel, & Carter, 1999).

Motivation. The pivotal area of motivation involves addressing learned helplessness in children with autism by including motivational variables into behavioral interventions. Motivational procedures include child choice, natural reinforcers, interspersing of maintenance trials, and reinforcement of attempts to respond (Koegel, Koegel, Harrower et al., 1999). Children can choose what toys and materials are used, and there is a focus on following the child's lead to maintain interest and attention. Natural reinforcers are directly related to the task such that the child is reinforced within the relevant context rather than given an arbitrary reinforcer after completing a targeted behavior. For instance, if a classroom goal for a child is to use verbal requests to gain access to toys or other desired materials, the natural reinforcer for the desired behavior (i.e., verbal request) would be access to the toy, rather than an unrelated reward such as a piece of candy. Interspersing maintenance trials involves incorporating difficult acquisition tasks with easier tasks that the child has already mastered (e.g., when teaching new vocabulary words, lessons might be integrated to include new words in addition to words the student has already mastered). Finally, reinforcing attempts is advocated to help children avoid giving up after repeated failures.

Self-initiations. Self-initiations are spontaneous verbal or nonverbal interactions generated by the child that result in social interaction or influence how an interaction occurs (Koegel, Koegel, Harrower et al., 1999). Early self-initiations have been associated with favorable outcomes for children with autism (Koegel, Koegel, Shoshan, & McNerney, 1999) and can help open up a child's exposure to widespread learning opportunities in their environments.

Responsivity to multiple cues. Children with autism may exhibit stimulus overselectivity, which refers to a sort of "tunnel vision" in which a child may focus on one aspect of the environment around them while ignoring other aspects (Lovaas, Schreibman, Koegel, & Rehm, 1971). Teaching children with autism to respond to multiple cues addresses this attentional deficit. Multiple cues are targeted using motivational strategies within the scope of PRT. For instance, a high-functioning child is reinforced for using several components or "cues" when verbally requesting an object (e.g., saying "I want the big red ball," as opposed to simply saying "I want ball" or pointing to indicate which specific ball is desired). A nonverbal child may be reinforced with the toy after successfully carrying out the clinician's request, for instance, to point to the green truck in a context of many different colored trucks. Teaching children with autism to respond to multiple cues in their environments has implications for widespread improvements in social, behavioral, and academic domains (Koegel, Koegel, Harrower et al., 1999).

Self-management. Self-management is a positive behavior support system that can help children with autism monitor, record, and reinforce their behavior independently (Koegel, Harrower, & Koegel, 1999; Koegel, Koegel, Harrower et al., 1999). Self-management encourages independence in children with autism and can be useful in many different learning situations. This strategy can be particularly useful in the school context because it teaches children to function independently in the classroom and rely less on adults.

PRT Outcome Data

Communication/language. Research efforts have demonstrated PRT to be associated with gains in language development. By using natural reinforcement, reinforcement of attempts, and child-chosen reinforcers for language acquisition tasks as part of a PRT intervention, Koegel and colleagues (1992) found greater gains in utterance length, number of words, word attempts, and word approximations in comparison to a discrete trial method that focused on individual target behaviors. Collateral gains were also discovered

as the children receiving PRT engaged in lower rates of disruptive behavior (Koegel, Koegel, & Surratt, 1992). Koegel and colleagues (1992) hypothesized that the focus on the pivotal area of motivation in teaching difficult language acquisition tasks leads to less disruptive behavior. Baker-Ericzen and colleagues (2007) found improvements in the communication skills of 3 to 5 year-olds with autism following a community-implemented 12-week intervention that focused on teaching parents PRT skills. These positive results held true regardless of ethnicity (i.e., white or Latino) but were not found for children over the age of six.

Social/play. Multiple baseline designs have demonstrated the success of school-based peer-implemented PRT interventions targeting the social behaviors of low-functioning 7 to 10 year-olds with autism (Pierce & Schreibman, 1995, 1997). In these studies, students with autism improved in areas such as social initiations, prolonged interactions with peers, increased engagement with peers, and also demonstrated maintenance and some generalization of gains. Baker-Ericzen and colleagues (2007) demonstrated adaptive behavior gains for children with autism. Daily living skills and socialization gains were found for children under the age of six, while gains in socialization were found for children over six. In a study examining verbal initiations, children with autism increased the number of questions they asked after a targeted question-asking intervention; these children also showed vocabulary gains after improving in this pivotal area (Koegel, Camarata, Valdez-Menchaca, & Koegel, 1998).

Cognitive/academic. Koegel, Harrower, and Koegel (1999) have reported support for the use of PRT techniques in the classroom. Children with autism in full inclusion kindergarten classrooms were taught a behavioral self-management program to monitor their own classroom behavior. Results illustrated that students who used self-management increased their amount of time spent engaged in classroom activities assigned by their teachers and decreased their disruptive behavior. These results were maintained after prompts were removed and after the self-management system was no longer monitored, approximately one month after intervention had begun. Another technique discussed in the literature is "priming," or the previewing of content or activities. Koegel and colleagues (2003) used priming to address the academic performance and behavior of two children with autism (ages 5 and 15). Priming sessions occurred either at the child's home in the evening or during a free period at school, and sessions were used to prepare students for upcoming class activities. Results indicated that students' academic responding increased and problematic behavior decreased.

Conclusions. PRT is a form of applied behavior analysis with high potential for usefulness in school settings. Because of the naturalistic element of this treatment approach, PRT is conducive to inclusive school settings in which intervention can be delivered by a number of professionals across settings throughout the school day. PRT, like other treatment approaches, requires treatment fidelity for successful implementation. Thus, parents, educators, and other intervention specialists should be adequately trained prior to treatment implementation. Future research efforts, including more long-term outcome data, may help further delineate specific training models for using PRT in the classroom.

Learning Experience: An Alternative Program for Preschoolers and Parents

Learning Experience: An Alternative Program for Preschoolers and Parents (LEAP) is an early intervention approach developed by Strain and colleagues (1998) at the University of Colorado at Denver. LEAP serves preschoolers with autism in inclusive preschool settings, and the program involves training teachers, parents, and peers. The LEAP program promotes inclusion and is based on a foundation of recognizing the importance of scaffolded observational learning opportunities (Kohler, Strain, & Goldstein, 2000). Additional key features of LEAP include individualized and creative curricula, data-driven implementation, a focus on generalization of skills across contexts, efforts to maximize students' opportunities to respond, and a focus on teaching families skills (Strain & Hoyson, 2000).

The intervention consists of a variety of strategies to encourage social interactions between children with autism and their typically developing classmates in an inclusive preschool setting (Strain, Danko, & Lawry, 1998). The Social Skills Curriculum involves peer mediated strategies and trains peers in the following skills: getting friends' attention, sharing, requesting items (e.g., toys), organizing play, and giving compliments. Peers are taught to use facilitative strategies and subsequently given teacher prompts and reinforcement

for using the strategies while playing with their classmates with autism (Strain, Kohler, & Goldstein, 1996). Detailed materials such as check lists, information on classroom techniques, teacher prompts, curriculum guides, suggestions for classroom arrangements, teaching methods, play activities (e.g., art, drama, motor activities), suggestions for incorporating techniques into daily routines, and suggestions for collecting data on social skills can be found in the Social Skills Training Packet (Strain et al., 1998) developed by the LEAP Outreach Project.

LEAP Outcome Data

Communication/language. Preschoolers with developmental delays demonstrated increased rates of communicative interaction with their typically developing peers after participating in an inclusive preschool setting in which peers had been trained in strategies of communication facilitation (Goldstein & Ferrell, 1987; Goldstein & Wickstrom, 1986). A noteworthy highlight of this finding is that increases were found in response rates specifically regarding relevant on-topic verbal responses. These results were found after the implementation of teacher prompting, and results were maintained after prompts were faded.

Social/play. Strain and colleagues (1996) report that the research shows typically developing peers as young as 36 months are able to engage socially withdrawn peers when given proper instruction. In addition, typical peers may benefit socially from being intervention agents, or at a minimum experience no negative outcomes from learning to facilitate social interactions with children with autism. Strain and Hoyson (2000) studied six children (ages 3 to 5 years old) enrolled in a LEAP program who initially scored in the moderate to severe range of autism according to the Childhood Autism Rating Scale (CARS; Schopler, Reichler, & Renner, 1988). After two years of LEAP intervention, the level of participants' positive social interactions increased by approximately eight times in comparison to entry levels; these gains were also found at follow-up when participants were 10 years old (Strain & Hoyson, 2000). The post-LEAP levels of social interactions were comparable to those of the students' typically developing peers. Students also demonstrated large gains in "child appropriate behavior" with family members (e.g., reductions in noncompliance) after the two year LEAP program and at age 10. Additionally, parent ratings indicating changes in child behavior from "very unacceptable" initially to "very acceptable" post-LEAP provide data on the social validity of these findings.

Cognitive/academic. Strain and Hoyson (2000) found that five of their six LEAP participants were enrolled in general education classrooms without the need for special education services as they continued on to elementary school after the LEAP program. After completing two years in the intensive, comprehensive LEAP program, students no longer scored within the autism classification range on the CARS. This improvement on the CARS was maintained at age 10. "Substantial gains" in developmental functioning were found at LEAP exit and at age 10. However, the authors note that the use of different assessment tools created a methodological confound for this finding.

Conclusions. LEAP is a treatment approach for preschoolers with autism that is based on behavioral concepts and peer-mediated intervention techniques. This intervention approach incorporates typically developing peers and is well-suited for an inclusive school setting. Students with autism may benefit from enrollment in a LEAP program during their preschool years. Parents and educators should be aware that the empirical basis for LEAP is currently limited to intervention for preschool-aged children with autism.

PROMISING PRACTICE

The following three intervention strategies (i.e., PECS, incidental teaching, and TEACCH) are presented under the category of promising practice (Simpson, 2005). These approaches have emerged with a degree of efficacy and utility, although additional verification in the literature is needed to enhance their evidence base. School psychologists should weigh individual student considerations as well as social validity before considering implementing these types of interventions. Readers are directed to Simpson (2005) for a more extensive list of promising practices.

Picture Exchange Communication System

The Picture Exchange Communication System (PECS) is a systematic program based on the teaching techniques/principles of applied behavior analysis that provide children who have delayed verbal skills with an augmentative communication system (NRC, 2001; Schwartz, Garfinkle, & Bauer, 1998). PECS focuses on teaching children to initiate requests by exchanging pictures for desired objects and activities (e.g., toys, food, attention). The protocol includes six phases in which the child ultimately learns to exchange multiple pictures arranged in a sentence to communicate a request or comment across a variety of communicative partners, activities, and settings (Bondy & Frost, 1994). It should be noted that PECS is an augmentative communication system – not an alternative communication system – designed to eventually augment speech (not necessarily as an alternative to speech training).

Specifically, the first two phases utilize two trainers, a communicative partner and a prompter, to teach the student to initiate a request by exchanging a picture/symbol icon for a desired item. Practicing this basic request enables the student to learn the value of the icon and establishes the skills needed for future communication. The third phase focuses on discrimination training in which the student learns to achieve symbol-object correspondence. Using the teaching techniques of this phase, the trainer focuses on expanding the student's picture vocabulary. In phase four, the student learns to create and exchange a complete sentence by adding an "I want" icon. Additionally, the student is encouraged to verbally label the requested item. Expanding upon the fourth phase, phase five focuses on teaching the student to respond to the question "What do you want?" Finally, phase six consists of teaching the student to comment by responding to questions such as "What do you see?" and "What do you hear?"

PECS Outcome Data

Communication/language. In 1994, Bondy and Frost examined the communicative outcomes of 66 children receiving PECS training. This case review showed that following a two-year period, 59% of the children acquired independent speech, 30% used speech with PECS, and 11% used PECS only. The study also reports that the development of speech began after the children acquired 30-100 symbols and that independent speech was only observed after the children received PECS for at least one year. Furthermore, communicative outcomes were reportedly related to the children's level of cognitive functioning (Bondy & Frost, 1994; NRC, 2001). A second study conducted by Schwartz and colleagues (1998), reported the communicative outcomes of 18 children following a 14-month period of PECS training. The results indicated that 44% of the children demonstrated an increase in spontaneous speech, and all participants learned to use PECS functionally with adults and peers.

Similarly, Ganz and Simpson (2004) documented the increase in verbal speech among three young children following a mastery of the third and fourth phases of PECS. Each of the three children demonstrated improvements in the number of intelligible words, as well as in the length and complexity of spoken utterances.

Social/play. Charlop-Christy and colleagues (2002) investigated the acquisition of PECS and speech, as well as the ancillary gains concerning social-communicative and disruptive behaviors in three children with autism (Charlop-Christy, Carpenter, Le, LeBlanc & Kellet, 2002). Using a single-case experimental design, data were collected during pre-training, training, and post training sessions across academic and free play activities. One of the participants was evaluated again at a 10-month follow-up period. The results indicated that all three participants demonstrated mastery across the six PECS phases and made gains in imitative speech, spontaneous requests, and in mean length of utterance (MLU). Additionally, decreases in disruptive behavior as well as collateral improvements in behaviors such as joint attention, eye contact, and toy play were observed.

Conclusions. Conclusions. PECS appears to be a promising intervention approach for providing children with autism an augmentative system for communicating, particularly for those who have not yet begun demonstrating expressive language skills. While several studies have shown that children with autism can learn to utilize this system with both adults and peers, further research is needed in order to determine the effects PECS has on social, cognitive, and academic functioning, particularly in the inclusive school setting. Additionally, research has reported that picture systems can be quite cumbersome for families to implement

(Stiebel, 1999); thus, home-school coordination is recommended in order to solicit parent input and assess goodness-of-fit prior to beginning the treatment.

Incidental Teaching

The Walden Toddler Model was developed in 1993 as a comprehensive incidental teaching approach that combines home- and center-based early intervention services for children with autism, ages 15 to 30 months (McGee, Morrier, & Daly, 1999). Emphases of the Walden program or program replications include early intervention, family involvement, an inclusive center-based program with a ratio of 2:1 (between typically developing peers and children with autism), an intensive number of intervention hours (approximately 30-50 hours per week, including both center and home services), the use of incidental teaching procedures, and the absence of aversive procedures.

McGee and colleagues (1999) describe toddler goals for program participants in the areas of verbal expressive language, engagement with toys, social responsiveness to adults, social tolerance/limitation of peers, and independent living skills. Classroom environments are arranged such that "zones" are created to afford structured learning opportunities of particular skills. Students also receive one-to-one instruction on skills to provide supplementary learning opportunities in addition to the classroom incidental learning opportunities.

The incidental teaching methods used to help toddlers with autism reach intervention goals share characteristics with methods used in PRT. Teachers strive to elicit child initiations through the use of environmental arrangements (e.g., a desired toy on a high shelf or a desired play area behind a gate) and reinforce the child's initiation by confirming what the child has correctly done, praising the child, and providing access to the desired toy (McGee et al., 1999). Incidental teaching involves finding teachable moments in the natural context of ongoing activities.

Incidental Teaching Outcome Data

Communication/language. Almost four decades ago, Hart and Risley (1968) found incidental teaching to be associated with gains in language development for typically developing preschoolers. In more recent years, similar gains have been found for children with autism. An evaluation study of toddlers with autism who had been in the Walden Toddler Program for at least six months demonstrated that while 36% of toddlers demonstrated verbalizations at program entry, 82% were verbalizing meaningful words at program exit (McGee et al., 1999). McGee and colleagues also noted improvement in quality of verbalizations, given that program entry verbalizations tended to be echolalic or perseverative speech. The majority of toddlers with autism in this study exited the program with functional speech.

In addition to studies at the toddler level, scholars have examined the use of incidental teaching for school-aged children. In a study of students with autism and/or mental retardation, Haring and colleagues (1987) found that employing incidental teaching procedures allowed teachers to increase the number of opportunities they provided for students to communicate, and students also demonstrated higher levels of communicative responses. Studies have also shown associations between incidental teaching and gains in receptive language skills (McGee, Krantz, Mason, & McClannahan, 1983) and preposition use (McGee, Krantz, & McClannahan, 1985) for school-aged children with autism. These studies also demonstrated generalization of communicative gains.

Social/play. Social progress was also considered in the study conducted by McGee and colleagues (1999). By the end of the incidental teaching program, 96% of toddlers with autism demonstrated either improvement in the amount of time they spent in close proximity to peers or maintained levels of peer proximity comparable to those of their typical peer counterparts. McGee and colleagues (1992) demonstrated that preschoolers with autism displayed increases in reciprocal peer interactions after having peer tutors trained in incidental teaching methods. Teacher ratings of social competence and peer sociometric ratings also increased after treatment.

Cognitive/academic. Incidental teaching procedures for children with autism have also been

demonstrated to produce gains in sight-word identification skills (McGee, Krantz, & McClannahan, 1986) and spontaneous use of color adjectives (Miranda-Linne & Melin, 1992). Interestingly, Miranda-Linne and Melin (1992) found that the DTT method initially produced faster acquisition and greater classroom-to-home generalization gains; however, the incidental teaching methods were found to be associated with greater generalization at follow-up. Incidental teaching may produce more robust long term learning gains, although other methods like DTT might appear more efficacious in the short term. This finding may have implications for the selection of school-based intervention programs.

Conclusions. Similar to PRT and the LEAP model, incidental teaching is conducted in the natural inclusive environment and utilizes typical peer models. Additionally, this approach has produced numerous studies demonstrating positive outcomes. Given that much of the research has been focused on younger and more severe populations, future research could reveal the potential value of incidental teaching procedures for older children and those with high-functioning autism and Asperger Syndrome.

Treatment and Education of Autistic and Related Communication Handicapped Children

The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) began as a university-based project seeking to improve services to children with autism spectrum disorders (ASD) and has since transformed into a comprehensive program of services across home, school, and community domains (Schopler, 1994). TEACCH maintains a focus on structured classroom teaching and skill enhancement to help children with autism succeed at school (Schopler, 1994). Additional treatment principles include focusing on improved adaptation, collaboration with parents, community advocacy, cognitive and behavior therapy, individualization of treatment, and a generalist training model.

Structured teaching. Structured teaching is geared toward capitalizing upon perceived relative strengths of students with autism in visual processing, thus minimizing potential deleterious effects on learning from deficits in areas such as auditory processing (Schopler, Mesibov, & Hearsey, 1995). Structured teaching aims to help reduce problem behavior and increase adaptation/independent functioning (Schopler et al., 1995). The four main components of structured teaching are physical organization, schedules, individual work systems, and task organization (Schopler et al., 1995).

Physical organization involves elements such as clear boundaries between activity areas in the classroom, specified transition areas, and physical organization of desks to support attention and/or auditory processing challenges for students with autism (Schopler et al., 1995). As adaptive functioning improves, physical structure interventions may be faded (Schopler et al., 1995). Schedules consisting of physical objects, pictures, or words – depending upon students' unique developmental level and needs – can help minimize problems of attention, memory, time, organization, and receptive language, as well as helping to foster independence and self-motivation (Schopler et al., 1995). Work systems can help students with autism work independently by visually and systematically indicating what work is to be done, how much work is to be done, and when the work is finished (Schopler et al., 1995). Depending upon developmental level, work systems may have low symbolic complexity (e.g., using actual objects) or higher levels of symbolic complexity (e.g., using color coding, pictures, numbers, or words) (Schopler et al., 1995). Finally, attention is paid to task organization to help clarify tasks and teach students patterns of work (e.g., sorting crayons by color and name, sorting light and dark laundry, or going through steps of a recipe) (Schopler et al., 1995). Task organization also should be approached according to developmental level.

Skill enhancement. Additional intervention strategies of the TEACCH model include providing directions, offering prompts, and giving reinforcers. Providing clear verbal directions for tasks using minimal language can help students with ASD accomplish task completion (Schopler et al., 1995). Clear and timely teacher prompts can be helpful in teaching students acquisition tasks, bearing in mind that prompt-dependency in students may necessitate thoughtful placement of the teacher (i.e., behind or beside the student) (Schopler et al., 1995). External reinforcement can sometimes be an effective tool, especially when the reinforcer involves something very motivating for the student (Schopler et al., 1995).

TEACCH Outcome Data

Social/play. Van Bourgondien and colleagues (2003) found some support for using TEACCH methods in residential program treatment for adolescents and adults with both moderate to severe autism and mental retardation. TEACCH methods were associated with higher family satisfaction and decreases in behavior difficulties. However, TEACCH methods were not associated with an increase in acquisition of skills.

Cognitive/academic. Studies examining outcomes associated with home-based treatment (Ozonoff & Cathcart, 1998) and residential program treatment (Van Bourgondien, Reichle, & Schopler, 2003) have provided some support for the TEACCH model. In a quasi-experimental study conducted by Ozonoff & Cathcart (1998), home-based treatment focusing on training parents in TEACCH methods was associated with significant gains in cognitive and developmental skills such as imitation, motor skills, and cognitive performance. However, participating children did not score significantly higher after intervention than the control group on perception and a cognitive verbal test. A study using the TEACCH model in Italian schools found that students with autism and mental retardation improved in scores on imitation, perception, gross motor skills, hand-eye coordination, and cognitive performance when using the TEACCH model versus the control group, which improved only in hand-eye coordination (Panerai, Ferrante, & Zingale, 2002). A recent single-subject design study of 6 and 7 year-old low-functioning students with autism, as well as a 20 year-old, demonstrated gains and maintenance of on-task behavior and work completion after implementing a work system intervention (Hume & Odom, 2007).

Conclusions. TEACCH is a school-based program for students with autism that has existed for decades, and research on TEACCH has evidenced some positive outcomes for children with low-functioning autism. While TEACCH is well disseminated, particularly within special education classrooms and group homes, there appears to be limited empirical study of the approach. Additionally, its applicability to the natural, inclusive school environment is unclear. Critics of the research base for TEACCH have pointed out the limited classroom research as well as lack of adequate control for threats to internal and external validity (Gresham, Beebe-Frankenberger, & MacMillan, 1999).

CONCLUSIONS

Three scientifically based practices and several promising practices have been briefly described to provide information that will help school psychologists bring research to practice through informed selection of school-based interventions for children with autism. It should be noted that Simpson (2005) organizes interventions into the following categories: skill-based, cognitive, physiological/biological/neurological, interpersonal, and other. The majority of intervention strategies presented in this manuscript are skill-based in nature, with the exception of LEAP as a cognitive based intervention. Several additional "promising practice" interventions involve cognitive techniques and assistive technology. This manuscript does not provide information on intervention strategies with limited research support or strategies that are not recommended, but school psychologists should be knowledgeable of such interventions in order to support parents and other educators in their informed decision-making process on multidisciplinary teams for students with autism. School psychologists are also encouraged to seek out information and learn more about any scientifically based or promising practice in the field of autism interventions before implementing these techniques.

There are numerous important considerations to take into account when developing a comprehensive intervention plan for a child with autism. First, and perhaps foremost, intervention strategies should have a scientific basis suggesting that the particular interventions are like ly to benefit students under consideration. Although scholars may argue what constitutes scientific evidence, it is suggested that a variety of research designs including single-subject studies are appropriate methods for autism intervention research at this point in the development of the literature base (Simpson, 2005). Second, student-specific information must be addressed in order to allow intervention to be informed by assessment covering multiple domains of functioning. While some interventions have more documented support, there is no silver bullet intervention to use for all children with autism. Individual student considerations, as well as local contexts, strengths, and resources, must be incorporated into intervention plans for students with autism. Finally, students with

autism must receive intervention in the natural environment and be included with their typical peers. In fact, many of the top researchers in the field attribute the success of interventions to this contextual component and view segregated, autism-only environments as "developmentally toxic" (Strain, 2001, p. 31).

ADDITIONAL CONSIDERATIONS

As with any child with special needs, developmental appropriateness must be taken into consideration when developing intervention plans for students with autism. Understanding the developmental history of the child, the current developmental patterns, and the child's chronological age informs the identification of appropriate interventions that may meet the needs of the child and the family. Some intervention options may not be appropriate for specific children since they may not possess the requisite skills, and research conducted with a population of a particular developmental level should not be overgeneralized to inform intervention for children of different developmental levels.

Family involvement is also an important component of a child's treatment program. Each family member is impacted when a child has autism. Frequently, daily routines and habits must be modified to fit the needs of the child. Although the family must make some adjustments to their routine, clinicians must respect the family structure and beliefs. It is important to develop treatment procedures that fit within the family's daily routines. By doing this, there is less disruption to the family's life and the family is more likely to continue to implement the intervention plan. It is optimal to implement interventions within the family's routine in a natural context. Parents and other service providers who work with the student outside of the school can help improve the child's performance during school. For example, parents can assist their child with homework to encourage appropriate academic responding, which may increase the child's academic success (Koegel, Koegel, Frea, & Green-Hopkins, 2003).

Cultural beliefs are also important to consider when developing an intervention plan. Families of various cultural backgrounds may not place as much emphasis on a child's developmental milestones as other families. For instance, a family might be more concerned with their child's ability to sit for long periods of time, rather than make eye contact. It is important to understand the parents' beliefs and daily routines in order to develop a comprehensive intervention plan that is likely to be effective and useful for both the child and the family.

In Sum

School psychologists and other educational professionals can provide valuable information to parents through discussing the various available intervention approaches to facilitate the social and cognitive competence of children with autism. Optimal intervention strategies will vary depending on the child's specific strengths and challenges, the goals of parents, and the home and school contexts. School psychologists may facilitate communication and collaboration with parents and other professionals who may be involved in helping a child with autism. Given the diverse array of challenges faced by children with autism, empirically based intervention strategies should be tailored to the individual child's specific needs and goals. School psychologists are also capable of providing informative assessments of the child's skills (e.g., communication and social interaction) and the presence of stereotyped behaviors or restricted interests. Overall, an optimal treatment strategy for autism will examine the results of a comprehensive assessment and include a behavioral and psychoeducational treatment plan based on the child's specific needs, whether predominant goals include developing functional communication skills, improving social/play skills, or increasing positive behaviors.

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