Increasing emergent literacy skills in children with autism

Julie Lynnette LaFleur
INCREASING EMERGENT LITERACY SKILLS IN CHILDREN WITH AUTISM

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Julie Lynnette LaFleur
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Approved by:

Gary Sherwin, First Reader

Tootie Killingsworth, Second Reader

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ABSTRACT

This paper is an explanation of the relationships and methodologies of using a balanced, multilevel framework for developing and improving early literacy skills in children diagnosed with autism. It is a review of the research on emergent literacy skill development with regards to students diagnosed with autism, as well as a discussion on the five domains addressed within a multilevel framework for emergent literacy skill instruction. It also contains modification strategies and techniques on how to supplement a multilevel framework for instruction with visual supports to increase early literacy experiences and skill development for young children diagnosed with autism.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>CHAPTER ONE: BACKGROUND</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Purpose of the Project</td>
<td>1</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>2</td>
</tr>
<tr>
<td>CHAPTER TWO: A REVIEW OF THE LITERATURE</td>
<td></td>
</tr>
<tr>
<td>Learning Styles and Autism</td>
<td>4</td>
</tr>
<tr>
<td>Emergent Literacy and Students with Autism</td>
<td>6</td>
</tr>
<tr>
<td>Multi-level Literacy Instruction for Students with Autism</td>
<td>10</td>
</tr>
<tr>
<td>Oral Language</td>
<td>12</td>
</tr>
<tr>
<td>Phonological Awareness</td>
<td>15</td>
</tr>
<tr>
<td>Orientation Towards Print</td>
<td>19</td>
</tr>
<tr>
<td>Story Comprehension</td>
<td>27</td>
</tr>
<tr>
<td>Motivation for Reading</td>
<td>35</td>
</tr>
<tr>
<td>Conclusion</td>
<td>39</td>
</tr>
<tr>
<td>APPENDIX A: LITERACY ACTIVITIES FOR CHILDREN WITH AUTISM</td>
<td>42</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>80</td>
</tr>
</tbody>
</table>
CHAPTER ONE
BACKGROUND

Introduction

With the current educational trends in reading instruction leaning more towards a direct instruction, standards-based approach, some children, particularly those diagnosed with autism and other developmental disabilities may find it increasingly more difficult to develop emergent literacy skills in the educational environment. The use of a balanced, multilevel approach to literacy instruction, along with the implementation of visual supports, can often lead to greater literacy skill development than a traditional sight word approach to reading that is often used when instructing children with autism (Hendrick, 1999).

Purpose of the Project

This project examines and rationalizes the instructional strategies used to teach young children with autism early literacy skills using a balanced, multilevel approach to reading. This project explores the five domains of reading in a way that brings light to the areas
of reading deficits in young children diagnosed with autism. Additionally, this project attempts to bring the concept of best reading practices to the attention of educators who serve children with autism. This project offers a clear, cohesive review of the literature with the most up to date references within the field of education and autism. Specifically, this project provides a handbook of literacy activities geared towards children with autism and other developmental disabilities. Moreover, this project contains strategies and guidelines for implementing a well-balanced approach to literacy by blending the best practices from the fields of educational instruction and autism.

Definition of Terms

The following terms are defined as they apply in this project:

**Oral Language:** The act of exploring concepts and constructing meaning through the expression of verbal language (Hall & Williams, 2000).

**Phonemic Awareness:** The recognition that words are made up of individual sounds and the ability to manipulate sounds (Hall & Williams, 2000).
**Visual Supports:** Graphical representations of conceptual ideas that aide in the processing of information.

**Realia:** Three-dimensional theme-based objects that are used to support comprehension of conceptual ideas.

**Dialogue Reading:** "Evocative or interactive behaviors during storybook reading interactions with young children" (Justice & Pullen, 2003).

**Print Referencing Behaviors:** The use of verbal and nonverbal references to print that encourage interaction with and attention to oral and written language (Justice & Ezell, 2000).

**Direct Instruction:** A comprehensive system of teacher-directed activities that rely on specifically sequenced and highly structured instruction (Churton, Cranston-Gringas, & Blair, 1998).

**Reciprocal Teaching:** A teaching technique designed to improve students' comprehension skills. This technique involves modeling of the specific comprehension strategies (Churton, Cranston-Gringas, & Blair, 1998).

**Directed Reading Activity:** A systematic procedure involving the steps of preparation for reading, actual reading, and review and development of reading skills (Churton, Cranston-Gringas, & Blair, 1998).
Learning Styles and Autism

Autism can be characterized as a moderate to severe disruption of the normal developmental processes that occur in the brain during a child's first two years of life. These disruptions can lead to impairments in language, cognitive, social, emotional, and sensory functioning (Autism Society of America, 1995). Manifestations of the characteristics of autism vary considerably from child to child and the degree to which each child experiences these disruptions also varies. Due to the significant differences and characteristics that are exhibited in children with autism, autism is classified as a spectrum disorder. In fact, one of the hallmarks of autistic spectrum disorder is the uneven development of specific skills (Autism Society of America, 1995). Therefore, it is critical to understand the learning styles of students with autism in order to maximize the learning process for these students (Mesibov, 2005).

According to Edelson (2005), learning styles is a concept that attempts to describe the methods by which
people gain information about their environment. Typically, people learn by seeing, hearing, or doing. Learners can be classified as visual learners, auditory learners, or kinesthetic learners. Understanding the learning styles of students with autism is particularly important for the educational assessment and instructional process. Adapting educational instruction to the learning style of a student with autism will ensure that the student has the greatest chance for success in school.

Edelson (2005) further suggests that most children with autism are more likely to rely on only one style of learning. It has been this author’s experience that most children with autism rely heavily on the visual and kinesthetic styles of learning. In fact, researchers agree that autistic individuals typically have problems processing information through auditory means alone (Courchesne, 1987, Edelson, 2005). Therefore, it is imperative that visual support be offered to individuals with autism within their educational programming.

Visual learning techniques and supports are graphical ways of presenting abstract ideas and concepts in a concrete manner. With visual supports, students are better able to see how ideas are connected and organized. Visual
tools and supports assist students with autism in their thinking, processing, and organizational skills, as well as capitalize on their exceptional visual memory. Visual tools and supports can include: graphic organizers, pictures, diagrams, color coded materials, charts, posters, flash cards, schedules, realia, and environmental print.

For purposes of this project, the incorporation of visual tools and supports will directly relate to the manner in which this author has adapted and modified visual supports in order to maximize the learning of emergent literacy skills in young children with autism. Comprehension concept cards, syllable puzzles, and picture icons corresponding to specific alphabet letters are several examples that will be included in this project.

Emergent Literacy and Students with Autism

In today's society, reading and writing are critical skills that support and enhance the ability to communicate, access information, and perform personal and work related tasks to a greater degree (Fossett, 2002). There is an extensive body of research on the impact of the presence or absence of literacy skills on persons with developmental disabilities, including those with mental retardation.
However, this author has found significantly less research on the presence or absence of literacy skills for persons with autism. Traditionally, research regarding literacy and children diagnosed with autism has focused on conventional literacy in the two broad categories of word level reading: hyperlexia and sight word instruction (Koppenhaver & Erickson, 2003). Hyperlexia is the ability to easily decode and read words fluently and phonetically whereas sight word reading is the ability to recognize words on sight without the aid of phonics or other word attack skills. In both cases, comprehension is often compromised. Children with hyperlexia may often be fluent readers, but may lack the comprehension to understand what they are reading. Likewise, reading comprehension may be compromised in children who are good sight-readers because they often lack the ability to decode unfamiliar words. Furthermore, Koppenhaver and Erickson (2003) have noted that research regarding emergent literacy skills in children with autism have been to date neglected. This may be due in part to the misconception that young children diagnosed with autism are often seen as too cognitively impaired or not ready for emergent literacy instruction (Mirenda, 2003). Nevertheless, this paper will attempt to
explore how multilevel emergent literacy experiences in the early years can develop and enhance conventional literacy skills in children diagnosed with autism.

Researchers agree that students who fail to read early in their school careers risk falling further behind in the development of literacy skills (Stein, Johnson, & Gutlohn, 1999). This gap between good and poor readers increases as these students progress through the grade levels. Cunningham and Stanovich (1997) found that first-grade reading ability was a strong predictor of later grade reading ability. Similarly, Juel (1988), found that children who were unsuccessful readers in the first grade remained poor readers in the fourth grade. Further, as many as 30% of children are at risk for reading difficulties (Blachman, 1994; Brown & Fletton, 1990), and as many as 50% of children who have special needs are also at risk for reading difficulties (Fuch, Fuch, Al Otaiba, Yen, Yang, Braun & O’Connor, 2002). In addition, students at risk for reading failure often have deficits in language ability such as phonological processing, semantic, and syntactic skills (Mann, 1986). Likewise, children with autism may experience varying degrees of these same language difficulties. According to Mirenda (2003),
reading is seen as a "...complex, interactive process that involves attention, memory, meta-cognition, motivation, and strategic action" (p. 275). As a result, literacy must be viewed as an interactive process that encompasses the use of listening, speaking, reading, and writing (Teale & Sulzby, 1986). With this in mind, emergent literacy can be viewed as the knowledge of and skills in reading and writing that young children obtain prior to achieving conventional literacy (Justice & Pullen, 2003). Accordingly, development of emergent literacy skills provides a foundation for the higher-level reading and writing knowledge and behavior of conventional literacy. Koppenhaver and Erickson (2003), describe such behavior as looking at picture books, constructing a story aloud from memory of adult readings, scribbling on a chalkboard, or using storybook language in play experiences. Likewise, reading requires background knowledge and general language understanding to comprehend text. Kliwer and Biklen (2001) contend that literacy, "as a process of critical thinking, interaction, or abstract communication is never considered with regards to reading instruction for children with autism" (p. 2). This is due in part to the outdated functional or sight word recognition approach to literacy
instruction for students with autism that became popular in the 1970’s and 1980’s (Mirenda, 2003). Kliwer and Bilken (2001) further suggest that this approach leaves many individuals behind on the “ladders to literacy” (p. 2).

Given the research findings on the development of emergent literacy skills as a positive predictor towards reading success coupled with the staggering number of non-readers with special needs, Cunningham, Hall, and Defee (1991) suggested that when it comes to literacy learning, learners with and without disabilities may be more similar than previously thought. Moreover, Mirenda (2003) supports the attitude that it is increasingly clear that most students with autism can benefit from literacy instruction that incorporates the use of multiple instructional strategies that are matched to the stages of development that all readers, with or without a disability, pass through on their way from emergent to skilled reading.

Multilevel Literacy Instruction for Students with Autism

In today’s literacy market, there is much discussion and debate about the ideal qualities of an effective instructional environment. Researchers have suggested that
the characteristics of school environments that are effective for students at risk for reading failure include a balance between holistic and explicit skill instruction, adaptability, high student engagement, and an enriched communicative environment (Greenwood, 1996). Research by Dickinsen (2001) supported these characteristics and included the observation that early literacy draws upon multiple interrelated developmental areas including oral language, phonological awareness, knowledge of the graphic features of print, understanding of how sounds map onto print, and a sense of the varied uses of print. By combining the aforementioned characteristics of effective literacy instruction, a multilevel framework for literacy instruction can be categorized into five domains: (1) oral language, (2) phonological awareness, (3) orientation towards print, (4) story comprehension, and (5) motivation for reading. These domains make up a large percentage of The Four Blocks Literacy Model developed by Cunningham and Hall (1991).

The Four Blocks Literacy Model is a multi-method, multilevel language arts program that "provides a balance between more traditional reading instruction and a contemporary, constructivist orientation toward literacy
specifically, the four blocks framework combines the theories of phonological awareness, whole language, explicit phonics instruction, and meaning-oriented activities to promote student empowerment and a love for reading (Manoil & Bardzell, 2003). the four blocks was designed to address the needs of children with a wide range of abilities. it allows a teacher to avoid ability grouping by including a literacy rich environment and interactive learning that incorporates reading and writing throughout subject areas and thematic units (Manoil & Bardzell, 2003). with the success of the four block literacy model in first grade classrooms, hall & williams (2000) have adapted this framework for even younger children. hence, a multilevel framework for literacy lays the foundation towards literacy achievement in the four blocks literacy model.

oral language

the first domain to be addressed in a multilevel framework for emergent literacy development is oral language. oral language in students with autism and other language disabilities is often delayed. students with autism may experience difficulty in processing verbal instruction and as mentioned earlier, may also have
difficulties expressing themselves verbally. Research studies have revealed that typical language acquisition is based somewhat on developmental maturity (Morrow, Strickland, & Woo, 1998). When children do not have the conventional words to communicate their thoughts, they often imitate the language of adults. This concept can be applied to children with autism as well. Not only should a multilevel, well-balanced approach to literacy for students with autism include specific training on communication, but it must also include an environment that is rich in oral language. An environment that is rich in oral language provides children with the opportunity to use language frequently. Specifically, children should explore, experiment, and interact with language throughout their school day instruction. They should hear appropriate modeling of language and be able to listen to, respond to, share, and discuss things that are important to them. They should learn how to ask questions and how to make statements.

Providing an environment rich in oral language should be the foundation of primary curriculum. An oral language curriculum allows children the opportunity to hear and develop new vocabulary concepts as well as to hear and
develop correct language syntax. Rich oral language environments also provide opportunity to learn social skills such as taking turns and expanding on each other's ideas. For children with autism, this may very well be their greatest area of weakness. By applying information about the importance of oral language and its relationship to literacy, teachers can adapt and modify the oral language environment to include children with autism.

One of the most important aspects to developing oral language within the context of literacy is a child's exposure to books. A multilevel classroom should include the following opportunities for exposure to books: read aloud stories, shared reading, guided reading, and independent reading. Reading aloud to children provides oral language modeling while constructing a sense of story. According to this author, listening to a story may be challenging for a child with autism due to the impact of auditory processing problems.

Another avenue to provide meaningful experiences in oral language is to provide a curriculum based on thematic units. A multilevel framework focuses on thematic units for teaching early literacy skills. Multi-sensory based activities that incorporate oral language include theme-
based books, music, art, and center based activities. In a study by Colasent and Griffith (1998), results showed that children with autism were able to demonstrate gains in oral language, specifically oral retelling of a story, when thematic stories were used as content instruction. Consequently, by incorporating a theme-based curriculum, this author finds the more that students with autism are given the opportunity to access theme-related paraphernalia, the more they will engage in oral language activities.

**Phonological Awareness**

The second domain addressed in a multilevel framework is phonological awareness. Phonological awareness is a particularly important aspect of emergent literacy. According to Hall and Williams (2000), phonemic awareness is the best predictor of success in reading. Given the fact that Congress has recently passed the No Child Left Behind Act of 2001, it is imperative that emergent literacy classrooms instruct students in phonological awareness in order to ensure that all students are proficient in reading. It is equally important that students with language disabilities, including those with autism, are provided with phonemic awareness instruction early in their
school careers. A review of the research indicates a majority of students unresponsive to early literacy intervention demonstrated poor phonological awareness (Al Otaiba & Fuchs, 2002).

A fundamental aspect of language development is the ability to differentiate speech sounds. Phonological awareness involves orally manipulating the individual sounds in words. Instruction in phonological awareness is oral, but should be integrated with instruction in the alphabetic principal (Wanzek, Bursuck, & Dickson, 2003). Students with good phonological awareness have the ability to recognize common sounds across words (alliteration), the ability to blend smaller units of sound into larger units (/h/-/a/-/t/ to hat), the ability to segment larger oral language units into smaller ones (bat to /b/-/a/-/t/), and they also have the ability to identify what phoneme a particular word begins with (cat starts with /c/).

Furthermore, phonologically aware children are able to produce rhymes, count syllables in a word and recognize word boundaries in spoken language (e.g. “The cat is brown” is a four word sentence).

As mentioned earlier, if teachers can take what has been learned about typically developing children and apply
that same knowledge to children with language disorders, including those with autism, it can be concluded that in order to develop and support phonological awareness in students who do not naturally develop this awareness, teachers must use explicit skill instruction to teach it. Strategies for developing phonemic awareness in all children include using nursery rhymes, reading rhyming books, chanting tongue twisters, clapping and counting syllables in a word, orally blending and segmenting sounds and words, and playing silly games with words. For children who are having difficulty, Chard and Osbourn (1999) suggested a sequence of instruction that starts with continuous sounds that are easier to hear. Wanzek, Bursuck and Dickson (2003) also suggested that the implementation of concrete manipulatives be used to support learning for children who are at risk for reading difficulties. Mirenda (2003) supports instruction in phonological awareness and added that these activities be highly supported, guided, and scaffolded by teachers.

Nursery rhymes play an important role in the development of phonemic awareness. They can be as multilevel as the teacher wants or utilizes them to be. Hall and Cunningham (1997) described nursery rhymes as
multilevel in that once the children have heard and chanted the rhyme to the point of memorization, they can be shown the rhyme in a big book or chart. Further extension lessons can include creating student-made rhyme books, matching rhyming pictures and matching text to picture.

Specifically, when using nursery rhymes to develop phonological awareness in children with autism, the nursery rhyme can be introduced through a song or music. Providing a visual chart or poster with the text of the rhyme displayed along with pictures that support the text can provide the visual stimuli that children with autism often seek. Pictures such as these can be made using the Boardmaker (Mayer-Johnson, 1997) or the Picture This (Silver Lining Multimedia, 2002) software products. Additionally, it is important to model for the students how to point to the pictures and words as the rhyme is sung. Once the students have learned the rhyme through song, they can be instructed to chant the rhyme without music. To extend their phonological awareness through direct skill instruction, teachers can provide pictures, paired with text, of the words in the rhyme. Due to their auditory processing deficits, children with autism may have a difficult time identifying rhyming pictures through
auditory means alone. In this case, it is important to capitalize on their visual strengths by drawing their attention to the print and teaching them how to pair rhymes by looking at simple spelling patterns. Once the students are able to match the rhyming pictures consistently (with text included), teachers can omit the text and give students the opportunity to match the picture cards (without text) to each other. At this point, teachers may turn the lesson focus back to identifying the same rhyming words through auditory means alone and find that their students may become more successful in developing the ability to understand rhyming after they have been given the opportunity to process this concept visually. An extension of this activity can be to have the students use highlighting tape to highlight the words on the rhyme chart that sound alike. This technique can be used over and over again with different nursery rhymes until the students are able to provide a rhyming word independently when given an oral prompt.

Orientation Towards Print

The next domain that is addressed in a multi-level framework for literacy instruction is orientation towards print. Clay (2000) contended, "early in literacy learning,
children must discover something about the arbitrary conventions we have for putting the language we speak into a printed form” (p. 4). Likewise, Chard and Osbourn (as cited in Gunn, Simmons, & Kameenui, 1998) recommended that children with language disabilities must become aware that printed language is all around them and that print serves many different purposes, including the awareness that print represents spoken language, that print holds information, and that print can be reproduced by anyone.

Early awareness of print by young children often takes the form of environmental print. Environmental print encompasses all of the logos, advertisements, and signs that make up much of the visual stimuli children see everyday. Most children know their favorite cereal or fast food restaurant logo by sight. Using environmental print as a springboard for instruction in orientation towards print may provide a deeper sense of meaning and motivation for students. Hall and Williams (2000) noted that lessons centering on environmental print can extend throughout the year because as children grow and change so do their interests.

Orientation towards print (in books) not only includes the knowledge of where a story begins and ends, the
knowledge of how to track print from left to right, but also the ability to locate the title, author, and illustrator of a book. In addition, orientation towards print includes book-handling skills such as turning pages left to right and the ability to identify the front cover, back cover, and title page of a book (Cunningham & Allington, 1999). As children learn to understand and collect information from these concepts, they are afforded an opportunity to move ahead in their journey towards literacy.

One of the most popular ways in which teachers can instruct their students in concepts about print in books is to use the shared reading technique. The shared reading technique is an attempt to adapt the principals of early book experiences between a parent and child (Tierney, Readence, & Dishner, 1995). Specifically, a shared reading experience is “intended as a means of establishing early reading experiences that capitalize on the child’s natural prowess with stories, and that dovetail story experiences with other language activities” (Tierney, et al., 2005). Justice and Pullen (2003) contended that there is a growing body of research confirming that shared reading provides a “potent context in which emergent literacy growth can be
facilitated” (p. 103). Additionally, Scarborough and Dobrich (1994) considered shared storybook reading as one of the most important means of fostering early literacy skills. Strickland and Morrow (1990) contended that one of the ways in which children become readers is through repeated readings of the same story. Through repetitive readings of the same story, children become familiar with book language and gain an understanding of how literature sounds. The shared reading experience affords children the opportunity to learn concepts about print through repeated readings of a story. Additionally, due to the very nature that storybooks provide a rich context for encouraging children’s awareness of print, the shared reading technique calls on teachers to use high interest, repetitive stories that sustain children’s attention and support early oral language development.

As will all children, children with language disabilities, including those diagnosed with autism, need to develop behaviors that increase engagement and active participation in shared reading experiences. Teachers can support active participation by utilizing the dialogue reading approach. Justice and Pullen (2003) emphasized the impact of this approach in their study of evidence-based
practices for supporting early literacy in young children. According to Justice and Pullen (as cited in Whitehurst et al., 1999), dialogue reading refers to adult use of "evocative or interactive behaviors during storybook reading interactions with young children" (p. 107). These behaviors include asking open-ended questions, repeating and expanding on what the child has said, following the child's lead and interests, and giving plenty of praise, encouragement, and feedback.

As with dialogue reading behaviors, Justice and Pullen (2003) added that print referencing behaviors (as cited in Ezell & Justice, 2000) can also maximize children's learning opportunities in the shared reading experience. Furthermore, that children whose parents referenced print made significant gains in print concepts, word segmentation, and word concepts (Justice & Ezell, 2000). Print-referencing behaviors incorporate the use of verbal and non-verbal references to print to encourage the child's interaction with and attention to oral and written language. Verbal print referencing behaviors include asking questions and making comments about print and using the direct language of books during instruction. Non-verbal references to print include pointing to print when
talking about the story and tracking print from left to right when reading aloud.

Further, to develop an understanding of print concepts, visual aides can be used in conjunction with print referencing behaviors. For example, to provide a meaningful way for students to understand what and where the title of a book is or what the author’s role is, this author has created concept cards that concretely describe, in pictures, what these concepts mean. By introducing the concept card through a simple song or chant, the students are better able to generalize the concept later with other storybook lessons. As a result, by modeling how to reference print when talking about a story and incorporating the use of visual aides during a shared reading lesson, this author finds that students with language disabilities are better able to interact, understand, and participate in the lesson.

Another important aspect of early literacy orientation towards print is a child’s ability to recognize and learn the letter names and sounds of the alphabet. By acquiring these early sound symbol sub-skills, students begin to detect letters in words and can begin to guess the meanings of unfamiliar words from their contexts (Mason, 1980).
Research by Speece, Mills, Ritchey, and Hillman (2003) indicated that letter-sound identification in kindergarten predicted first grade reading achievement. With this in mind, teaching sound symbol sub-skills at an early age lays the critical foundation for later achievement in additional reading sub-skill acquisition. However, it is important to note that students with autism may have difficulty demonstrating these sound symbol sub-skills in conventional ways (Mirenda, 2003). Furthermore, she contends many students with autism can become knowledgeable of letter-sound relations through "games and other contextual activities that support, scaffold, and guide their discovery of these relations" (p. 276).

In a multilevel, literacy-rich classroom, early reading activities that address letter-sound relationships should be plentiful, meaningful, and flexible. One of the ways in which this author supports and guides instruction in letter-sound relationships, is to begin introduction of these relationships with student names. Letter-sound relationships become meaningful and students become highly motivated when lessons and instruction are centered on themselves. For example, during literacy centers, student activities may include matching magnetic letters to names.
written on sentence strips, matching the beginning sounds (letters) of student's names to their pictures, and providing a word card reader for students to imitate the sounds spoken on the recorder. As mentioned earlier, beginning sound symbol instruction by using student names enables the students to gain an understanding of the alphabetic principal in a way that is meaningful to them. Guiding student's discovery of the alphabetic principal in a way that is meaningful to them can encourage generalization and the ability to begin making analogies between familiar and unfamiliar printed words (e.g. The sound /a/ in the word apple has the same sound as in the word Andrew).

Likewise, teaching letter-sound relationships using alphabet tubs are another avenue for students with language disabilities to gain an emergent understanding of the alphabetic principal. An alphabet tub is just one example of how a specific set of materials are multilevel and can be easily adapted to meet the individual needs of differing language abilities in students. To create an alphabet tub, place in a small tub real objects that correspond to the letter that has been introduced, along with several examples of how that letter can be written, a picture of
the student whose name begins with that letter, and paper, pencils, and crayons for drawing and writing about that letter. In this way, students are able to practice identification of letters and sounds, articulation of sounds, vocabulary development, and writing with one set of materials.

**Story Comprehension**

The next domain addressed in a multilevel framework for emergent literacy instruction is story comprehension. Strickland and Morrow (2000) described story comprehension as the ability to appropriate meaning from text. Further, they contended that comprehension instruction should be a central part of teaching young children how to read from the very beginning. Strickland and Morrow further contended that comprehension is not something to be left to chance or "relegated to secondary importance" (p. 9).

It has been traditionally believed that language impairment in children with autism arises from difficulties in the ability to comprehend or process language properly. Therefore, children with autism need to partake in a variety of instructional lessons that provide them an opportunity to increase comprehension skills. Research findings by Colasent and Griffith (1998) suggested that
students with autism may benefit more from linguistic passages when visual cues or pictures are combined with auditory input. This may be due in part to the concept that individuals with autism are often described as visual thinkers and learners (Wallin, 2002). Experiments conducted by the Picture Reading Literacy Project (Howard, Spellman, Lacy, Day, & Simmons, n.d.) further suggested that students with autism may more easily remember symbols that possess some degree of iconicity. Likewise, story recall is enhanced even further when students are able to draw and write about the story and refer back to their work when answering questions about the story (Colasent & Griffith, 1998). Therefore, multilevel instructional strategies to increase comprehension skills in students with autism can be used effectively when paired with visual supports that bridge the gap from the abstract to the concrete, and from the verbal to the visual (Slater, n.d.).

By combining the use of visual supports with instructional strategies designed to increase comprehension in emergent literacy experiences, students with autism may be better able to tap their prior knowledge and respond to a story in a way that enables them to become more skilled at processing written and oral language. Examples of
instructional strategies to develop comprehension that can be enhanced by the supplement of visual supports include direct instruction, questioning, reciprocal teaching, and directed reading activities.

The National Institute for Direct Instruction (2003) emphasized that lessons designed around small learning increments are the fundamental bases of the direct instruction teaching model. Churton, Cranston-Gingras, and Blair (1998) explained that in terms of specific comprehension abilities, direct instruction is an appropriate teaching strategy for students with diverse abilities. Further, that the heart of the strategy is the "systematic explanation, demonstration, or modeling" (p. 123) of a new skill. An example of emergent story comprehension for which direct instruction is an appropriate strategy in skill building is in the area of story sequencing. As mentioned earlier, students in the process of acquiring emergent literacy skills often learn sense of a story through shared storybook experiences. By incorporating the use of direct instruction after a shared storybook experience, students can gain an even deeper sense of story comprehension. Providing direct instruction lessons that incorporate how to break the story down into
specific parts such as beginning, middle, and end can increase comprehension skills. Moreover, using visual supports to describe what the concepts of beginning, middle, and end are, students with autism are provided a more concrete way of viewing these concepts. To further deepen student understanding, story-depicted picture cards that correspond to popular children's literature can be used to aid the students in an oral retelling of the story.

Questioning is another effective strategy for promoting story comprehension. Churton, Cranston-Gingras, and Blair (1998) recommended that comprehension questions be balanced between literal, inferential, and critical thinking questions and that teachers be equipped with probing questions to help redirect or expand upon a student's response. Churton, et al. also described a popular questioning strategy (as cited in Raphael, 1986) that focuses on helping students identify where they can search for answers to different types of questions. This method for finding information is called question-answer relationships. In question-answer relationships, sources of information can be located in the story or found within the reader's background knowledge. Comprehension questions can be considered surface level questions when the answers
are readily available in the book. These types of questions are often the who, what, when, and where type questions. Comprehension questions that ask how, can, and why are often referred to as under the surface type questions. With regards to emergent literacy and students with autism, surface level questions are often the place to start when developing comprehension skills. In order to make questioning understandable to students with autism, teachers can often tell their students that they are going to ask a question prior to the actual asking of the question. When asking a question related to a story, teachers may display a teacher made question concept card for visual representation of the question, while at the same time displaying the page in the book where the answer can be found. If a student has difficulty making an appropriate response, teachers can model aloud how to think about the question. This author finds that using this type of questioning strategy repetitively promotes quicker understanding of story related surface questions. For those students who have increased comprehension skills, the questioning can become more under the surface related. In this case, teachers may increase their usage of the think
aloud strategy while at the same time making sure to expand on the student’s thoughts and ideas.

Another strategy that has become popular for promoting story comprehension is the use of reciprocal teaching. Palincsar (as cited by the North Carolina Educational Laboratory, [NCREL], 2003) referred to reciprocal teaching as “an instructional activity that takes place in the form of a dialogue between teachers and students regarding segments of the text.” The four components of reciprocal teaching (NCREL, 2003) include predicting, developing questions, summarizing, and clarifying. Predicting includes making a guess about what will occur in the story or what the outcome might be. Developing questions engages the student in identifying information they would like to know about the story. Summarizing the story provides an opportunity for students to identify and integrate the most important aspects of the text or story. Finally, clarifying affords the students the opportunity to refine meaning of vocabulary and concepts.

For younger students who are emerging in the world of literacy, or for students with language processing disorders like autism, modified reciprocal teaching techniques can be employed to strengthen comprehension.
ability. An example of a modified lesson using the reciprocal teaching strategy may be as simple as creating a comprehensive, multilevel bulletin board based on a thematic unit of study. Graphic depictions that encompass the theme can be displayed on the bulletin board along with visual supports to enhance the concept of a question verses the concept of a statement or sentence. On one side of the board, questions that were generated by the teacher (and/or students) can be posted, while student responses can be posted on the other side of the board. Student responses can include teacher dictation or student's oral responses and student made work that was done in response to a question. Additionally, student made artwork depicting the concept of the theme can be added to the board. As a result of utilizing a multilevel, theme-based bulletin board for instruction, students who are just beginning their journey towards literacy can become familiar with reciprocal teaching techniques.

Finally, the Directed Reading Activity approach to increasing story comprehension combines all of the above-mentioned strategies using the story itself as the "centerpiece of instruction" (Churton, Cranston-Gingras, & Blair, 1998, p. 125). When preparing for a reading of a
story, teachers can utilize the shared book setting to present new information, vocabulary, and concepts related to the story. Additionally, teachers can use the story, over repeated readings, to review organizational structure of a story, set a purpose for reading, and introduce the concepts of reciprocal teaching.

A specific example of combining and utilizing direct instruction, questioning, reciprocal teaching, and directed reading activities can be found in this author's classroom throughout the school year. For instance, during the spring this author likes to incorporate the theme of 'Changing Life Cycles' into the curriculum. Therefore, the theme related bulletin board might include the life cycle of the butterfly and the centerpiece of instruction may be the popular children's story, *The Very Hungry Caterpillar*. The story can serve as the vehicle for using questioning and/or reciprocal teaching techniques within a shared book experience, as well as additionally providing direct instruction in letter-sound relationships that occur in the story. On the whole, overall literacy comprehension should be addressed through an approach that increases visual awareness for students with language disabilities, particularly those with autism.
Motivation for Reading

The final domain addressed in a multilevel framework for emergent literacy development is motivation for reading. There is an extensively large body of research on the broad topic of motivation and its effect on reading behaviors as well as how reading behaviors affect motivation. However, the focus of research with regards to autism and its effect on reading motivation is somewhat limited. Instead, much of the research focus with regards to motivation in individuals with autism has been centered around the idea that motivation, or lack thereof, is a core feature in an individual’s ability to respond to social and communicative tasks (Koegel, Koegel, & McNerney, 2001). Stewart (n.d.) contended that learning histories, learning styles, internal and external incentives, expectations of success or failure, and meaningfulness of the task are key features that strongly influence motivation in individuals with autism. This idea supports the theory that motivations for reading are multidimensional (Sonnenschein & Munsterman, 2002) and that “motivation matters when it comes to literacy” (Cunningham & Allington, 1999, p. 185). Cunningham and Allington (1999) further contended that success precedes motivation; therefore teachers must
engineer success in their classrooms to increase motivation in students.

Cole (2002) piloted a study to find out what motivated her students to read. In this year long study, she found that different students were motivated to read by different factors, and that each student exhibited their own distinct literacy personality. By combining the theories of a multilevel framework for literacy with the findings from Cole’s study, implications are that teachers should become more responsive to individual literacy personalities and provide a classroom culture that fosters success, strength, and flexibility.

In a multilevel framework classroom, students are offered a wide variety of reading experiences that can foster engaged reading. Examples of reading experiences include daily quiet reading times with a book of individual choice, shared reading experiences, guided reading lessons with the teacher, read-aloud stories by the teacher, and buddy reading. Additionally, students are provided with a wide array of books to choose from. Examples of books found in a multilevel, emergent literacy classroom include fiction, non-fiction, picture books, chapter books, alphabet books, big books, board books, musical books,
leveled reading books, and thematic books. Additional reading material may include newspapers, magazines, and environmental print.

In addition to providing an environment that is rich in reading opportunities, multilevel classrooms provide plenty of opportunity to engage in literacy activities that support literacy learning through multi-sensory, hands-on approaches. In a review of the literature, Sonnerschein and Munsterman (2002) found that children's motivation for reading had a direct link to their increased frequency of engagement in literacy-relevant activities. In the same manner, the use of visual supports in literacy learning activities can be a key motivator for students with autism (Stewart, n.d.). Researchers agree that the activities students learn to associate with success tend to stimulate interest. (Stewart, n.d.; Cunningham, Allington, & Bogner, 1999; Bogner, Raphael, & Pressely, 2002).

It has been this author's experience that positive reinforcement of appropriate reading behaviors displayed by children with autism is also a key factor in their motivation to engage in and sustain appropriate reading behaviors. Teachers can provide positive reinforcement of appropriate reading behaviors by validating and expanding
on any and all attempts towards literacy achievement. Teachers can also set literacy goals in the classroom and reward students for making progress towards those goals. Rewards can be individual or group related. A popular, nationally recognized reward incentive program is Pizza Hut’s (2003) Book It and Book It Beginner program. These programs offer free pizza incentives for teachers and students who set and make progress towards literacy goals.

While tangible reinforcements can provide students with external incentives towards appropriate literacy behavior, Bogner, Raphael, and Pressley (2002) contended that teachers who establish a positive environment within their classroom can increase the motivation levels of their students. In their study on reading motivation, Bogner et al. (2002) established that teachers who modeled enthusiasm for reading, offered a comfortable and inviting place for reading, and provided a great deal of scaffolding of reading behaviors had a positive impact on increasing student motivation for reading. From these findings, there seems to be a great responsibility placed on teachers to make sure their students succeed, yet it is a teacher’s greatest challenge to motivate and meet the needs of each individual student (Cole, 2002).
Conclusion

A review of the research indicates that emergent literacy development for children with disabilities can be influenced through classroom curricula and procedures designed for students without disabilities (Katims, 1996). As the pendulum swings towards "practices supported by balanced theories, students with autism, and other developmental disabilities can participate in literary learning experiences" (Mirenda, 2003, p. 274). As previously mentioned, a multilevel framework for emergent literacy development came from the work of Hall and Williams (2000) and their attempt to adapt The Four Blocks Literacy Model (Cunningham & Hall, 1991) to younger children's acquisition of developing literacy skills.

In a year long investigation into the literacy development of students with disabilities, Hendrick (1999) found that students with mild to moderate mental retardation displayed increases in their literacy ability after being exposed to an adapted version of the Four Blocks Literacy Model. These findings support the notion that a multilevel framework for literacy development falls in line with best practice recommendations. Furthermore, best practice recommendations suggest that children with
autism can learn literacy skills in environments characterized as “high quality early learning environments” (Koppenhaver & Erickson, 2003, p. 291). High quality learning environments can be characterized as environments that provide children with a wide variety of reading related experiences. Specifically, a review of the literature found similar characteristics between a multilevel framework for emergent literacy development and recommendations for best practices. Similarities include increased availability for books and other literacy tools and materials in the classroom, appropriate modeling of behaviors and expectations, increased opportunity for hands-on reading and writing activities, detailed, incremental coverage of phonics, the use of direct instruction, and acknowledgement of learning styles with regard to auditory or visual preference (Koppenhaver & Erickson, 2003; Piotrowski & Reason, 2000; Katims, 1996).

In light of the authorization of the Individuals with Disabilities Act of 1997, greater emphasis must be placed on making methods and materials accessible to a full range of students, including those with autism (IDEA, 1997). Specifically, students with disabilities need to be provided a mean to advance appropriately toward attaining
their annual goals in such a way that provides them access towards the general curriculum. This emphasis on accessibility can be demonstrated as philosophies regarding the education of students with disabilities become more multi-method and multilevel with regards to the adaptability of general curriculum.
APPENDIX A

LITERACY ACTIVITIES FOR CHILDREN WITH AUTISM
Structure and Routine

When developing and implementing literacy centers for children with autism, classroom design, structure, and routine need to be considered. A multi-balanced, multi-level framework for literacy not only focuses on designing a classroom that is rich in oral language, print, and motivation for reading, but also on designing a physical classroom structure that supports and enhances the ability of children with autism to be successful learners in all areas of academia, including literacy.

This author recognizes that children with autism may have difficulty processing and organizing the often-unpredictable environment around them thereby not being able to fully take in and utilize information that is important to their learning processes. Creating physical and visual structure can provide clear guidelines and expectations for the child, which in turn, can lead to reduced frustration and gains in confidence, independence, and success.

Physical space in the classroom can be defined by organizing the classroom in such a way that promotes predictability of the daily activities. Portions of the room can be sectioned off to create mini-workspaces within
the classroom. For example, the language arts or shared reading area may be defined by a large carpet for the students to sit on with an easel at the head of the carpet, whereas centers and independent workstations may be defined by sectioning off portions of the room with cubbies, bookshelves, or dividers (see Figure 1, 2). Furthermore, these boundaries can be marked with picture icons or text that clearly define what the area is to be used for.

![Figure 1. This fine motor or writing center is sectioned off by bookshelves that house materials, supplies, and individual work tubs for students to complete pre-writing and writing tasks independently.](image-url)
Along the same lines, organization in the classroom is also a vital component when designing and setting up a classroom for children with autism. Children with autism often lack the ability to organize and make sense of their environment (Mesibov, 2005). Providing clear guidelines for organization can help them to become more independent in their own organizational skills and thereby enhance their ability to receive environmental input and make sense of it. Organizing the physical space in the classroom also helps children with autism to become more independent in their studies. Examples of organizational features in a classroom include a clearly defined space for working, as mentioned above, as well as clearly defined places where to
find materials and needed supplies and where to put completed work. A basket or box labeled "Finished Box" works well to serve the purpose of housing completed work. Children can be taught to put their independently completed work here. Also, color-coded work folders can be designated for work that is to be completed. Materials such as paper, pencils, crayon, and scissors can be organized in cans, tubs, or trays for easy access. Again, labeling the area where to find these materials can provide the children with a visual representation of organization.

For independent work and activity centers, bookshelves can house tubs of activities the children are currently working on. Each tub should be labeled and also have a corresponding label on the bookshelf. In each tub, all the materials needed for the particular activity should be included (see Figure 3, 4). Visual instructions can also be put in each tub as a reminder of how to complete the activity. Organizing work centers in this manner lends itself to easier activity scheduling (discussed in the next section) and student independence after a particular activity has been taught through demonstration and modeling.
Figure 3. Language/Literacy Center Activities
Animal pictures categorize these activities.
It is important to note that organizing work centers in this manner is well worth the initial time investment involved. Once centers are set up in this manner, it is very simple to adjust activities based on student achievement and need. Furthermore, once the child with autism learns to use and understand the physical structure of the classroom environment, new concepts, ideas, or changes can be made while still providing the student with a safe and predictable routine or structure.
Schedules

Scheduling is another way to provide children with autism a sense of structure and routine that enables them to process and organize the world around them. Schedules can provide visual reminders of the day’s events, thereby reducing the anxiety of transitions that many children with autism experience. It is important to design schedules for children with autism in a way that makes sense to them. Some children may need to use photographs of their daily activities; others may be more capable of utilizing picture icons or printed text. Schedules can be formatted either vertically or horizontally, or a combination of both. The important feature of scheduling is that the child knows what activity or event has already occurred and what activity or event is yet to occur.

A well-designed classroom may utilize a variety of schedules to meet the diverse needs of the students and the activities themselves. A permanent daily schedule may be posted on a wall in the classroom to provide an overview of the basic routine of the class. Just as easily, a monthly calendar can be provided in which special activities or upcoming events can be posted. Individual daily schedules can be used interactively by the students to transition
from activity to activity throughout the course of the school day (see Figure 5). Interactive use of scheduling consists of using removable picture/photo/text icons in which, during a transition, the student takes the icon to the corresponding area in the room to work there. Conversely, once at the next activity, another individual center activity schedule may be used to provide the students with clear expectations and guidelines as to the work that needs to be completed.

![Figure 5. Individual daily schedules shown in a vertical format. Transition slips are stored in pockets above the student's schedule.](image-url)
In Figure 6, individual center activity schedules are displayed that can be used to help the child with autism complete the designated activities in the particular center. For instance, in the language center, a child may be given a language center schedule, which provides a visual expectation as to which activities to complete. Again, the schedule should be interactive, wherein a student is able to take the icon at the top, remove it from the schedule and find the corresponding activity icon. When the student completes the activity, it is replaced in the cubby from which it was taken. The student then
continues on, in a vertical fashion in this case, completing the activities on the schedule.

In the same manner that schedules provide a clear, comprehensible view of the day’s outlined events; predictable routine signals that cue an upcoming change or transition are key to the child’s understanding and organization of the classroom environment and activities. Predictable routine signals can serve the purpose of providing a concrete understanding that the end of an activity has come and a new activity is ready to begin. Bells, timers, or other auditory cues can signal it is time to change activities in the classroom. Moreover, some children with autism may need additional prompting such as a transitional object to check their daily schedule more independently. For instance, color-coded slips of paper, picture icons, or objects that are taken to the schedule board and put in a basket may be used to aid the child in transitioning (see Figure 5).

Literacy Activities

Oral Language

The first domain addressed in a multilevel, well-balanced approach to literacy is oral language. Oral
language in students with autism and other language
disabilities is often delayed. A multilevel, well-balanced
approach to literacy for students with autism should
include an environment that is rich in oral language. In
fact, one of the most important aspects to developing oral
language within the context of literacy is a child's
exposure to books. For this reason, a multilevel classroom
should include the following opportunity for exposure to
books: read aloud stories, shared reading, guided reading,
and independent reading. Multilevel classrooms can be set
up in such a way that the child has opportunity for
exposure to books many times throughout the day. Teachers
can plan time for shared reading, individual or group
guided reading, individual silent reading from book boxes,
free choice of thematic reading after completion of
literacy center activities, listening to books on tape, and
library time.

This author has found that children with autism
respond and engage to a greater degree if read-alouds are
chosen that contain humor or interesting story lines. When
reading aloud to children with autism, it is important to
pause often, allowing time for auditory processing to occur
and also allowing opportunity for students to respond to
the story orally. When students orally respond to a story, their responses should be validated and expanded upon. Furthermore, the classroom designed for children with autism may include visual aides such as story props, puppets, and pictures that are based on many of their reading experiences. The use of visual aides can support the attention to auditory input by providing a visual focus of meaning. Puppets, story props, and pictures can provide access to the curriculum by bridging the gap between visual and auditory input. Visual input can give meaning to new vocabulary and concepts occurring in a read-aloud story.

Another avenue to provide meaningful experiences in oral language is to provide a reading curriculum based on thematic units. Theme related paraphernalia can be used to engage children with autism to a greater degree to enhance their interaction and comprehension of oral language (see Figure 7). Furthermore, children with autism should have the opportunity to interact and orally explore the concepts, themes, and ideas that are part of the curriculum.
Specific examples of literacy activities that promote oral language include reading the room and story retelling. "Read the Room" is an example of a literacy activity that can help to develop a child’s oral language skills by allowing them the opportunity to demonstrate, interact with, and explore the concepts and ideas introduced in the curriculum (see Figure 8). By posting meaningful items and student work around the room, student’s with autism often become motivated to participate in read the room activities. Story retelling with the use of visual supports can also enhance the child’s ability make gains in oral language. Using puppets, props, pictures, or self-
made crafts can be a motivating way to orally engage children with autism (see Figure 9). Activities such as these should be taught and modeled correctly before placing them on the child’s individual activity schedule.

Figure 6. Figure 7. "Read the Room" is an activity where the child can demonstrate his knowledge of concepts and experiment with oral language. Oral story retelling can include the use of props such as this apron and story related objects. Lakeshore Learning Materials. (2005) Storytelling Apron. Carson, CA.

**Phonological Awareness**

The second domain addressed in a multilevel, well-balanced approach to literacy is phonological awareness.
Phonological awareness includes the ability to orally identify, recognize and manipulate sounds, the ability to blend and segment sounds, and the ability to recognize rhyme. Strategies for developing phonemic awareness in children include using nursery rhymes, reading rhyming books, chanting tongue twisters, clapping and counting syllables in a word, orally blending and segmenting words, and playing silly games with words. Specifically, a literacy program designed for children with autism should include the use of explicit skill instruction, hands-on activities, and visual supports. Hands-on activities that include the use of visual supports can be included in the child's daily literacy activity schedule. Such examples are, but not limited to nursery rhyme posters, board games, puzzles, picture or word cards, alphabet tubs, music, chants, and sentence strip names. Figure 10 provides an example of a poem that can be used to incorporate rhyme and repetition into the daily calendar or language arts routine. Extension activities may include drawing pictures that depict the rhyming words, matching vocabulary words in the poem to picture cards or three-dimensional objects, and pointing to or highlighting the rhyming words with highlighting tape.
Puzzles, such as those available through Living & Learning (2003), can be used to introduce students to the concept of rhyming. Students can find the matching puzzle pieces and chant the rhyme: “Bee in a tree, bee in a tree, bee, bee, bee, bee; Bee in a tree.” (see Figure 11). Extension activities for students with higher academic skills may include identifying and writing lists of words with the same spelling patterns.
To introduce and strengthen blending skills, teachers can provide their students with autism visual supports to help them "see" the concept of blending single phonemes together to make a word. Figure 12 pictures a 2-sided puzzle, available through Carson-Dellosa Publishing (2003). Students can begin by putting the puzzle pieces together from the picture side then move to the print side as skill develops. The student can be taught to point to each letter, pronounce each sound individually, and blend the sounds together to form the whole word.
Another highly visual way to promote phonemic awareness of letter sounds and vocabulary development to students with autism is to pair individual phoneme sounds with two-dimensional pictures and three-dimensional objects (see Figure 13). Alphabet tubs by Lakeshore (2005) can be paired with picture icons made from the Boardmaker Software (Mayer-Johnson, 1997) to provide the student with visual supports necessary to deepen understanding of the concept that a single letter sound can represent many different items/objects. Simple chants about the letter sound can be
a motivating way to help generalize sound awareness: "The letter is R and the sound is /r/, /r/, robot".

![Alphabet Tubs paired with picture icons.](image)


For syllable and word blending and segmentation activities, students with autism may not have the ability to fully comprehend how auditory or spoken words can be taken and apart and put back together again. Students with autism often benefit from the addition of visual supports to clearly "see" how words can be broken down into syllable form. Using double-sided picture syllable cards, such as those available through Super Duper Publications (2002) can be used to promote such understanding (see Figure 14). The
same concept can be extended for the literacy concepts of compound words and contractions.

Figure 14. The blue side of these syllable cards is used to show children where to clap out the syllables in the word while the red side of the card gives them practice on their own. Super Duper Publications. (2002). Syllable Drilling [flashcards]. Greenville, SC.

Finally, many phonemic awareness games can be made and housed in file folders to give students independent practice with beginning and ending sounds, digraphs, compound words, contractions, and word families. Games can be made using pictures, flashcards, library pockets, index cards, and Velcro. Figures 15 and 16 provide additional
examples of teacher made matching and sorting games that promote phonemic awareness in a visual manner.

![Figure 15. Beginning sounds game.](image)

![Figure 16. Digraphs file folder game.](image)

**Orientation Towards Print**

The next domain that is addressed in a multilevel, well-balanced literacy framework for literacy instruction is orientation towards print. In order to understand that print can take many forms and that it can serve many different purposes, children with autism need to be surrounded by a print rich environment. A print rich environment will not only stimulate their visual curiosities, but may also provide the supports they need in order to understand their environment in a more concrete way (see Figure 17). Early awareness of print can be
introduced through the use of environmental print, shared and guided reading lessons, word walls, predictable charts, concept boards, interactive writing, and a variety of other literacy activities.

![Figure 17. An example of a print rich environment.](image)

To further develop an understanding of print concepts, visual aides can be used in conjunction with print referencing behaviors during a shared reading lesson. Shared reading lessons can be used to model appropriate reading behaviors such as turning pages left to right, pointing to text, and the ability to locate the title, author, or illustrator of a book. Visual supports can be used to make these concepts easier to understand for children with autism (see Figure 18). Concept cards can be
created using the Boardmaker Software program (Mayer-Johnson, 1997) to teach title, author, and illustrator of a book. The concept card can be introduced through a simple song or chant: "The author is the person, the person, the person; The author is the person, who wrote the book!"

Figure 18. Concept Cards.

Another important aspect of early literacy orientation towards print is a child's ability to recognize and learn the letter names and sounds of the alphabet. In a multilevel literacy rich classroom, early reading activities that address letter-sound relationships should be plentiful, meaningful, and flexible. Letter-sound relationships become meaningful and students may become
highly motivated when lessons and instruction are centered on themselves.

Predictable charts and interactive writing are two such activities that promote orientation towards print in a meaningful way. Predictable charts are charts that are made in response to a theme, idea, or concept that is motivating for the child. They are often created by dictating the ideas and responses of the children in a very repetitive and predictable format. This type of format often lends itself to memorization by the children. Early in the school year, the chart can be written by the teacher, but as the year progresses and the students learn to recognize letters and sounds, the teacher and student can share the pen. Figures 19 and 20 provide examples of predictable charts that have been created with the student’s interests in mind. Each student can be given an opportunity to respond to the prompt (such as “What color apple do you like?”) while the teacher dictates his/her response on a chart. The charts take on a very predictable and repetitive structure in order to maximize the learning process through memorization. The charts can be posted around the room for student’s to later read independently.
Figure 19. Predictable Chart: I Like Apples

I like green apples. (Mrs. LaFleur)
I like red apples. (Mr. Del)
I like yellow apples. (Lesley)
I like green apples. (Andrew)
I like red apples. (Eric)
I like yellow apples. (Kyle)
I like red apples. (Stevie)
I like red apples. (Jaime)
I like apples. (Alec)
Interactive writing is another activity that lends itself to print orientation instruction in a manner that is flexible, motivating, and fun. It affords the child the opportunity to explore the relationship of sounds to printed letters and words while the teacher provides a high level of scaffolding for new letter sound relationships and concepts of print orientation. During an interactive writing lesson, the teacher draws upon the student’s interest regarding the story concept or theme for lessons that teach print orientation through writing. Early
interactive writing lessons may be as simple as labeling the characters in the story or retelling a story in their own words (see Fig. 21 & 22). The main goal during an interactive writing lesson is to model print orientation through writing in a highly scaffolded manner that allows the child to use their knowledge of sounds and letters to help with the writing.

Figure 21. An interactive writing lesson that was done early in the school year. The lesson goal was to label the foods in the story that the rabbit ate. Students who were able to hear the sounds in the words were chosen to write the letter that represents the known sound.
Figure 22. An interactive writing lesson done later in the school year when the student's print orientation and writing skills had grown. The lesson was more detailed and included the concepts of capitalization, spacing, and punctuation.

**Story Comprehension**

Finally, it has been traditionally believed that language impairment in children with autism arises from difficulties in the ability to comprehend or process language properly (Autism Society of America, 1995). Therefore, children with autism need to partake in a variety of instructional lessons that provide them with an opportunity to increase comprehension skills.
This author often thinks of students with autism as visual thinkers and learners. Consequently, combining the use of visual supports with instructional strategies designed to increase comprehension in emergent literacy experiences, children with autism may be better able to tap their prior knowledge and respond to a story in a way that enables them to become more skilled at processing written and oral language. Examples of instructional strategies to develop comprehension that can be enhanced by the supplement of visual supports include direct instruction, questioning, reciprocal teaching, and directed reading activities.

An example of emergent story comprehension for which direct instruction is an appropriate strategy in skill building is in the area of story sequencing. Students in the process of acquiring emergent literacy skills often learn "sense of a story" through shared storybook experiences. By incorporating the use of direct instruction, students can gain an even deeper sense of story comprehension. Providing lessons that incorporate how to break the story down into specific parts such as beginning, middle, and end increase comprehension skills. Moreover, using visual supports to describe what the
concepts of beginning, middle, and end are, students with autism are provided a more concrete way of viewing these concepts. To further deepen student understanding, story-depicted picture cards that correspond to popular children’s literature can be used to aid the students in an oral retelling of the story.

Questioning is another effective strategy for promoting story comprehension. Comprehension questions can be considered surface level questions when the answers are readily available in the book. These types of questions are often the who, what, when, and where type questions. Comprehension questions that ask how, can, and why are often referred to as under the surface type questions.

With regards to emergent literacy and students with autism, surface level questions are often the place to start when developing comprehension skills. In order to make questioning understandable to students with autism, teachers can often tell their students that they are going to ask a question prior to the actual asking of the question. When asking a question related to a story, teachers may display a teacher made question concept card for visual representation of the question, while at the same time displaying the page in the book where the answer
can be found (see Figure 23, 24). If a student has difficulty making an appropriate response, teachers can model aloud how to think about the question. This type of repetitive questioning strategy may promote quicker understanding of story related surface questions. For those students who have increased comprehension skills, the questioning can become more under the surface related. In this case, teachers may increase their usage of the think aloud strategy while at the same time making sure to expand on the student’s thoughts and ideas.

Figure 23. Question cards can be made using the Boardmaker Software and used as visual supports to enhance and develop comprehension skills. Mayer-Johnson, Inc. Boardmaker [computer software]. Solana Beach, CA.
Another strategy that has become popular for promoting story comprehension is the use of reciprocal teaching. Components of reciprocal teaching often include predicting, developing questions, summarizing, and clarifying. Predicting includes making a guess about what will occur in the story or what the outcome might be. Developing questions engages the student in identifying information they would like to know about the story. Summarizing the story provides an opportunity for students to identify and integrate the most important aspects of the text or story.
Finally, clarifying affords the students the opportunity to refine meaning of vocabulary and concepts.

For younger students who are emerging in the world of literacy, or for students with language processing disorders like autism, modified reciprocal teaching techniques can be employed to strengthen comprehension ability. As mentioned earlier, the four components of reciprocal teaching (NCREL, 2003) include predicting, developing questions, summarizing, and clarifying. Predicting includes making a guess about what will occur in the story or what the outcome might be. Developing questions engages the student in identifying information they would like to know about the story. Summarizing the story provides an opportunity for students to identify and integrate the most important aspects of the text or story. An example of a modified lesson using the reciprocal teaching strategy may be as simple as creating a comprehensive, multilevel bulletin board based on a thematic unit of study (see Figures 25, 26, 27, 28, 29). Graphic depictions that encompass the theme can be displayed on the bulletin board along with visual supports to enhance the concept of a question verses the concept of a statement or sentence. On one side of the board,
questions that were generated by the teacher (and/or students) can be posted, while student responses can be posted on the other side of the board. Student responses can include teacher dictation or student’s oral responses and student made work that was done in response to a question. Additionally, student made artwork depicting the concept of the theme can be added to the board. As a result of utilizing a multilevel, theme-based bulletin board for instruction, students who are just beginning their journey towards literacy can become familiar with reciprocal teaching techniques.
Here concept boards are used to enhance the student's understanding of the theme presented. Concept boards may include questions, vocabulary, realia, charts, graphic organizers, and student responses. Extension activities include daily review of theme related concepts and read and write the room activities.
Concept boards can be used to promote vocabulary and concept comprehension by incorporating the use of visual supports.

Student work that answers questions related to the theme can be posted on the concept board for daily review.
Conclusion

Finally, when implementing a multilevel classroom design for children with autism it is important to remember to incorporate all of the reading domains in a way that is highly structured, predictable, and visually supported. Students with autism very often have difficulty processing language and concepts related to language therefore making reading a sometimes-arduous task. By breaking down the reading domains into understandable concepts in a way that makes sense to them, children with autism are often able to overcome the barriers put in place by their disability when it comes to developing literacy skills. The ideas listed here represent just a small portion of the type of visual, hands-on activities that can be developed and utilized to promote literacy in children with autism. I am often asked how to create, adapt, or modify literacy concepts in a way that makes sense to visual learners, and my answer is always the same: It's all about the details! Incorporate the smallest of details into a visual format and you will often see the child making sense of and understanding concepts that did not make sense to them before.
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