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Teaching Emergent Literacy Skills to Students with Autism

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TEACHING EMERGENT LITERACY SKILLS

TO

STUDENTS WITH AUTISM

by

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INTRODUCTION

Reading is one of the most important functional life skills that any child will learn (Browder & Spooner, 2006). Reading informs, explains, directs, and entertains. Nearly every area of life relies in some way on reading, so it is no wonder that nearly every school in the United States places strong emphasis on developing literacy skills. At the federal level, the Goals 2000: Educate America Act of 1994 and the No Child Left Behind (NCLB) of 2001 have had tremendous impact on schools and reading (Browder & Spooner, 2006). Both of these laws unequivocally stress the importance of reading skills for *all* students.

There is widespread agreement among researchers that the development of reading skills at an early age (kindergarten through third grade) is paramount to subsequent student success in school and life (Coyne, Kame'enui & Carnine, 2006). However, despite the strong emphasis on ensuring evidence-based reading instruction for all, there remain students who do not receive the full benefit of the intent of these laws.

Students with Disabilities

Children with disabilities typically are at a disadvantage in literacy exposure from the start (Coyne et al., 2006). Parents of toddlers with disabilities are often confronted with issues such as poor health and maladaptive behavior that preclude efforts to provide opportunities for emergent language and literacy experiences (Browder & Spooner, 2006). Entering school does not guarantee rigorous reading instruction. If not given explicit reading instruction in those early years (K-3), they usually have a hard time

catching up (Juel, 1988, as cited in Coyne et al., Felton & Pepper, 1995). If not reading

fluently by third grade, students face a serious risk for reading problems and dropping out

of school (Coyne et al., 2006). Coyne et al. (2006) also state that after third grade,

students having difficulty in reading almost never become good readers. But most

students with disabilities *can* successfully learn to read with effective research-based

instructional strategies implemented conscientiously by teachers (Coyne et al., 2006).

Few students with severe disabilities are expected to obtain minimal reading

skills, let alone benefit from any reading instruction (Browder & Spooner, 2006). There is

little research in reading that addresses effective instructional strategies for this

population (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006).

The Structure of Reading

The National Reading Panel (NRP) (National Institute of Child Health and

Human Development, 2000) identified four components or "big ideas" in reading. They

are:

- phonemic awareness,

- phonics,

- fluency,

- comprehension.

Others include *vocabulary* as a fifth important component rather than a subheading under

comprehension (University of Oregon Institute for the Development of Educational

Achievement, 2002).

These components are now widely recognized as essential for effective literacy instruction for *all* students. The requirements of No Child Left Behind make this emphasis a legislative mandate (Copeland & Keefe, 2007).

Reading Instruction for Students with Autism

Although research examining literacy instruction for students with autism is scant, what research does exist supports the application of the components named in the National Reading Panel report (2000) as vital to this population as long as the purpose is to create or gain meaning beyond teaching isolated word recognition (Nation, Clarke, Wright, & Williams, 2006).

Nevertheless, reading instruction for students with autism typically continues to eliminate one or more of these components by researchers and those who teach them (Browder et al., 2006). Typical expectations of educators and others are that these students will only be able to acquire some sight words (vocabulary), but not skills in phonics, even though studies have shown that this population can indeed learn these decoding skills (Al Otaiba & Hosp, 2004; Nation et al., 2006).

Reading instruction for students with autism is certainly not easily accomplished (nor, in some instances, advisable) by simply putting those students in a general education classroom and teaching them with the same strategies that typical children would receive. Literacy materials and curricula must be adapted (Browder & Spooner, 2006), with reading strategies taught individually and explicitly. Depending on the student, different perspectives on literacy, including communication devices, Braille, computer assisted instruction, or visual strategies such as picture communication systems, may need to be used. Some adaptations to reading instruction may include (a) the use of

naturally occurring events (incidental teaching or "teachable moments"), (b) combining verbal and visual formats, (c) using fast-paced random responding, and (d) embedding sight-word recognition tasks during play activities (National Research Council, 2001).

Wherever it is carried out, the instruction should also include ample inclusion opportunities so that these students can observe and participate in the richness and structure of acknowledged evidence-based literacy practices (Justice & Pullen, 2003). Listening to stories and sharing them, capitalizing on students' interests and preferences, and creating an instructional environment rich in language and literacy connections (Browder & Spooner, 2006) are essential for a literate community.

Need for the Project

Reading education is essential for all students for both subsequent academic success as well as for functional daily survival as adults (Kliewer & Landis, 1999). The contemporary educational expectation is that all students can acquire some degree of reading skill. While some students with autism may not be able to attain full academic literacy (the ability to understand and use academic material), functional literacy is essential in order for them to be able to live, work, and engage in their community (Alberto, Fredrick, Hughes, McIntosh, & Cihak, 2007).

Functional literacy includes sight word reading, comprehension, and the decoding skills that allow for reading opportunities in novel situations, hobbies, and participation in further learning (Alberto et al., 2007). However, too often teachers of students with autism lack the specific knowledge and skills to effectively develop this skill set in these students (Heller, Fredrick, Dykes, Best, & Cohen, 1999). Educators teaching students

with autism need tools and methods to teach reading skills for all five of the aforementioned components or "big ideas" of reading.

       This project will provide a variety of tools and methods for teaching this unique subgroup of students to read. All educators, and especially special educators, can move beyond the "symbol 🛑 means STOP" when teaching reading skills. The students will be the ultimate beneficiaries as the world of literacy is unlocked and opened to them.

Definitions

Autism

Autism is a developmental disability, usually evident before the age of 3 that significantly affects verbal and nonverbal communication, social interaction, and academic performance. Other characteristics may include:

- repetitive actions or stereotyped movements,

- difficulty with environmental change or change in daily routines

- unusual sensory responses.

These characteristics vary from mild to severe (Idaho State Department of Special Education, 2007). There has been agreement among researchers that some degree of cognitive disability is also present in approximately 75 percent of individuals with autism (Croen, Grether, & Selvin, 2002).

Literacy

Literacy is generally defined by researchers and authors (e.g. Browder & Spooner, 2006) as learning and sharing information with others. This includes listening and speaking, as well as reading, writing, and spelling (Downing, 2005).

Reading

The International Reading Association (1999) defines reading as a complex system which enables an individual to extract meaning from print. This requires

- motivation

- development of strategies

- ability to read fluently

- decoding skills

- phonemic awareness

Phonemic Awareness

Phonemic awareness is the ability to identify the smallest units of sound in language and separate and manipulate them (Vaughn & Linan-Thompson, 2004). The skill includes but is not limited to rhyming, counting, blending, and segmenting.

Phonics

Phonics is the ability to understand the relationship between letters and sounds, to combine them to make words, and to use this skill automatically to decode unknown words (Vaughan & Linan-Thompson, 2004).

Vocabulary

For the purpose of this project, vocabulary will be defined as the stock or supply of words and symbols employed by an individual to communicate information. Vocabulary can be broken down into two areas: oral vocabulary and reading vocabulary. Oral vocabulary refers to words that students learn by listening to others speak as well as using words themselves. A student's reading vocabulary refers to words that are understood in text (Vaughn & Linan-Thompson, 2004).

Fluency

Fluency is the ability to read quickly and accurately. With fluency, the focus of the reading can be on comprehension of the text (Pikulski & Chard, 2005) instead of on decoding. Fluent readers are able to read with proper expression (National Institute of Child Health and Human Development, 2000).Vaughn & Linan-Thompson (2004) state that fluency is the key element that connects word recognition to comprehension.

<u>Comprehension</u>

        Comprehension is the process of constructing meaning from text (Vaughn & Linan-Thompson, 2004). Comprehension is influenced by background knowledge, fluency, vocabulary knowledge, and using multiple cognitive strategies (Coyne et al., 2007).

LITERATURE REVIEW

Historical Overview of Treatment of People with Disabilities

People with disabilities historically have been treated differently and, for the most part, poorly by others (Katims, 2000). These individuals were often perceived as fools, monsters, subhuman, or demonically possessed (Katims, 2000).

In the early 1800's, families were the primary teachers of their disabled children. Little is known, however, about the education they actually received (Richards & Singer, 1998). Some speculate that, in order to build a case for institutionalization, historians of the era described a poor home life where families were distraught and incompetent (Richards & Singer, 1998). Families were encouraged to place their children with disabilities in state-sponsored residential institutions, as the services at the institutions were regarded as better treatment options for them than what they could receive at home (Ysseldyke, Algozzine, & Thurlow, 2000).

The well-documented history of maltreatment of patients in institutions by individuals such as Dorothea Dix (Bumb, n.d.) and Burton Blatt (1966) and the subsequent movement to provide responsible residential treatment for people with disabilities did very little to make significant educational improvements for them (Ysseldyke et al., 2000). In general, attitudes towards people with disabilities improved slightly in the early 20th century (Ysseldyke et al., 2000). To justify the perpetuation of isolation, societal attitudes switched from *protecting people with disabilities from society* to believing that it was essential to *protect society from these individuals* (Ysseldyke et al., 2000). When many institutions closed their doors for good in the 1950s and 1960s,

special classes, special educational methods, and specially trained teachers emerged in the public schools (Ysseldyke et al., 2000).

History of Special Education

The compulsory education laws that had been enacted in all states by 1918 provided more opportunities for individuals with disabilities to enter school, but these laws were rarely upheld in the courts. As a result, students with disabilities were routinely denied public school educations because of their appearance and/or behavior, or because some believed that they might require too much time from the teacher (Yell, Rogers, & Rogers, 1998). In addition, society's approach towards students with disabilities who were accepted into the public schools was typically to isolate them "for their own good." Separated from the general school population, students with disabilities did not receive the same or even a similar education as their typical peers (Yell et al., 1998).

The Constitution of the United States does not directly guarantee the right to education. Historically, education has been the responsibility of the states (Yell et al., 1998). However, as more parents stepped up to challenge states which excluded their children from public education simply because of disability, it became clear that the federal government should take a more active role. After the landmark decision in Brown v. the Board of Education in 1954, parents and advocates for children with disabilities found some judicial "teeth" to promote significant changes in the way children were educated (Yell et al., 1998).

The first class action suit regarding publicly supported education for children with disabilities was presented by the Pennsylvania Association for Retarded Citizens (PARC) against the Commonwealth of Pennsylvania in 1972. They argued that Pennsylvania

schools were not providing public education to these students in violation of state statutes and the U.S. Constitution (Yell et al., 1998). The subsequent judicial outcome requires that all students with mental retardation between the ages of 6 and 21 be provided a free public education. It further found that it was best to educate them in programs that were similar to typical peers. This decision set the stage for 47 more right-to-education cases in 28 states which culminated in similar results (Yell et al., 1998). Nevertheless, state supported public education for children with disabilities varied so much in individual states that advocates and legislators soon recognized the need for federal involvement.

Section 504

In an effort to provide civil rights for people with disabilities, Section 504 of the Rehabilitation Act of 1973 was signed into law. It stated that individuals with handicaps could not be discriminated against or excluded based solely on their disabilities from any activity which is funded by federal monies (Section 504, 29 U.S.C. § 794(a)). This law had little to do with the actual education of children with disabilities; its focus was more about placement and federal funding. While the initial intent of this law was not to target public schools, to a significant extent this has become its primary function.

The Education for All Handicapped Children Act

A major piece of legislation in the ensuing battle of rights for individuals with disabilities was Public Law 94-142 or the Education for All Handicapped Children Act (EAHCA) of 1975. This provided federal funding to states to help in educating children with disabilities. It mandated that students with disabilities be provided (a) nondiscriminatory testing, evaluation, and placement; (b) education in the least restrictive environment; (c) procedural due process, which must include parent involvement; and (d) a free and appropriate education (Yell et al., 1998). This was the

first federal law enacted that stated that *all* students with disabilities, regardless of severity, must receive free, appropriate public education.

Significantly, the EAHCA specified that students with disabilities should be educated to the maximum extent *appropriate* with typical peers (Kavale & Forness, 2000). A "continuum of services" was required of all school districts which provided options from the least restrictive environment (e.g. the general education classroom) to the most restrictive (e.g. a private school or hospital setting) (Kavale & Forness, 2000). Within these extremes fell such options as the resource room and self-contained classroom.

The Individuals with Disabilities Act (IDEA)

The EAHCA served children with disabilities adequately for 15 years. In 1990 the legislation was reauthorized and renamed the Individuals with Disabilities Education Act (IDEA). Minor amendments were enacted which provided for people-first language, identified autism and traumatic brain injury as specific and acknowledged categories of disability, and required a plan for post-school transition on the Individual Education Plan (IEP) when the student became 16 years old (Yell et al., 1998).

Another reauthorization of the IDEA occurred in 1997, with several additional changes made at that time. It required more specifics on the IEP, including measurable annual goals and benchmarks that would allow parents and teachers to monitor and measure progress. Other highlights of the 1997 IDEA included encouraging mediation in resolving differences and restrictions regarding the discipline of students with disabilities. It required the use of positive behavioral supports, functional behavioral assessments, and behavior management plans (when behavior was an issue) and specified that these should be part of the student's IEP (Yell et al., 1998).

No Child Left Behind

The current No Child Left Behind Act of 2001 (NCLB) further extends the role of the federal government in public education. It is intended to improve the academic achievement of all students, including those with disabilities (Yell, Drasgow, & Lowrey, 2005). The principles of NCLB include school accountability for student progress in the form of standards and testing to those standards. It also requires that schools use scientifically based instruction and that all teachers be highly qualified for the subjects they teach (Yell et al., 2005).

Significantly, students with disabilities typically are *not* exempt from meeting the requirements of NCLB. Testing of these students must include accommodations on the standardized test as necessary. If this is not practical, the student can be given an alternate assessment. In order to avoid the possibility that schools might use alternate assessments as a loophole, no more than three percent of the overall school population can be assessed this way (Embler, Hernandez, & McLaughlin, 2005).

NCLB requires that all students become proficient in academic skills including reading. In fact, the academic performance of students with disabilities in a school is specifically evaluated, with serious consequences for schools that fail to demonstrate Adequate Yearly Progress for all significant subgroups of its students, including students with disabilities (Embler et al., 2005). Thus a challenge for teachers and researchers is how to help all students, especially those with autism, reach literacy *proficiency* as defined by the states and the federal government.

Reading Instruction for Students with Autism

Improving reading and reading instruction for all students is front and center of many recent legislative efforts. NCLB (2001) specifically focuses on reading skills as the bedrock of education (Downing, 2005). While the goals outlined in the law point to the importance of reading for all people, the authors did not define or describe how to accomplish this. The requirements that all students read at a particular grade level seem to ignore those children who may not ever master reading, or who, by the nature of their disability, must have alternative means of acquiring the skills (Downing, 2005). Several reports have been published which provide *guidance* for reading and reading instruction, but until recently little of the research supporting current theory was conducted with students who have autism (Erickson & Koppenhaver, 1995; Mirenda, P. 2003). Regardless of the lack of research with this population, the expectation is that educators will include literacy goals on the IEPs of these students and that progress will be made (Browder & Cooper-Duffy, 2003).

Challenges to Teaching Reading to Students with Autism

Language Deficits

Historically, only about half of students diagnosed with autism acquired expressive communication (i.e. speech) (Koegel & Koegel, 2006). Language intervention strategies were time and labor intensive and often seemed to lack meaning for the students (Koegel & Koegel, 2006). The National Research Council (NRC) (2001) identified two core communication deficits in children with autism: joint attention and symbol usage. Joint attention refers to the ability to coordinate attention between people and objects. Symbol usage relates to shared meanings for symbols. Both

deficit areas significantly affect the way students with autism learn language (NRC, 2001), and thus, their subsequent acquisition of literacy skills. Those who do not acquire language often resort to more unconventional means of communication (e.g. self-injurious behavior, aggression, or tantrums) (NRC, 2001).

Behavioral Challenges

A major characteristic of children with autism pertains to the behavioral issues associated with that diagnosis (Fox, Dunlap, & Buschbacher, 2000). Maladaptive behavior of individuals with autism has the potential to significantly impact families, schools, and communities (Fox et al., 2000). Families report that the behavior of their children with autism affects relationships with siblings, extended family, and peers, child care, employment opportunities, and increases their fear of embarrassment or criticism from others (Fox et al., 2000). At school, such behaviors as property destruction, physical aggression, self-injury, and tantrums are major barriers to inclusion and educational progress (NRC, 2001). Widespread agreement among researchers indicates that there are a number of reasons for problem behaviors in children with autism and that the severity of the symptoms varies within the spectrum (NRC, 2001). Possible reasons for these behaviors include (a) social reciprocity deficits, (b) lack of language, and (c) sensory issues commonly associated with the disorder (NRC, 2001). Unless core problem behaviors are addressed in the IEP concurrent with educational goals, research suggests that educational success for these students may be limited.

Cognitive Ability

Croen, Grether, and Selvin (2002) suggest that approximately 75 percent of children with autism also demonstrate some degree of mental retardation. Although a few areas of cognitive development may appear strong, others appear to be significantly

delayed (NRC, 2001). These cognitive issues present additional educational challenges, as it is perceived that acquisition of literacy skills is associated with intellectual ability (Kliewer & Biklen, 2001). Using a typical reading readiness model (i.e. mastering predetermined subsets of skills using spoken language abilities) may not be effective with these students (Lanter & Watson, 2008). Educational interventions must, as a result, be highly individualized and capitalize on the student's specific skill strengths (NRC, 2001).

Lack of Early Reading Opportunities

The problem in acquiring reading skills for students with autism may begin in the home. Parents of typically developing children generally provide a rich environment of language opportunities. They read to them and provide crayons, markers, and other literacy-associated items with which to play (Browder & Spooner, 2006). This may not happen to an equivalent degree when the child has a disability. In a survey conducted by Marvin in 1994, less than half of parents and caregivers of young children with disabilities read to them or provide writing or drawing activities. Parents of children with autism are also often faced with challenging behaviors that interfere with opportunities for language acquisition found in other homes (NRC, 2001). Developmental therapists or home based instructors often focus more on behavioral issues, gross motor, and self care activities than on language acquisition (Kliewer & Biklen, 2001).

Typically developing children are often exposed to more activities outside the home which enrich their language learning experiences (Lewis & Tolla, 2003; Blischak, 1995, as cited in Browder & Spooner, 2006, p. 41). For example, typical children may visit a library, restaurant, or go shopping with their parents. On the other hand, students with severe autism may be regarded as unable to benefit from this type of worldly participation (NRC, 2001), or they may be considered too difficult to control outside of

home. In short, children with autism may come to school at a linguistic and literary disadvantage from the beginning of their school careers. But the disadvantage does not stop there.

<u>The School Experience</u>

Once students with autism enter the school system, most will receive special education services. These students are often placed in segregated classrooms where their educational focus is on individualized instruction in *functional living skills*, including basic communication, mobility, self-care, self-help skills, and behavior control, rather than the systematic and broad reading instruction that typically is extensively provided in general education classrooms (Browder et al., 2006). Many programs for students with autism exclude reading instruction completely, or limit it to a basic sight word approach emphasizing functional vocabulary and warning/safety words found in their environment (Katims, 2001) even though many students with autism are able to demonstrate skills that are directly related to literacy (Mirenda, 2003). This approach does not provide the students chances to learn phonemic awareness, phonics, and fluency, although all these literary components are generally agreed to be essential in learning to read effectively (Conners, 1992).

<u>Literate Communities</u>

Many students with autism require individualized instruction in a 1:1 setting. Kliewer and Landis (1999) noted two concepts relevant to individualized instruction: *institutional understanding* and *local understanding*. Institutional understanding, referencing back to the historical institutionalization of children with disabilities, is characterized by the attitude that children with moderate to significant disabilities (e.g. autism) largely are not capable of participating in general education as contributing

members. The belief is that these children must be separated from their typical peers because they need instruction which is quite different from the regular programs.

Local understanding is a relationship between a teacher and a student emphasizing how best to meet the needs of the student within the context of a typical setting. While they advocate an inclusive model as the best place to acquire the most well-rounded reading education, Kliewer and Landis (1999) acknowledge that at a minimum all children must be involved in a "literate community" (p. 99), whether that community is in the general education classroom or a separate classroom. A literate community is one in which students are immersed in an environment which provides literacy instruction as well as the opportunity to pursue and create their own exploration of the written word (Kliewer & Landis, 1999).

When a student is placed in an environment segregated from the general population, the responsibility falls on the special educator to ensure that, regardless of the severity of the disability, the student receives reading instruction that is qualitatively equivalent to that received by typical peers (e.g., instruction that is socially rich and replete with effective teaching and meaningful activities) (Kliewer & Landis, 1999). In a study of special education teachers, Heller, Fredrick, Dykes, Best and Cohen (1999) found that more than half of the teachers felt that they were not adequately trained to use instructional modifications to teach reading to students with severe disabilities including autism. If special education teachers are expected to provide reading instruction beyond functional vocabulary, then they must have a set of practical methods that can help their students acquire useful reading skills (Browder & Spooner, 2006).

The question, then, is this: how does an educator provide a literate community for students with autism? A literate community begins to emerge in a school when all school

personnel subscribe to the philosophy that **all** students can learn to read if given the

opportunity. This includes a deep knowledge and awareness of the students'

strengths and weaknesses (Kliewer & Biklen, 2001). Instead of believing that students

cannot do something, the emphasis should be on the idea that they *can* succeed if given

the opportunity and the benefit of effective explicit instruction.

Creating the Literate Community

An interesting irony from the era of institutions is that, in spite of an overall

record of abuse and minimal habilitation efforts, reading instruction for students with

disabilities began with doctors associated with patients in hospitals and institutions. In the

early 1800's, Jean Marc-Gaspard Itard recorded the procedures and methods he used

when working with the widely known Victor the "Wild Boy of Aveyron" (Katims,

2000). Itard used direct instruction with wooden letters for tracing and sight words. His

assistant Edouard Onesimus Seguin followed in the footsteps of Itard in 1837 by adapting

his methods for use with clients with mental retardation, focusing first on writing the

letters of the alphabet, then using the wooden cutouts (Katims, 2000).

The founder of the first institution in Europe designed specifically for students

with disabilities was John Jakob Guggenbuhl. In 1839, he documented his efforts to teach

higher-functioning students using sensory modalities such as "radiant letters on a

blackboard in a darkened room" (Katims, 2000, p. 5). As early as 1931, some educators

recognized the effectiveness of systematic instruction and turned to the "phonics"

approach in teaching reading to students with disabilities (Katims, 2000).

Pioneering attempts to teach students with disabilities to read were regarded as

successful, even though the reporting was anecdotal rather than scientific and not very

systematic in its approach (Katims, 2000). The early efforts to teach reading to this

population did little to overcome the belief that students with disabilities could not learn

or benefit from reading activities. In the 1960s and 1970s, approaches to reading

instruction varied from using lower case letters, the ball, stick, and bird method, and

words in color to computer aided instruction (CAI) (Katims, 2000). Students did not,

however, progress past the word-identification level of reading proficiency (Katims,

2000).

To this date, literacy instruction for most students with disabilities, including

those with autism, has been focused on basic, functional reading vocabulary rather than

constructing meaning (Katims, 2000; Mirenda, 2003). In addition, traditional phonics

instruction which isolates phonemes and sounds without pictures or without a meaningful

context makes it almost impossible for students with autism to demonstrate mastery, thus

giving the perception that they are incapable of further literacy instruction (Mirenda,

2003). Recent literacy research (Au, Carroll, & Scheu, 2001) and federal mandates

(NCLB) emphasize the importance of a comprehensive, balanced approach to reading

instruction (teaching all five components) for *all* students. This balanced approach begins

with emergent literacy skills and continues with phonics instruction.

<u>Emergent Literacy</u>

Sulzby and Barnhart (1992, as cited in Browder & Spooner, 2006, p. 64) describe

emergent literacy as the stage in reading development that comes before and leads to

traditional reading skill. One of the early primary influences on a child's ability to read is

how much that child is read to by an adult (Anderson, Hiebert, Scott, & Wilkinson, 1985,

as cited in Browder & Spooner, 2006). If students with autism miss these opportunities in

early childhood, the teacher then needs to make a strong effort to provide an environment rich in literate activities (Browder & Spooner, 2006).

Shared storybook reading, defined as reading a text out loud in addition to providing students access to the text, is one practical way to promote emergent reading development because oral language and listening are significant components in the reading process (Au et al., 2001). Other emergent reading skills include (a) knowing what a book is for, (b) orienting a book, (c) turning pages properly, and (d) knowing when to begin reading (Browder & Spooner, 2006). These skills can all be explicitly embedded in shared reading times while children are actively engaged in the activity. Books that encourage active participation include tabs to pull or open, lift-the-flap features, and pages with texture. The teacher should select stories for their appeal and interest to the individual child. Basic characteristics such as limited words per page, large print, and words that appear over and over again are more likely to engage a child. Interesting, colorful pictures can also attract a child's attention (Kaderavek & Justice, 2002).

Other ways that teachers can enhance the literate environment is to teach and encourage student conversational skills, capitalize on students' interests, and use visual supports and music to encourage language (Kluth & Darmody-Latham, 2003). Even during play, teachers can facilitate reading linguistic and literacy enrichment activities such as modeling, role playing, and conversations (Justice & Pullen, 2003).

Phonics Instruction

Phonological awareness, phonics, and fluently using decoding skills are essential steps in reading (NICHD, 2000). It may take longer for students with autism to learn the strategies, and effective instruction is likely to require creativity on the part of the special educator. Educational tools and toys such as Leap's Phonics Library or Geosafari Phonics

Lab may be useful in bridging the gap between verbal and nonverbal learning. Phonics

strategies should be explicitly taught in conspicuous, systematic ways that incorporate

modeling, scaffolding, and lots of review (Coyne et al., 2007). They should also be built

upon students' interests, preferences, and prior knowledge (Downing, 2005).

Phonics instruction should not be considered a prerequisite skill to be mastered

before other components can be addressed. Rather, it should be presented concurrently

with the other components of literacy instruction to form a balanced approach (Mirenda,

2003). Also, instruction in phonics must be presented in context in order for the student

with autism to make sense of it (Mirenda, 2003).

Since teaching of phonics is often based on the assumption that students can

verbally respond back to teacher directed instruction, modified strategies must be

employed to assist nonverbal students with autism. Without the ability to repeat and

practice out loud, students with autism are at a disadvantage in reading instruction (Foley

& Pollatsek, 1999, as cited in Coleman-Martin, Wolff-Heller, Cihak, & Irvine, 2005), but

they may still acquire significant literacy skill (Mirenda, 2003).

Published Approaches to Teaching Reading

The Nonverbal Reading Approach

The Nonverbal Reading Approach (NRA) proposes using "internal speech" to

provide phonics practice. Students are presented with words that they "sound out" with

the teacher. The teacher says the sound or word out loud while the student says the sound

or word in his mind. The teacher says the word correctly, then shows only the first letter

and directs the student, "Say the sound in your head," as the teacher says it out loud. Each

letter of the word is approached the same way as the teacher also asks the students to say

the word slowly then quickly in their heads (Wolff-Heller, Fredrick, Tumlin, & Brineman, 2002). This technique has potential for a wide range of uses if students are able to say words and sounds in their heads. Since teachers are not necessarily mind-readers, Heller, et al, (2002, p. 26) have developed a way to evaluate what the students know by using a similar format with a script and providing an array of words from which the student can choose the correct answer.

Reading Mastery™

Reading Mastery™ is a program that employs the principles of "direct instruction." It grew out of the work in 1966 of Siegfried Englemann and Carl Bereiter (Kozloff & Bessellieu, 2000). Reading Mastery™ presents a variety of instructional techniques that collectively are designed to cover all components of literacy instruction. While not all would agree, professional consensus suggests that there is a large research base to support the efficacy of a direct instruction approach (Grossen, 2007).

Reading Mastery™ is presented to students in small groups, and provides systematic, scripted lessons to teach all aspects of reading from decoding to comprehension (Grossen, 2007). It does require students to respond verbally, which is difficult for some students with autism.

The Reading and Writing Program

In 1999, Nina Watthen-Lovaas developed *The Reading and Writing Program* which uses visual strategies to teach students with autism to read and write. The emphasis in this approach is communication by teaching the child to express needs, feelings, and questions in written form. It uses a discrete trial format in which the student is given a stimulus prompt. The student chooses the answer from several options and then is given positive reinforcement for correct answers. The tasks involve matching printed

letters and words, associating objects with pictures and printed words, using letters to

spell words, and words to write sentences (Watthen-Lovaas, 1999). This program does

not teach phonics or phonemic awareness directly, but can be modified to do so.

Augmentative and Alternative Communication

Another approach to teaching phonics to students with autism is through

augmentative and alternative communication (AAC). AAC refers to any symbolic

communication system other than speech that uses pictures or manual (sign) language to

replace verbal language (NRC, 2001). Students with autism who also have language

difficulties are often provided with communication devices which can be used to assist

them in responding to direct instruction in reading. The teacher can use the device or

other learning toys on the market (e.g. Leap Frog™) either with pictures or keyboard and

go through a similar script as the NRA to obtain responses from the student:

> T: What letter says "b?"
> S: Finds the letter on the keyboard
> T: Say the sound in your mind or…
>
> T: Which picture starts with the "b" sound?
> S: Touches the picture with the "b" sound
> T: Say the word in your mind.

If there is no communication device, using photos or symbols of objects and/or

words can be used in its place as in the Lovaas program. The Picture Exchange

Communication System (PECS) (Bondy & Sulzer-Azaroff, 2002) incorporates colorful

picture symbols (not photographs) to increase communication skills for students with

autism. Mayer-Johnson's Boardmaker™ is another tool that can be used to supply

symbols. Students, for example, are requested to point to the correct picture from a group

when the teacher pronounces the word phoneme by phoneme (Sandberg & Hjelmquist,

1996 as cited in Basil & Reyes, 2003).

Letter tiles are another tool that can be accessed easily to help students with speech difficulties. Computer assisted instruction (CAI) used in conjunction with the NRA, the Lovaas program, or as a stand-alone, is another possible technique to teach phonics and word construction (Coleman-Martin et al., 2005). CAI includes using PowerPoint and/or word prediction programs such as *Writing with Symbols™*.

<u>Cued Speech and Visual Phonics</u>

Two programs which use visual strategies to help students learn phonics are *Cued Speech™* and *See the Sound with Visual Phonics™* (Nielsen & Luetke-Stahlman, 2002). Cued Speech uses mouth movements and eight hand shapes to help students learn consonant and vowel phonemes. The hand shapes, coupled with their location around the mouth, give students a visual representation of the phonemes in order to identify syllables. Several studies have found that cued speech can be useful in helping students who are deaf learn the phonological nuances of language and reading (LaSasso & Metzger, 1998). *Visual Phonics™* also uses hand shapes—46 of them—that represent sounds rather than syllables (Stubblefield, 2005). Each hand shape has a corresponding written symbol. *Visual Phonics™* has been suggested to be as successful as *Cued Speech™* (Nielsen & Luetke-Stahlman, 2002), but has less research support. Students with autism tend to process information better visually than auditorily (Mayes & Calhoun, 2003), therefore some educators have applied visual and manual cues because of their multisensory characteristics (Beck, 2008; Wetherby & Prizant, 2000; Ganz, Bourgeois, Flores, & Campos, 2008). Concerns with these approaches include the lack of imitation skills in students with autism (Ganz et al., 2008) as well as poor fine motor skills (NRC, 2001) that may prevent a student from using these techniques effectively.

With the possible exception of Reading Mastery™, few of the approaches mentioned above are adequately research-based in terms of effectiveness with students with autism. While Reading Mastery™ does have considerable research backing, its reliance on verbal interactions makes it of questionable use for students with autism, many of whom evidence language delays or are nonverbal. Others of these approaches have additional issues when considered for use with students with autism. The *Nonverbal Reading Approach* relies on a student's ability to internalize speech whereas *Cued Speech*™ is built upon the ability to make and understand hand signals. Computer-assisted instruction (CAI) appears conducive to the learning styles of students with autism, but there are few studies to support the efficacy of this strategy (NRC, 2001). A modification of Lovaas' *Reading and Writing Program* is promising. However, the approach is more clinical and difficult to generalize across settings. In summary, it appears that there is no *one* literacy program which fits the needs of all students with autism. Thus an eclectic approach, borrowing strategies from all these programs, may be the most effective way to teach these students to read.

Conclusions

It is important that teachers teach the essential components of reading, including phonics and phonemic awareness, regardless of a child's difficulties or level of understanding. Teachers must modify approaches and create a literate community in which children can learn this important functional life skill. Systematic prompting to teach sight-words and comprehension has some basis in research (Browder, et al, 2006), and *Cued Speech*™ has numerous single-subject studies which demonstrate its effectiveness (Nielsen & Luetke-Stahlman, 2002). However, the need for more research

on how to teach reading to students with autism is an ongoing issue. Until that research base is more comprehensively established, special education teachers are left to create and/or adapt methods from the evidence-based practices already in place in general education classrooms in order to meet the legal requirements of reading instruction which permeate education today.

PROJECT PROPOSAL

This project will be a handbook for teachers based on contemporary best practices and evidence-based curricula wherever possible, that will provide lessons, methods, and materials to teach students with autism the fundamental literacy skills of phonemic awareness and phonics. It will also contain a list of children's literature works that can be used to enhance the literate community for students with autism.

Chapter One of the handbook will provide a list of children's literature for the emergent reader with disabilities. Students with autism often have difficulty attending when the print and pictures in a book are busy or the story is too long. This chapter will give a list of books which address these issues and additionally are high-interest but easy to follow.

Chapter Two of the handbook will focus on phonemic awareness and phonics instruction for students with autism. It will provide goals, materials, and plans with adaptations and accommodations that will assist these students in learning decoding strategies.

Chapter Three of the handbook will provide a list of augmentative communication devices, computer aided programs, toys, and other materials which can be adapted for reading instruction and how they can be used.

The information in this handbook will be written for educators who teach students who have moderate to severe autism between the ages of 6 and 10 years old. The

handbook will give teachers a starting point through which they can develop their own materials, methods, and approaches which include phonics reading instruction. It should not be considered a complete program for teaching reading.

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