TEACHERS’ PERSPECTIVES OF LITERACY INTERVENTIONS FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

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Elizabeth Burns Isaacs

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TEACHERS’ PERSPECTIVES OF LITERACY INTERVENTIONS FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

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by

Elizabeth Burns Isaacs

Approved by:

__________________________________, Committee Chair
Jean Gonsier-Gerdin, Ph.D.

__________________________________, Second Reader
Kathleen Gee, Ph.D.

____________________________
Date
Student: Elizabeth Burns Isaacs

I certify that this student has met the requirements for format contained in the University format manual, and that this thesis is suitable for shelving in the Library and credit is to be awarded for the thesis.

__________________________, Graduate Coordinator

Albert Lozano, Ph.D.                     Date

Graduate and Professional Studies in Education
Abstract

of

TEACHERS’ PERSPECTIVES OF LITERACY INTERVENTIONS FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

by

Elizabeth Burns Isaacs

Developing appropriate literacy programs for students with autism spectrum disorder (ASD) is an important task for special educators. Due to deficits in the areas of social communication and behavior, students with ASD learn differently from their typically developing peers (American Psychiatric Association, 2013). Limited research has been conducted regarding teachers' perspectives of literacy interventions for students with moderate to severe disabilities (Ruppar, Dymond, & Gaffney, 2011). However, no study has been conducted specifically to explore teachers' perspectives of literacy practices for students with high functioning autism.

This descriptive study utilized a survey design to examine special education teachers' beliefs about literacy practices for students with high functioning autism. Participants were 12 special education teachers from elementary and middle schools in a large suburban school district within Sacramento County. Data were collected through a web-based survey program. Descriptive statistics were used to analyze the data.

Participants indicated that they believed that all students benefited from literacy instruction. They also rated all literacy interventions highly in terms of the likelihood to
use. The highest rated interventions were in the areas of decoding and reading text while the lowest rated interventions were in the areas of reading comprehension and writing. Teachers indicated factors that affected literacy skills taught including whether the skill was useful in a student’s current environment. Participants’ responses regarding barriers to literacy instruction in general education settings included lack of staff and lack of cooperation from other staff members.

Findings suggest that teachers view literacy as important for students with high functioning autism, but they may need additional support in utilizing interventions in this population’s deficit areas of reading comprehension and writing. Findings regarding barriers to literacy instruction imply that there is a need for special education teachers to have staff and resources in order to teach literacy to students with ASD in inclusive settings. Implications for practice include further collaboration between administrators, teachers, and support staff to maintain effective literacy practices in inclusive settings for students with ASD. Further research in this area will support teachers in meeting the literacy needs of students with ASD, thereby improving their academics and overall quality of life.

________________________, Committee Chair
Jean Gonsier-Gerdin, Ph.D.

________________________
Date

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Chapter 1

INTRODUCTION

Educating students with an autism spectrum disorder (ASD) is an important and challenging task for educators today. Autism as a disability category under the Individuals with Disabilities Education ACT (IDEA) is one of the fastest growing disability categories; the incidence of autism quadrupled from 2001 to 2009 (Scull & Winkler, 2011). According to the Centers for Disease Control and Prevention [CDC] (2012), nearly one in 88 children are diagnosed with an autism spectrum disorder. Due to deficits in social skills, communication, and adaptive behavior, children with autism learn differently from other children (American Psychiatric Association [APA], 2000). As a result of these deficits, educators must find individualized and meaningful ways to teach students with autism.

According to the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.) (DSM-IV-TR), individuals were diagnosed with one of four disorders along the autism spectrum (American Psychiatric Association [APA], 2000). These disorders included autistic disorder, Asperger’s disorder, childhood disintegrative disorder, and pervasive developmental disorder—not otherwise specified (APA, 2000). However, a new version of this manual, The Diagnostic and Statistical Manual of Mental Disorders (5th ed.) (DSM-5) was published in May 2013 (APA, 2013). The recent version of the DSM-5 (APA 2013) has combined all of these disorders into one term: Autism Spectrum Disorder. Currently, diagnoses are separated into three levels of severity. Level 1 indicates those individuals “requiring support;” Level 2 indicates those individuals
“requiring substantial support;” and Level 3 indicates individuals “requiring very substantial support” (APA, 2013). According to the DSM-5, anyone who previously had a diagnosis of one of the above four disorders would still be classified as having autism spectrum disorder under the new DSM-5 (APA, 2013).

ASD is considered a spectrum disorder because individuals with ASD exhibit a wide range of skills. At one end of this spectrum are individuals who colloquially are referred to as having high functioning autism or have Asperger’s syndrome. These individuals may be classified as Level 1 severity according to the new DSM-5 (APA, 2013). According to Buron Dunn and Wolfberg (2008), children with high functioning autism may exhibit the same delays as students with "classic" autism do in early childhood; however, they usually demonstrate average cognitive abilities upon entering school. Individuals with Asperger’s syndrome differ in that they have above average language abilities, but difficulty with social communication (Buron Dunn & Wolfberg, 2008). Due to the developmental delays that they experience, individuals with high functioning autism and Asperger’s syndrome may require educational supports through special education services and an Individualized Education Plan (IEP).

Literacy is one area that is affected in students with high functioning autism. Literacy instruction for students with high functioning autism and Asperger’s syndrome can be deceptive for many teachers. For example, the ability of these students to read words is usually much higher than their ability to comprehend language (Huemer & Mann, 2009). Furthermore, some students with high functioning autism are hyperlexic, and therefore, are able to read a large amount of words, but may struggle with actual
comprehension (Myles, Hilgenfeld, Barnhill, Griswold, Hagiwara, & Simpson, 2002). As a result, teachers may have difficulty accurately assessing the needs of their students with ASD.

In addition, other factors affect literacy instruction for students with high functioning autism. For example, restrictive and repetitive behaviors associated with autism can make teaching reading to students with ASD difficult if it is outside of their specific area of interest. Dunlap and Bunton-Pierce (2000) found that children with autism benefit from a variety of educational interventions. Yet, certain curricula or teaching strategies may work for some students with autism, but not others (Dunlap & Bunton-Pierce, 2000). Although researchers are learning more about skill-based interventions for students with autism, there is still more to learn.

Most educators agree that literacy instruction is an essential component to any student's educational plan. According to the No Child Left Behind Act (2001), all students must be taught with evidenced based literacy programs. Part of No Child Left Behind mandates that specific reading instruction target the following areas: phonemic awareness, phonics, vocabulary, reading fluency, and comprehension (Whalon, Al Otaiba, & Delano, 2009). Whalon et al. (2009) also found that students with autism, including students with high functioning autism, benefited from evidenced-based reading instruction that focused on the five recommended areas. However, the research did not examine how regularly teachers are targeting these areas with students with autism on a given day.
Furthermore, many teachers have varying perspectives about which components are crucial in teaching literacy to students with disabilities (Ruppar, Dymond, & Gaffney, 2011). Ruppar et al. (2011) surveyed teachers regarding their perspectives of literacy instruction for students who used augmentative and alternative communication (AAC) devices. The authors found that while teachers believed that literacy is important for all students, teachers preferred to use a more functional approach to literacy for students with severe disabilities. To date, there has not been a similar study conducted to explore teachers’ perspectives of literacy instruction for students with autism, specifically high functioning autism.

**Background of the Problem**

Literacy instruction is a crucial component of all students’ educational plans. Reading ability is a critical factor in whether or not a child will be successful in school. According to The California Department of Education (1999), students who struggled with reading had high dropout rates and were more likely to be retained or referred for special education services. The National Assessment of Adult Literacy (as cited in Baer, Kutner, Sabatini, & White, 2009) found that adults who did not have proficient literacy skills had difficulty finding jobs and were more likely to live in poverty. The report also documented that individuals with disabilities were twice as likely to have below basic reading proficiency skills (as cited in Baer et al., 2009). Literacy instruction for students with ASD is especially critical because they learn differently from other children (APA, 2000, 2013). A person with high functioning autism may struggle more to attain reading proficiency than a “neurotypical” individual (Estes, Rivera, Bryan, Cali, & Dawson,
It is important for educators to understand appropriate interventions for individuals with ASD so that they are able to adequately meet the needs of this population of learners.

Although California law does not dictate a certain amount of minutes spent per day on literacy instruction, it does require teachers to provide instruction based on the California Content Standards (CDE, 1998). In 2014, these were changed to Common Core Standards. Using these standards, school districts specify which curricula teachers must use for literacy; however, it is difficult for teachers to use one set curricula when teaching students with ASD (Virginia Department of Education, 2011). Likewise, educational approaches that are successful for “neurotypical” students are not always effective for students with an autism spectrum disorder (Flores & Ganz, 2009).

While neither the DSM-IV-TR (APA, 2000) nor the DSM-5 (APA, 2013) directly specifies problems with literacy as qualifying criteria for the diagnosis of autism spectrum disorder, there is research that deficits in language and communication for students with autism contribute to deficits in literacy skills (Flores & Ganz, 2009). In addition, deficits in vocabulary development and lexical processing of students with ASD may contribute to poor decoding and comprehension skills (Speirs, Yellend, Rinehart, & Tonge, 2011). Researchers have discovered that students with high functioning autism or Asperger's syndrome often have difficulties with reading comprehension (Myles et al., 2002). Restrictive and regimented behaviors in students with high functioning autism or Asperger's syndrome have also been linked to poor abstract thinking, which can affect reading comprehension skills (Carnahan, Williamson, & Christman, 2011).
While students with autism exhibit a wide variety of strengths and need areas, it is clear that they learn differently from children considered “neurotypical.” Educating students with autism depends largely on a teacher’s own individual knowledge of the disability as well as his or her individual knowledge of curriculum and strategies (Ruppar et. al, 2011). Although there has been some research documenting effective literacy strategies for students with autism (Flores & Ganz, 2009; O'Connor & Klein, 2004; Whalon & Hanline, 2008), there has been little research in schools about whether teachers are actually using these strategies or not. When teachers perceive interventions to be effective, they will be more apt to use them in their classrooms on a regular basis, thereby enhancing education for their students (Monroe, 2009). As a result, more research is needed regarding teachers’ attitudes and perspectives about literacy instruction for students with autism.

There has only been one recent study conducted regarding teachers’ perspectives of literacy interventions for students with disabilities. Ruppar et al. (2011) examined teachers’ perspectives of literacy interventions for students with severe disabilities who used alternative and augmentative communication (AAC) devices. While the authors examined literacy instruction, their study was specific to students who used augmentative and alternative communication devices; it was not exclusive to students with autism. More research is needed to determine what teachers view as appropriate literacy interventions for students with an autism spectrum disorder.
Statement of the Research Problem

Although there is a large body of research regarding effective interventions for children with autism, few of them are specific to literacy instruction (National Research Council, 2001). Moreover, most of the research regarding teaching students with autism has been focused on addressing the core deficit areas of communication, behavior, and social skills (National Research Council, 2001). The research has been divided between studies of individuals with “classic” autism and studies on individuals with high functioning autism. Moreover, little research has been conducted regarding the effectiveness of specific literacy interventions for students with high functioning autism.

In order to provide more quality literacy instruction to students with high functioning autism, it is important to first examine teachers’ beliefs about literacy interventions for this population of students. This purpose is twofold: first, it is important to know teachers’ beliefs in order to understand what is important to them when teaching literacy to students with high functioning autism. Secondly, it is important to examine teachers’ beliefs regarding each specific intervention, because the way that teachers perceive various interventions often dictates what is used. In knowing teachers’ perspectives, researchers may then have a starting point for further research in examining why teachers choose to use certain interventions over others. Knowing what teachers believe about literacy interventions may correlate to the amount of experience in teaching reading and other literacy skills to students with autism.

It is necessary to further examine teachers’ beliefs and attitudes about literacy instruction for students with high functioning autism. Learning what teachers believe
about specific interventions, literacy settings, or barriers to literacy instruction for students with high functioning autism will provide the foundations for further research into effective literacy practices for students with autism.

**Purpose of the Study**

In order to address the aforementioned problem, this study attempted to examine teachers’ perspectives of literacy instruction for students with high functioning autism. The purpose of this study was to identify which literacy interventions special education teachers’ viewed as appropriate for students with high functioning autism. In addition, this study examined which factors may have influenced these perspectives. More specifically, the study analyzed teachers’ beliefs about literacy instruction, their preferred settings for literacy instruction, their perceptions of barriers to literacy instruction, and their likelihood to use particular interventions for literacy instruction for students with high functioning autism.

While examining teachers’ perspectives of literacy interventions, this study also looked more specifically at factors that influence these perspectives. Additionally, this study aimed to determine whether teachers’ beliefs about the importance of literacy instruction, in general, had influence over their practices. The following research questions were addressed:

1. What are teachers' beliefs about literacy instruction for students with high functioning autism?
2. What interventions are teachers likely to use for literacy instruction for students with high functioning autism?
3. What do teachers view as barriers to literacy instruction for students with high functioning autism in general education settings?

4. What factors affect teachers’ perspectives of literacy instruction for students with high functioning autism?

The purpose of exploring these questions was to inform educators about what teachers viewed as appropriate interventions for their students with high functioning autism. Outcomes from this research study can be used to provide a framework for creating new interventions, curricula, and teaching strategies for students with high functioning autism.

**Theoretical Framework**

This study involves identifying teachers' beliefs and perspectives about particular literacy interventions and instruction for students with high functioning autism. The Theory of Planned Behavior can explain why teachers will use the interventions that they believe are effective. Ajzen (1991) found that individuals have specific behavioral intentions based upon their beliefs and attitudes. When an individual has behavioral intention, he or she will plan events in order to carry out a plan. Ajzen (1991) also theorized that behavioral intentions fell into three different categories: Attitude toward the behavior; subjective norm; and perceived behavioral control. The attitude toward the behavior refers to a person's beliefs about a particular behavior and how strong these beliefs are. Subjective norm refers to the peer or social pressure that one may experience regarding acting or not acting upon a specific behavior. Finally, perceived behavioral control refers to an individual's perception of how difficult or easy performing that
behavior will be. These three components lead to the behavioral intention, where a person will carry out actual behaviors when given the opportunity. In the present study, a teacher’s likelihood to use an intervention could indicate that they believe that the intervention is effective.

The Theory of Planned Behavior can be applied to this study, since it will utilize a survey design that asks for teachers' perspectives and beliefs about particular interventions. It is assumed that teachers who use specific interventions have already gone through the process of planned behavior. For example, teachers exhibit a specific attitude toward using the intervention. Since schools are typically social places, teachers also form the subjective norm when they collaborate with their colleagues about different literacy interventions. Teachers also form perceived behavioral control when they analyze how difficult or easy an intervention may be. All three of these components contribute to teachers forming behavioral intentions about different interventions thereby making them highly likely to use the specific interventions. The Theory of Planned Behavior can be used to assume that those interventions that teachers believe to be highly effective will be the interventions that they are more likely to use.

The Cognitive Dissonance Theory proposes that individuals are motivated by their desires to maintain equilibrium with their beliefs. Festinger (1957) theorized that people do not want to be at conflict with their own belief systems. As a result, people will always attempt to achieve "consonance" (Festinger, 1957, p. 9) with their own beliefs.

In examining teachers' perspectives of literacy interventions for students with high functioning autism, the Cognitive Dissonancy Theory applies. Teachers will indicate
that they are likely to use interventions that they believe are effective. Cognitive Dissonance Theory dictates that teachers would not want to use interventions that they do not feel are effective, because this would put teachers at a state of conflict and disequilibrium (Festinger, 1957).

**Definition of Terms**

*Autism*

The *Diagnostic and Statistical Manual-IV (DSM-IV-TR)* (APA, 2000), defined autism as "a pervasive developmental disorder.” People diagnosed with a pervasive developmental disorder "were characterized by severe and pervasive impairment in several areas of development: reciprocal social interaction skills, communication skills, or the presence of stereotyped behavior, interests, and activities" (p. 69). The new *DSM-5* (APA, 2013) has changed the name of autism to autism spectrum disorder (ASD). A person with autism under the current *DSM-5* may be categorized as having ASD (APA, 2013).

*Autism Spectrum Disorders*

Batshaw, Roizen, and Lotrecchiano (2011) define autism spectrum disorders as, "A class of neurodevelopmental disorders characterized by impairments in social reciprocity, atypical communication, and repetitive behaviors. The term *autism spectrum* indicates that the disorders in this category occur along a continuum" (p. 345). In order to meet criteria for an Autism Spectrum Disorder according to the *DSM-5*, individuals must exhibit deficits in social communication as well as restrictive and repetitive behaviors along a continuum of varying degrees (APA, 2013). The new *DSM-5* also notes the
severity of ASD by three levels. Level 1 indicates those individuals “requiring support;” Level 2 indicates those individuals “requiring substantial support;” and Level 3 indicates individuals “requiring very substantial support” (APA, 2013).

High Functioning Autism

A colloquial term used to define students who develop similarly to students with autism, but appear to have average to above average cognitive abilities. Buron Dunn and Wolfberg (2010) define high functioning autism as "autistic disorder generally accompanied by an IQ above 70" (p. 370)

Asperger’s Syndrome

Students on the autism spectrum who demonstrate average to above average cognitive and verbal abilities, but who exhibit impairments in social interaction and repetitive behaviors and restrictive interests (Buron Dunn & Wolfberg, 2010). Asperger’s syndrome was classified under “autism” in the DSM-IV-TR (APA, 2000). Currently, students with Asperger’s syndrome according to the DSM-5 may be categorized as having an Autism Spectrum Disorder, Level 1 (APA, 2013).

General Education Setting

General education setting refers to a traditional classroom setting in which most of the students are typically developing. In a general education setting, teachers are taught by a credentialed teacher who may or may not have experience in teaching students with disabilities. General education settings in elementary schools are usually self-contained classrooms where one teacher is responsible for teaching all subjects. General education settings in middle school usually have separate teachers for English,
Math, Social Studies, Science, and Electives. In both elementary and middle school, students are taught according to California state standards.

**Teacher**

A teacher is a person who has studied education and has been trained to teach a classroom of students. Throughout the United States, all teachers are required to hold a teaching credential, which enables a person to teach the population of students that they have been trained to teach. In California, teachers who work with individuals with disabilities are requires to have an Education Specialist credential.

**Hyperlexia**

Hyperlexia is the ability to read and decode a multitude of words without actually being taught to read those words. Children who have hyperlexia may have higher word reading abilities than they have reading comprehension abilities (Newman, Macomber, Naples, Babitz, Volkmar & Grigorenko, 2007).

**Intervention**

An intervention is an educational treatment or strategy. Teachers in a variety of settings use many different types of interventions. There are skill-based interventions such as reading strategies, as well as grouping interventions such as peer tutoring. There are also specific types of instruction such as direct instruction or incidental teaching that can be considered interventions (Heward, 2009).

**Literacy**

Literacy involves an understanding of reading and writing. Literacy involves the ability to read words and understand what those words mean. It also involves being able
to write in order to convey messages with meaning to audiences. Literacy instruction involves teaching reading and writing skills (Reardon, Valentino, & Shores, 2012).

Reading

The ability to identify single letters, words and sentences. The ability to read text and understand the meaning of that text. The ability to understand vocabulary and use it within text (Reardon et al., 2009).

Individuals with Disabilities in Education Act (IDEA)

The Individuals with Disabilities in Education Act (2004) is a federal law that entitles students with disabilities to certain protections. Among these, includes the availability of a Free and Appropriate Public Education (FAPE). IDEA also requires that students be taught in the Least Restrictive Environment (LRE).

Individualized Education Plan (IEP)

A written contract and plan that provides educational services and documentation of a Free and Appropriate Public Education as indicated in IDEA. IDEA also requires that an IEP be conducted at minimum of once per year; a triennial evaluation must be conducted every three years. The members of an IEP team consist of a parent, general education teacher, special education teacher, and administrator. Other members may include service providers, such as speech or occupational therapists, inclusion specialists, school nurse, or adaptive P.E. teacher (IDEA, 2004).

Neurotypical

Neurotypical students do not have diagnoses of autism. A neurotypical student has experienced a typical development and does not have delays in communication; this
individual does not show evidence of repetitive behaviors, and he or she does not have delays in social skills (Kluth, 2008). This term is also synonymous with “typically developing.”

Special Education Self Contained Classroom

A special education classroom that only consists of students with disabilities. The students spend the majority of their day in this classroom. This is also referred to as a Special Day Class

Special Education Resource Room

A special education classroom where students spend portions of their day. Typically, students come to this room for specific instruction related to their IEP goals, for example, for literacy or math instruction.

Typically Developing

A person without a documented disability is considered to be typically developing.

Writing

Writing involves both the fine motor aspect of penmanship and handwriting as well as the cognitive aspect of conveying thoughts into written form. Writing involves being able to think of a sequence of thoughts and convey them through words, sentences, and paragraphs in written form onto paper (Pennington, 2009).

Assumptions

The author assumes that all participants in this study are special education teachers with Education Specialist credentials. It is assumed that because all teachers take
coursework in teaching literacy, that all teachers have some knowledge of how to teach literacy skills to their student population. This author also assumes that all participants will answer the survey questions truthfully, and that all answers to survey questions can be interpreted as actual beliefs and perspectives of the individual participant. It is assumed that students who take the California Standards Test (CST) or the California Modified Assessment (CMA) exhibit higher cognitive skill sets than students who participate in the California Alternative Placement Assessment (CAPA). It can be assumed that, for the purpose of this study, students with ASD who take either the CST or CMA are considered to have “high ability/high functioning autism” It is also assumed that by having an eligibility of autism, students have been diagnosed with an autism spectrum disorder by a medical professional or school psychologist. Since the current study began when students were diagnosed using the DSM-IV-TR (APA, 2000), it is assumed that all students would continue to meet criteria for having an Autism Spectrum Disorder according to the DSM-5 (APA, 2013).

Justification

Results from this study will be used to inform educators about literacy practices for students with high functioning autism. Teachers’ perspectives can help researchers identify the value in certain literacy approaches, interventions, or curricula. Learning which interventions teachers find effective will enable educators and curriculum developers to understand what types of strategies and curriculum approaches teachers are likely to use. Identifying which interventions teachers find effective, will benefit the profession by creating new methods to teach students with high functioning autism,
thereby enhancing the overall educational experience and quality of life for students with autism spectrum disorder. Finally, understanding the barriers to literacy instruction for students with high functioning autism will assist educators in understanding how to make systems changes that will benefit students with high functioning autism.

**Limitations**

This study examined teachers’ perspectives of literacy instruction for students with high functioning autism. Therefore, the sample size was limited to the number of special education teachers who responded to the survey from one school district in the greater Sacramento, California area. Due to confidentiality and restrictions within the school district, a link to this survey was e-mailed by the district. The researcher relied on the report of the district as to whether or not all of the surveys were sent to the intended participants. In addition, the researcher was not able to determine whether teachers answer each question truthfully. Since this study limited the population to special educators of students with high functioning autism, the researcher embedded secondary criteria that the participants had to meet: the participants had to serve students with autism spectrum disorder who took the California Standards Test or the California Modified Assessment. Due to confidentiality, this researcher is relied on statements of the participants as to whether or not their students, in fact, took the California Standards Test or the California Modified Assessment.

**Organization of the Remainder of Thesis**

The remainder of this thesis is organized as follows. Chapter two reviews the current literature regarding literacy instruction for students with autism, particularly those
with high functioning autism and Asperger’s syndrome, as well as teachers' perspectives on literacy interventions for students with disabilities, including those with ASD. Chapter three details the methods used in this study, including descriptions of the survey design used. Chapter four describes the findings of this study based upon descriptive statistics. Chapter five discusses the findings in light of existing research and implications for future research and practice. An appendix at the end of this thesis includes the survey instrument and informed consent page as well as introductory and reminder e-mails that were sent to potential participants.
Chapter 2

LITERATURE REVIEW

Since Kanner’s first study of autism in 1943, there has been a multitude of research conducted to examine the characteristics of learning in students with ASD. More recently, researchers have conducted various studies regarding literacy interventions for students with ASD, including students with high functioning autism. There has been less research investigating teachers’ perspectives or attitudes towards instructional practices for students with autism spectrum disorder. In fact, there has been limited research specific to teachers’ attitudes of literacy interventions for students with high functioning autism.

The following literature review will document the current research that pertains to literacy instruction for students with autism and has been organized into several different sections. First, current research will be documented regarding literacy abilities in students with ASD. In order to address teachers’ perspectives of literacy instruction for students with autism, it is necessary to first look at the strengths and need areas of students with autism regarding literacy acquisition. Looking at characteristics of literacy instruction for students with ASD will allow the current researcher to analyze whether teachers’ beliefs are research-based and consistent with this population’s strengths and needs. In addition, research-based interventions specific to teaching literacy to students with ASD will be examined. It is necessary to look at educational strategies for literacy instruction for students with ASD because teachers may prefer to use a variety of instructional strategies when teaching literacy to students with autism. Discovering which strategies are effective
in teaching literacy to students with ASD will help inform whether teachers prefer to use these research-based strategies. Finally, this review will explore literature that has been conducted regarding teachers’ beliefs and attitudes in the area of special education specific to literacy instruction. Looking at what previous researchers have found regarding teachers’ perspectives of literacy instruction for students with disabilities will provide a foundation on which the current study has been formed.

There has been limited research regarding teacher’s perspectives of literacy instruction for students with disabilities in general and no research regarding teacher’s perspectives of literacy instruction for students with high functioning autism. As a result, this literature review will be expanded to include research conducted regarding literacy instruction for students with all autism spectrum disorders, high functioning autism, and Asperger’s syndrome. Although the current study will only examine teachers’ perspectives of literacy instruction for students with high functioning autism, expanding to include a wider population will provide more information as a foundation for examining literacy instruction for students with ASD.

**Literacy Abilities and Needs of Students with ASD**

**Verbal Language and Literacy**

Research has documented the link between oral language and literacy in individuals with ASD (Norbury & Nation, 2011; Speirs et al., 2011). Typically developing students first develop spoken language and then acquire the ability to read and understand written language (Speirs et al., 2011). However, students with autism spectrum disorders, as criteria for diagnosis, have delayed language abilities (American
Psychological Association, 2000). Therefore, it is to be expected that students with ASD would struggle with literacy skills. On the other hand, individuals with high functioning autism and Asperger’s syndrome have average to above average vocabulary and oral language, but difficulty with literacy skills such as reading comprehension. The research suggests that students with high functioning autism and Asperger’s syndrome may be using some compensatory skills such as memorization in order to acquire language.

Numerous research has documented the connection between oral language and literacy (Norbury & Nation, 2011). For typically developing children, oral language is a critical component of acquiring literacy skills (Norbury & Nation, 2011). Since the diagnosis of ASD includes communication difficulties, researchers have been interested in looking at the connection between language and literacy abilities in people with autism spectrum disorders. There has been research documenting the correlation between language and reading abilities for students with ASD (Norbury & Nation, 2011). Speirs et al. (2011) wanted to determine if adolescents with high functioning autism or Asperger’s syndrome have the same lexical processing abilities as neurotypical students. The researchers defined lexical processing as “…a set of processes that operate automatically to support the acquisition, production and recognition of spoken and written words” (Speirs et al., 2011 p. 308). The researchers were able to extrapolate the differences in vocabulary that existed between neurotypical children and children with high functioning autism or Asperger’s disorder. The authors’ main purpose in examining this phenomenon was to determine if students with high functioning autism or Asperger’s syndrome, who have already acquired language, have delayed lexical processing skills. The researchers
projected that if students with high functioning autism or Asperger’s syndrome had delayed lexical processing abilities, then they must be using some sort of compensatory skill in order to acquire average vocabulary skills. These authors discovered that students with Asperger’s syndrome and neurotypical students functioned similarly in their lexical processing, while students with high functioning autism took longer to respond to vocabulary words presented on a computer screen (Speirs et al., 2011). Ultimately, the authors discovered that students with high functioning autism exhibited delayed lexical processing abilities, while neurotypical individuals and individuals with Asperger’s syndrome displayed average lexical processing abilities. While the researchers in this study were examining language and lexical processing, these findings can provide information relevant to literacy instruction in high functioning autism and Asperger’s syndrome since lexical processing abilities are the foundation for literacy skills (Speirs et al., 2011).

Norbury and Nation (2011) queried the relationship between verbal language, word reading, and reading comprehension skills in adolescents with ASD. Participants included 27 individuals with a diagnosis of ASD and a control group of 19 individuals considered to be typically developing. In this group comparison design, the researchers discovered that students with ASD scored lower on comprehension assessments than neurotypical individuals. Students with ASD also scored lower on oral language assessments. Some individuals scored lower on word reading assessments. Norbury and Nation (2011) concluded that poor word reading or below average language skills contribute to poor reading comprehension skills. In addition, the study revealed that
having the diagnosis of ASD relates to having deficits in oral language abilities, which also correlates to difficulty with reading comprehension (Norbury & Nation, 2011).

**Decoding and Reading Text**

Since word and text reading is one component of literacy, it is necessary to examine common characteristics of reading abilities in students with high functioning autism and Asperger’s syndrome. Research has found that students with ASD have strong word reading fluency and accuracy skills. Snowling and Frith (1983) attempted to identify the way in which children with ASD acquire adequate word reading skills. They examined the word reading abilities in nine children with autism spectrum disorders compared to a group of typically developing students. The researchers hypothesized that children with ASD learn to read words through memorizing the whole word. To test this hypothesis, Snowling and Frith (1983) asked participants to read nonsense words. The researchers thought that if the students struggled in reading the nonsense words, it would demonstrate deficits in using phonics strategies to read the words. However, the researchers discovered that the students with ASD did not differ in their reading of nonsense words from the control group of typically developing students. The findings of this study suggest that students with ASD are able to decode words at similar rates and accuracies of their typically developing peers (Snowling & Frith, 1983).

Moreover, it is well documented that there is a correlation between high functioning autism and Asperger’s syndrome and hyperlexia (Newman et al., 2007). Hyperlexia can be defined as, "Superior word-reading skills far above those of reading comprehension, verbal functioning level, or general cognitive functioning of an
“individual” (Newman et al., 2007 p. 761). Newman et al. (2007) discovered that students with ASD and hyperlexia tend to read single words at a time making it difficult to derive meaning from those words. Their study confirmed other research that found students with hyperlexia have above average decoding skills, but average to below average reading comprehension skills (Newman et al., 2007).

**Comprehension**

There are students with ASD who experience a discrepancy between word reading and comprehension. Huemer and Mann (2009) examined the differences in reading scores between decoding and comprehension in both students with ASD and students with dyslexia. Participants included 171 individuals with autism, 94 individuals with Asperger’s syndrome, and 119 individuals with PDD-NOS. They also combined these groups into one and called the group, students with ASD. The comparison group consisted of 100 individuals with dyslexia. All participants were considered to be “verbal” and they had “reading” abilities. In their study, Huemer and Mann (2009) used testing information gathered from Lindamood Bell Learning Centers throughout the nation. All participants were given a variety of standardized assessment subtests that measured word reading (decoding), reading fluency, comprehension, and vocabulary. The researchers hypothesized that the group of students with ASD would have average decoding and fluency scores with below average reading comprehension scores, while students with dyslexia would exhibit below average decoding and fluency skills and below average comprehension skills.
Huemer and Mann (2009) confirmed their original hypothesis and found that students with autism spectrum disorders had lower than average reading comprehension, but average decoding skills. They contrasted their participant group with students with dyslexia. Juxtaposing reading abilities in students with autism along with students with dyslexia showed that each group experienced different characteristics. Students with dyslexia experienced below average word reading abilities with below average reading comprehension abilities, whereas students in the autism category experienced high decoding abilities, but lower reading comprehension abilities. One limitation of this study was that the researchers relied only on parent report of individual disability, rather than medical or educational diagnoses demonstrated with data, so the participant list in this study may not be an actual representation of the current population. On the other hand, Huemer and Mann’s (2009) research confirmed other smaller studies (Nation, Clarke, Wright, & Williams, 2006; O’Connor & Klein, 2004) that found there is often a significant discrepancy between decoding and comprehension in students with autism.

Research has examined these deficits in reading comprehension of students with high functioning autism using standardized measures to compare to typically developing peers (Nation et al., 2006). In their study, which comprised 41 individuals with high functioning autism and Asperger’s syndrome, Nation et al. (2006) found that most participants scored within the average for word reading, text reading, and non-word reading; however, they scored lowest on standardized reading comprehension tests. Nation et al. (2006) concluded that there is a distinct difference between word reading accuracy and reading comprehension in students with ASD. On the other hand, they also
noted that due to high standard deviations across all reading measures, including decoding, there was much variability between students’ scores. Nation et al. (2006) explained that “these findings demonstrate the heterogeneous nature of reading skills in children with ASD” (p. 911).

In addition, research has documented that students with ASD have difficulty with abstract and inferential thinking, which could impact reading comprehension (Saldana & Frith, 2007). Myles et al. (2002) found that students with Asperger's syndrome performed below average on inferential questions when given reading comprehension assessments that monitored independent, instructional, and frustrational reading levels. Carnahan et al. (2011) argued that one potential explanation for Myles et al.'s findings is deficits in Theory of Mind in individuals with autism spectrum disorders. Carnahan et al. (2011) explained that the inability to take another person's perspective (i.e. Theory of Mind) can inhibit one's ability to comprehend text at more of an abstract level.

The current research base has demonstrated that students with high functioning autism and Asperger’s syndrome generally have average decoding abilities coupled with below average reading comprehension abilities (Huemer & Mann, 2009; Nation et al., 2006). Initially, small studies conducted by O’Connor and Klein (2004) and Nation et al. (2006) showed that students with autism experience difficulty with comprehension, but not decoding. However, Nation et al. (2006) showed there to be high variability between all reading scores (comprehension and decoding) among participants. In a larger study, Newman et al. (2007) pointed out that some students with autism demonstrate hyperlexia, which means that they have above average word reading abilities; but this hyperlexia did
not correlate to high reading comprehension skills in these students. Additionally, Huemer and Mann’s (2009) study confirmed the same conclusions about the difference between word reading abilities and reading comprehension in students with autism. In fact, this study was one of the most comprehensive studies to address the issue of decoding and comprehension in students with ASD. Understanding the way in which students with autism struggle with literacy can assist educators and researchers in finding new methods of effective instruction for students with high functioning autism and Asperger’s syndrome.

Writing

Researchers have also found that individuals with ASD struggle with various components of writing, which is another essential component of literacy. Church, Alisanski and Amanullah (2000) conducted one of the first studies of written language and handwriting in students with autism in a classroom setting. Church et al. (2000) reviewed the educational programs of 39 students with Asperger’s syndrome. Through their research, they found that most participants worked very slowly in English Language Arts, especially during writing. They also found that students struggled specifically with amount of time that handwriting took them. They noted that many students made mistakes and would erase their work often so that it looked neat. Interestingly, the researchers observed that these handwriting difficulties only occurred during writing, not during drawing or other fine motor tasks. For example, one participant was a gifted artist in drawing while another participant was a talented piano player. The researchers
concluded that their participants experienced the most difficulties with writing when the
genre was creative or analytical writing (Church et al., 2000).

Myles, Huggins, Rome-Lake, Hagiwara, Barnhill, and Griswold, (2003) compared the writing abilities of students with Asperger’s syndrome to neurotypical students. Their participants consisted of 16 individuals with Asperger’s syndrome and 16 typical peers. In their study, they gave each participant the Test of Written Language (TOWL-3) and the Evaluation Tool of Children’s Handwriting (ETCH). In analyzing the results, the researchers found that students with Asperger’s syndrome scored similarly to their typical peers on the TOWL-3. However, when the researchers conducted an informal analysis of the TOWL-3 subtests, they found that the writing of students with Asperger’s syndrome was less sophisticated. For example, students with Asperger’s syndrome produced the same amount of sentences as their typical peers, but their sentences were less complex with less words and morphemes. In addition, in looking at the results of the ETCH assessment, Myles et al. (2003) found that students with Asperger’s syndrome had more difficulty with handwriting as portrayed in their writing samples. These results indicate that although students with Asperger’s syndrome may not appear to struggle with writing, there are some differences in the quality of writing that students with Asperger’s syndrome demonstrate when compared to typical peers their age.

Researchers believe that one reason why students with ASD struggle in writing is related to a lack of Theory of Mind or ability to take another person’s perspective (Pennington & Delano, 2012). Barnes, Lombardo, Wheelwright, and Baron-Cohen
(2009) found that individuals with ASD struggle to portray the overall main idea of a subject to the audience. In their study of 28 adults with ASD (both Asperger’s syndrome and high functioning autism) and 28 neurotypical individuals, they asked participants to watch a film clip and retell the scene in a written narrative response. The authors found that individuals with ASD produced shorter narratives on their written responses than individuals without ASD. They also found that the participants with ASD tended to give many extraneous details about the scene that did not necessarily apply to the overall main idea of the story. They concluded that individuals with ASD were less able to portray the main idea of the scene. They attributed this to weak central coherence and lack of Theory of Mind (Barnes et al., 2009).

On the other hand, in their 2002 study, Griswold, Barnhill, Myles, Hagiwara, and Simpson found a wide range of writing abilities in children and adolescents with Asperger’s syndrome. The researchers identified 21 participants from ages 6 through 16 with Asperger’s syndrome and gave them the written expression test of the Wechsler Individual Achievement Test (WIAT). Although overall results showed students’ scores to be within the average range on the written expression subtest, a high standard deviation showed a large variety among this subtest. In fact, writing composite scores ranged from well below average (standard score of 70) to well above average (standard score of 132) (Griswold et al., 2002). The researchers concluded that the variability in scores among participants showed that simply having a diagnosis of Asperger’s syndrome does not always indicate a students’ strengths or weaknesses in writing ability, as these can be highly variable from one student to the next.
While most researchers agree that students with autism experience differences in writing abilities, much of the research is mixed about the specific struggles that students with autism have in writing. Most of the current research indicates that students with autism experience handwriting difficulties when compared to peers their age, but studies regarding the quality of written expression in students with autism also show differences. Some of the initial studies in writing abilities in students with autism have shown that some students score the same as their typical peers (Griswold et al., 2002) while more recent studies (Barnes et al., 2009) have shown differences in the quality of writing for students with ASD. Most of these studies have been conducted on a small number of students. More replications of the current studies on larger populations may yield more consistent outcomes.

**Instructional Practices in Literacy**

In addition to exploring characteristics of literacy abilities in students with autism, experts have also attempted to determine which instructional practices are effective in teaching literacy skills to students with ASD. The following sections will discuss the research base for strategies to support comprehension, decoding, and writing in students with ASD, and the effectiveness of the use of technology as well as grouping, behavioral and environmental practices to promote literacy in students with ASD.

**Strategies to Support Comprehension**

Researchers have discovered some strategies to support reading comprehension in students with high functioning autism or Asperger’s syndrome. Flores and Ganz (2009) investigated whether direct instruction improves reading comprehension skills in students
with ASD or developmental disabilities. Participants consisted of two students with ASD and two students with developmental disabilities (i.e., intellectual disability and attention deficit hyperactivity disorder). In this single-subject experimental design, students were taught reading comprehension using direct instruction based on the Corrective Reading Thinking Basics: Comprehension Level A for 20 minutes in group or individual formats. Flores and Ganz (2009) discovered that after the direct instruction program, all of the participants improved their reading scores on curriculum-based assessments. Each of the students placed into the next level in the Corrective Reading Thinking Basics program. The participants were also able to maintain a higher level of skills; six weeks after the program ended, the students continued to score higher on the reading comprehension measurements than when they first began the program. Flores and Ganz (2009) concluded that this particular direct instruction program was an effective intervention in improving reading comprehension for students with ASD and developmental disabilities. This study demonstrated positive results; however, a study specific to students with autism with a larger number of participants and a randomized sampling procedure would have had greater implications for educational decision-making.

While Flores and Ganz (2009) attempted to use a highly scripted direct instruction program, other researchers have attempted to explore reading comprehension skills based on other evidence based instructional strategies (O'Connor & Klein, 2004). O'Connor and Klein (2004) examined whether specific reading strategies were effective in working with 25 adolescent students with high functioning autism and Asperger's syndrome. In their study, three different strategies were examined: activating student's prior knowledge with
questions, cueing anaphora (e.g. using a pronoun instead of a word already used), and providing CLOZE (e.g. a paragraph with certain vocabulary words blanked out) activities. Each strategy was used prior to reading assignments. O'Connor and Klein (2004) discovered that anaphoric cueing was the most effective teaching strategy to promote comprehension. They also found that students who were given CLOZE activities engaged in more self-monitoring of their own reading, which increased comprehension scores on assessments. Overall, O'Connor and Klein (2004) found that anaphoric questioning and CLOZE activities are effective strategies in improving reading comprehension scores of students with high functioning autism and Asperger's disorder.

Whalon and Hanline (2008) discovered that reciprocal questioning was an effective strategy in increasing comprehension skills in students with ASD. In a single-subject study of three individuals with ASD, Whalon and Hanline (2008) combined peer tutoring with prompting and unprompting of reciprocal questioning techniques during reading activities. The authors found that after receiving the intervention, all three participants increased the amount of unprompted questions that they asked and reciprocal responses given during literacy activities (Whalon & Hanline, 2008). The authors noted that while this was a small study with a non-randomized sample group, it showed promising results for further research. Replications of their study may in fact provide insight into effective strategies in teaching students with ASD reading comprehension skills.

Furthermore, there have been some studies conducted which show effective teaching strategies in boosting levels of inferential thinking and reading comprehension
in students with high functioning autism and Asperger's syndrome. Saldana and Frith (2007) attempted to test their hypothesis that when primed with inferential knowledge about a sentence, students would respond to questions more quickly. The authors conducted their study with 16 participants with autism. All of their participants had adequate word reading abilities, but difficulty with comprehension. Saldana and Frith (2007) also compared students with ASD to a control group to see if students with ASD were less likely to answer inference questions more rapidly if the questions involved social or world knowledge. They discovered that both groups of students (i.e. the group of students with ASD and the control group of neurotypical peers with similar reading abilities) answered inference questions more rapidly when they were primed with background knowledge about this question (Saldana & Frith, 2007). Despite original theories backed by current literature that the students with ASD would answer social or world knowledge questions at a slower rate, Saldana and Frith (2007) found that there was no difference in the response rate and the types of questions that students answered.

While this study does not explain all of the reasons why students with ASD might lack abstract comprehension skills, it can help teachers in providing background knowledge to students with ASD in order to boost inference skills during reading comprehension lessons.

**Strategies to Support Decoding**

Spector (2011) analyzed several different research studies regarding sight word instruction for students with autism spectrum disorder. She found that nine studies met criteria for evidence-based practices related to autism (Reichow, Volkmar, & Chiccetti,
2008) and showed positive effects of sight word instruction for students with ASD. Specifically, she discovered that the use of sight word instruction presented through a “…massed trials approach featuring student response to a succession of items, differential positive reinforcement, systematic prompting, and use of visual supports” (Spector, 2011, p. 1411) improved participants’ abilities to read text, even if they had no prior reading abilities. Although participants across studies consisted of students with ASD, Spector (2010) pointed out that no studies have been conducted regarding the effectiveness on sight word instruction for students with high functioning autism. In fact, most of the studies were conducted with students who have ASD and cognitive impairments (Spector, 2011).

**Strategies to Support Writing**

Researchers have found some effective strategies for improving writing skills in students with ASD. Asaro-Saddler and Saddler (2010) explored whether self-regulated strategy development (SRSD) would improve the quality of writing in students with ASD. Specifically, they conducted a single subject design with three students with ASD in grades 2 and 4. Participants were also considered to have high functioning autism because they did not have an additional diagnosis of intellectual disability. Participants were all considered to have difficulty with writing, as noted by their special education teacher. Participants received an intervention of six lessons involving SRSD, which involved activating prior knowledge, self-regulation, goal setting, and collaboration. The intervention also consisted of mnemonic devices designed to assist students in self-monitoring. Asaro-Saddler and Sadler (2010) found that all three participants improved
their writing after receiving the intervention. Specifically, each participant incorporated more narrative story elements into their writing, increased scores on an 8-point holistic quality writing test, and increased the amount of words written. These findings suggest that students with ASD benefit from self-regulated strategy development when engaging in writing tasks.

Delano (2007) also explored the effectiveness of Self-Regulated Strategy Development (SRSD) on one student with Asperger’s syndrome. In their single subject design, their participant received SRSD prior to writing activities. SRSD focused on three areas: using describing words, revising writing, and using action words. A picture writing prompt was used to gather baseline data. The writing prompt was then scored by looking at the total words written, as well as the amount of action words and describing words used. The participant was also prompted to revise his writing by telling the instructor which changes to make with a red pen. Delano (2007) found that the participant increased the amount of written words that he produced as well as the amount of action and describing words produced. The author also found that after receiving instructions regarding revising, the participant made three revisions to his stories and increased the amount of words produced. In short, Delano (2007) found that receiving the SRSD intervention helped the participant to improve the overall quality of his writing.

Technology and Literacy Instruction for Students with ASD

The use of technology has been shown to have positive effects on literacy skills of students with ASD (Ramdoss, Mulloy, & Lang, 2011). One study conducted by Heimann, Nelson, Tijus, and Gillberg (1995) studied whether the use of a computer based
reading program would show improvements in reading abilities of students with ASD. Participants included 30 students with disabilities, 9 of which had autism. In this study, students with autism spent approximately 30 minutes engaged in a computer based reading program called The Alpha program. Students with autism received approximately 26 different lessons over the course of 17 weeks. The researchers found that after students with autism had received this computer-based intervention, they showed improvement in scores for reading letters, words, and sentences as well as vocabulary. However, this study was conducted on students with “mild to moderate” ASD. Participants did not include students with high functioning autism.

Moreover, Ramdoss et al. (2011) conducted a review of research regarding computer-based interventions for students with ASD. The researchers found 12 studies that met their criteria for an evidence-based study. Of these 12 studies, eight showed improvement in literacy instruction while four others showed no improvement or mixed results in literacy scores for students with ASD (Ramdoss et al., 2011). Ramdoss et al. (2011) also noted that of the eight studies that showed improvement in literacy skills for students with ASD, only four of the studies were found to be conclusive, meaning that the researchers were certain that the intervention was related to the improvement in literacy skills. The authors concluded that more extensive research needed to be conducted in order to determine the effectiveness of computer based interventions on literacy instruction for students with ASD. In looking at the Ramdoss et al. (2011) review, no studies were completed with students with high functioning autism or
Asperger’s syndrome. In fact, there are no studies that have examined the effectiveness of technology on literacy specific to students with high functioning autism.

**Grouping and Literacy Instruction within Inclusive Settings**

Some peer grouping strategies to support literacy instruction for students with ASD have been explored. Kamps, Barbeta, Leonard, and Delquadri (1994) conducted a study to examine whether “Classwide Peer Tutoring (CWPT)” would have an effect on the reading and social skills in three students with high functioning autism. The authors defined CWPT as “…those in which all students work together in tutor-learner pairs on a classwide basis” (Kamps et al., 1994 p. 50). In their study, Kamps et al. (1994) employed a single-subject design where the three participants with high functioning autism were paired with typical classmates for tutoring activities. Tutoring sessions were 25-30 minutes long for 3 to 4 days per week. In the tutoring session, students took turns reading passages and providing positive feedback regarding decoding. They also answered comprehension questions with their peers. Since students took turns, each student had a chance to practice reading and provide feedback. Immediately following the peer tutoring session, students were given 15 to 20 minute of unstructured social time. Kamps et al. (1994) found that when students with high functioning autism engaged in peer tutoring with neurotypical peers, their fluency rate as well as accuracy of answering comprehension questions increased. In addition to academic gains, participants also experienced improvements in social skills, thus enhancing their overall quality of life (Kamps et al., 1994). Kamps et al.’s (1994) study shows how powerful peer instruction can be in improving reading skills in students with ASD.
Behavioral and Other Instructional Supports Related to Literacy

Examining other methods to enhance academic success is also necessary when understanding appropriate literacy strategies for students with high functioning autism and Asperger's syndrome. For instance, understanding how to support appropriate behavior (i.e. following instructions and engaging in the assigned academic activity) in students with ASD is an integral part of literacy instruction. Koegel, Singh, and Koegel (2010) found that when students were given preferred activities (which were determined through observation and parent report), motivation for math and writing increased. Specifically, a multiple baseline design across subjects was used with four students with ASD from ages 4 to 7 years. Students were given academic tasks followed by access to preferred reinforcers. Koegel et al. (2010) found that students demonstrated less disruptive behaviors during writing and math activities when given preferred activities after the students completed academic tasks. They also discovered that students began activities at a faster rate than when they were not able to receive the preferred reinforcers.

Addressing challenging behavior is an important component of teaching students with ASD. Koegel et al.’s (2010) study showed that incorporating positive behavior support techniques can be effective in improving literacy skills. While Koegel et al. (2010) only conducted their research specific to writing and math skills, their results can provide the foundation for further research in the area of teaching literacy.

Understanding how behavior affects literacy instruction for students with ASD is critical because many students with ASD struggle with using appropriate behavior. Academic tasks related to literacy can be the antecedent to challenging behaviors. For
example, students with autism who already struggle with reading comprehension can exhibit challenging behaviors before engaging in a reading comprehension task that they do not know how to complete. Koegel et al.’s (2010) study shows important behavioral interventions that can be conducted in order to improve behavioral outcomes for students with ASD during literacy activities.

One crucial component in addressing challenging behavior is modifying the learning environment. Some studies have demonstrated effective environmental strategies that can be applied to literacy instruction for individuals with high functioning autism. Huang and Wheeler (2006) pointed out several environmental strategies that benefit students with high functioning autism in their review of current research. First, they documented the benefit of structured teaching for students with high functioning autism. This strategy involves the use of schedules, visuals, and routines as well as modification of academic tasks to support instruction (Huang & Wheeler, 2006). Huang and Wheeler (2006) noted that when structured teaching is used, students experience less anxiety and can make more sense of their environment, thus increasing their academic abilities. On the other hand, no research has looked at the benefits of structured teaching specific to literacy instruction for individuals with high functioning autism.

Although several recent studies (Flores & Ganz, 2009; O’Connor & Klein, 2004; Saldana & Frith, 2007; Spector, 2011; Whalon & Hanline, 2008) have demonstrated strategies to improve literacy skills in students with ASD, there is still need for more research to be conducted. According to the National Reading Panel (2000), research has demonstrated that all students, including those with ASD, could benefit from literacy
instruction in the areas of vocabulary, word reading, reading fluency, comprehension, and writing. While the literature has shown strategies to improve comprehension (Flores & Ganz, 2009; O’Connor & Klein, 2004; Saldana & Frith, 2007; Whalon & Hanline, 2008) and word reading (Spector, 2011) in students with ASD, there is not current research regarding strategies to support reading fluency, vocabulary development, or writing. Further research in these areas is needed in order to help students with autism in improving their literacy skills.

**Teachers’ Perspectives of Literacy Instruction for Students with ASD**

Limited research has been conducted regarding teachers' perspectives of instruction for students with ASD in general, and even less of this research has examined teacher’s perspectives of literacy instruction for students with ASD. Two studies analyzed teachers’ perspectives about literacy instruction for students with disabilities other than autism; one study looked at students with severe disabilities who used augmentative and alternative communication (AAC) devices (Ruppar et al., 2011), whereas the other study examined one teacher’s perspectives of literacy instruction for students with learning disabilities (Feiker Hollenbeck, 2013). Finally, one study examined teachers’ and parents’ perspectives of literacy instruction for two students with ASD.

The study conducted by Feiker Hollenbeck (2013) examined how one teacher’s beliefs shaped her literacy instruction for students with learning disabilities (LD). The author employed a qualitative design using triangulation of data including observations, interviews, and documents from the classroom. The focus of the study was “Wendy” a
special education teacher who taught literacy to students with learning disabilities. Wendy described her beliefs as student-centered, focusing on the whole child. The researcher discovered that Wendy used a variety of instructional strategies including comprehension strategy instruction and the use of graphic organizers. Most of these instructional strategies were presented through modeling rather than through direct instruction. Feiker Hollenbeck (2013) noted that Wendy often guided students toward correct answers. Although Wendy was described as a highly qualified special education teacher by her school district, her practices were not based upon evidence of instruction for students with LD. Rather, her instruction was based upon her own personal beliefs about literacy and her students with disabilities. Although research shows explicit instruction to be especially beneficial in improving reading comprehension for students with LD, Wendy used very little explicit instruction because it was not consistent with her beliefs. The researcher found that Wendy believed that reading ability in her students was based upon their own development and eventually, her students would improve their reading skills. Feiker Hollenbeck (2013) noted that these findings indicate a need for special education teachers to have adequate pre-service preparation in research-based literacy instruction for individuals with disabilities.

In another study, Monroe (2009) explored teachers’ and parents’ perspectives of literacy instruction for young students with ASD. The participants included two students with ASD, their parents, and their teachers. Monroe (2009) examined teachers’ perspectives of literacy instruction by observing and interviewing two teachers, “Heather” and “Kendra.” The author found several common themes regarding both
teachers’ perspectives of literacy instruction. First, she discovered that both teachers viewed literacy as an important skill for their students with ASD. The teachers both had developed philosophical approaches to literacy based upon their own personal experiences with literacy from early childhood memories. In addition, both teachers cited a few common strategies in teaching literacy to students with ASD. Both participants believed individualized instruction, behavior management, and reading to students were essential strategies in literacy instruction for students with ASD (Monroe, 2009). Monroe’s (2009) study demonstrates how a teacher’s beliefs can influence their choices in literacy instruction for students with ASD. The author found that if a teacher had positive experiences with certain instructional techniques, then she was more likely to use these techniques with her students because “teacher beliefs influence teaching practice and have an impact on students’ educational experiences” (Monroe, 2009, p. 159).

In a survey of special education teachers, Ruppar et al. (2011) wanted to discover what teachers believe about literacy instruction for students with severe disabilities who use AAC devices. The authors also wanted to find out what settings teachers believed were the most appropriate for literacy instruction for students with severe disabilities who used AAC devices. In their study, Ruppar et al. (2011) designed a 94-question survey with various questions regarding literacy instruction for students with disabilities who took the Illinois Alternative Assessment (IAA) and used AAC devices. The authors chose to use these criteria because the IAA is an assessment only given to students with moderate to severe disabilities. Participants in this study included 69 special education
teachers from public, non-residential schools in Illinois. In this study, most of the participants held master’s degrees and had been teaching for at least four years.

Ruppar et al. (2011) found that overall teachers believed that literacy was important for all students, regardless of disability. They also discovered that teachers who participated in inclusive settings generally had more positive perceptions of literacy instruction for students with moderate to severe disabilities who used AAC devices than teachers who taught at special education centers. The researchers also asked participants how they valued twenty-six interventions listed in the survey. The authors found that overall, teachers were likely to use the strategies listed. However, teachers tended to value more functional reading interventions such as using a picture schedule for comprehension or sight word instruction through community signs and symbols than using general education curriculum with modifications. Furthermore, Ruppar et al. (2011) found that teachers preferred skills if they could be taught in students’ current environments. Participants also showed “strong disapproval for general education classrooms and curricula” (Ruppar et al., 2011, p. 106) and preferred to teach skills in special education settings. When asked about barriers to instruction in general education settings, teachers indicated that barriers relevant to general education curriculum were very important.

Examining teachers’ perspectives on literacy instruction for students with disabilities can be very valuable. Ruppar et al.’s (2011) study has demonstrated that teachers have a variety of attitudes and beliefs about literacy instruction for students with severe disabilities. Their study also revealed that teachers value a life-skills approach to
teaching literacy. It also provided information about what teachers felt were barriers to teaching literacy in inclusive settings for students with severe disabilities who use AAC devices. Feiker Hollenbeck’s (2011) study showed that although teachers may believe that students should be taught a certain way, they need adequate professional development in order to use the most effective practices in teaching students with disabilities. Monroe’s (2009) study highlighted that teachers’ experiences and beliefs influence their actions (i.e., they were more likely to use strategies with which they had positive experiences). Although Feiker Hollenbeck (2013) and Ruppar et al. (2011) did not conduct their studies specific to students with ASD, these studies can help educators understand more about teaching practices in general. For example, in both studies, teachers were more likely to use interventions that they believed were valuable. Learning what teachers perceive about instruction is informative, because it can help researchers understand how to influence teachers to use evidence-based practices in their daily instruction.

**Summary**

While much of the research presented has demonstrated an overview of literacy skills of students with high functioning autism and Asperger's syndrome, there are several implications for future research. Although studies presented regarding characteristics of reading abilities in students with high functioning autism and Asperger’s syndrome are important, many of them documented general information regarding the differences between reading comprehension and decoding skills (Huemer & Mann, 2009; Myles et al, 2002; Nation et al. 2006). In their research study, Nation et al. (2006) noted the
importance of deciphering specific reasons for discrepancies in reading skills. Further research that pinpoints areas of breakdown in reading comprehension of students with high functioning autism and Asperger’s Syndrome would provide insights into what instructional practices may be effective.

In addition, there is a significant need for further research regarding instructional practices in literacy for students with high functioning autism and Asperger’s syndrome. Many of the studies presented employed single-subject designs with multiple baseline techniques. While these studies provide significant information regarding literacy instruction, they are only a starting point for future research. For example, further replications of Flores and Ganz’s (2009) design regarding direct instruction for individuals with high functioning autism would be warranted. Whalon and Hanline’s (2008) study provided information regarding instructional practices for three individuals with ASD. With a larger, randomized, sample size, this study could have greater implications for instructional practices. Researchers are beginning to examine best practices in literacy instruction, but this is still an area that would benefit from additional replicated studies on a larger scale.

Koegel et al.’s (2010) study regarding behavioral techniques and academic work displayed promising research regarding the role of motivation strategies and instruction. Further research specific to the area of reading comprehension as related to motivation would be warranted because students with ASD struggle significantly in this area. In their study, Koegel et al. (2010) focused on using preferred items to increase motivation during math and writing tasks. A multiple baseline design across settings could be
utilized to examine whether similar results would be found during other literacy activities. While a multitude of research exists regarding behavior and autism, Koegel et al.’s (2010) study indicated that there continue to be aspects of behavior and instruction for students with high functioning autism and Asperger’s disorder that require further inquiry.

Although few studies have been done regarding teacher’s perspectives of literacy instruction for students with ASD, broad research regarding teacher’s perspectives of literacy instruction for students with disabilities has helped shed light onto how teacher’s beliefs and attitudes shape their instructional practices. Further research in this area will inform the field of special education by providing insight into effective instructional practices as well as the intricacies of this unique population’s learning style. The current study seeks to explore teachers’ perspectives of literacy instruction for students with high functioning autism in one local school district and to contribute to the research base regarding what teachers view as appropriate interventions for students with ASD. Looking at teachers’ beliefs of what interventions and strategies are not appropriate can also help researchers, educators, and administrators understand how best to support teachers in their development of literacy instruction for students with high functioning autism.
Chapter 3

METHODS

Participants and Setting

This study utilized a survey design in order to answer aforementioned research questions regarding teachers’ perspectives of literacy instruction for students with autism. The population of this study included special education teachers in a large suburban district within Sacramento County. In order to identify an appropriate sample, purposeful sampling was used to identify elementary and middle school teachers who teach students with autism spectrum disorders. Participants were also required to meet additional criteria upon taking the survey. In order to be a valid participant in the survey, teachers needed to have taught literacy to students with autism who take the California Standards Test or the California Modified Assessment. To identify the sample population, a representative from the school district identified special education teachers within the district. Subsequently, an e-mail was sent to a variety of special education staff members who may have worked with students with autism spectrum disorders. The e-mail contained a statement at the beginning asking people to disregard the survey if they did not provide classroom instruction to students with autism spectrum disorder (See introductory e-mail in Appendix A). In addition, an introductory “Informed Consent” page on the survey explained that participants should only participate if they were currently teaching students with autism who take the CST or CMA (See Appendix C).
Recruitment of participants was conducted through a web based survey program called Survey Monkey. Participants were e-mailed instructions and a link to the survey, which included informed consent. Participants initially had access to the survey for two weeks. Participants were e-mailed reminders to participate in the survey after the first week and two days before the survey ended. In order to increase completion rate among participants, each participant who completed the survey was given the option of providing his or her name to be entered into a drawing to receive a $10 gift card to Starbucks. A total of five gift cards were given to those participants whose names were chosen at random. A further description of participants will be described in chapter 4.

**Measures**

A survey measure was used in the current study. The survey used was replicated from a previous study conducted by Ruppar et al. (2011). The current researcher obtained a copy of the survey instrument used in Ruppar et al.’s (2011) study. Ruppar et al. (2011) developed the survey based upon literature relevant to students with severe disabilities. The interventions listed in this study were developed based upon the National Reading Panel guidelines as well as the Illinois Alternative Assessment’s framework.

After obtaining the survey, the current researcher made changes to the survey because the current study examined teachers’ perspectives of literacy instruction for students with high functioning autism whereas Ruppar et al. (2011) examined teachers’ perspectives of literacy interventions for students with severe disabilities who use AAC devices. As a result, questions related to the use of AAC devices were eliminated. Additional interventions that pertained to students with high functioning autism were
added. Specifically, the following interventions were added to the survey: repeated reading strategies, the use of graphic organizers, and explicit instruction of reading strategies. Since this study involved teachers who worked with students with high functioning autism, participants were asked to consider their students with ASD who took the CST or CMA.

Participants were asked 92 questions on the survey; nine of these questions were multiple choice answer format and the other 83 questions were based on a six-point Likert scale. The survey began with an informed consent page that was developed by the current researcher. This consent page outlined how responses would be used by the current researcher. Participants were ensured confidentiality and anonymity. The second section of the survey provided directions to the participants. Directions asked the participants to consider their students with ASD who took the CST or CMA. It also provided definitions for autism and literacy as they related to the survey.

The survey questions were divided into five sections: (1) Demographic Information (2) Beliefs about Literacy (3) Literacy Interventions (4) Factors Affecting Literacy Skills Taught and (5) Barriers to Literacy in General Education Settings. The Demographic Information section consisted of nine questions related to participants’ credentials held as well as teaching experience. The Beliefs about Literacy section consisted of eight questions where participants were asked to rate the extent to which they agreed with certain statements about literacy instruction for students with ASD. The Literacy Interventions section consisted of asked participants to rate the likelihood that they would use 31 different interventions. These interventions were divided into the
following categories: word recognition and vocabulary development; decoding and phonological awareness; reading text; comprehension; writing, technology, and grouping strategies. The Factors Affecting Literacy Skills Taught section consisted of 28 questions where participants were asked to rate statements that they believed were important when teaching literacy to students with high functioning autism. This section also consisted of statements regarding participants’ beliefs about settings where literacy skills should be taught and the factors that influenced their decision to choose those locations. The Barriers to Literacy in General Education Setting section consisted of 16 questions where participants were asked to rate statements that may have been barriers to literacy instruction for students with high functioning autism. (See Appendix C for the complete survey instrument.)

**Materials**

The participants needed minimal materials. Participants took this survey in an online format. In order to participate in the survey, each participant needed a computer with a working web browser and internet access. Participants were also required to have a valid e-mail address in order to be e-mailed the link to the survey. A subscription to Survey Monkey was purchased at the researcher’s own expense. Incentive prizes for five $10 gift cards were purchased at the researcher’s own expense.

**Procedures**

Data and information collected from this study were kept confidential and anonymous. Participants were not asked to supply their names in this survey unless they chose to participate in the incentive drawing. An administrator from the participating
school district sent the Survey Monkey link to all of the participants (See Appendix A for introductory e-mail). The researcher was not able to trace the names of the participants to their individual answers. If participants chose to supply their names for the incentive drawing, their names were kept confidential. Only this researcher and her faculty advisor had access to this information. It was stored on a computer with password protection as well as antivirus software. Names and contact information will be destroyed upon the completion of this thesis.

All participants were informed of the intent of this research, the research questions, and their rights to confidentiality. Participants gave consent for this study before completing this survey by scrolling through an Informed Consent page at the beginning of the online survey. Permission was obtained from the participating school district in June 2013. Permission from the Human Subjects Committee was obtained in May 2013 and was deemed “exempt,” since there was no harm or risk associated with participating in this study.

**Data Analysis**

After participants completed the survey, their responses were tabulated through Survey Monkey. Data were collected and tabulated through this web-based program. Exclusion rules were developed and applied to rule out certain surveys. A more detailed account of the surveys that were counted and excluded is given in Chapter 4. Data for the responses included were exported to a Microsoft Excel spreadsheet. Through Microsoft Excel, descriptive statistics such as mean, standard deviation, total count, and percentage
were calculated. Patterns and trends were analyzed across participants and will be discussed in more detail in Chapter 4.
Chapter 4

RESULTS

A survey design was used to measure teachers’ perspectives of literacy instruction for students with ASD. Demographic information was gathered regarding each teacher who filled out the survey. Descriptive statistics were used to analyze data regarding teachers’ perspectives.

Participants

Participants were invited from a large suburban district within Sacramento County. The survey was e-mailed to 277 elementary and middle school special education teachers, two program managers, and the Director of Special Education. The e-mail contained a disclaimer at the top that read, “Please disregard if you do not provide instruction in a classroom at an elementary or middle school.” Initially twenty-four teachers filled out the survey. Exclusion rules were needed in order to ensure that the data was complete. The exclusion rules were as follows: 1. Surveys were excluded if a participant had not provided literacy instruction to students with autism. 2. In order for surveys to be counted, the participant needed to fill out at least one question in each section of the survey. Three participants indicated that they did not provide literacy instruction to students with ASD. As a result, these participants’ surveys were excluded. In addition, nine participants skipped over entire sections of the survey. As a result, those surveys were not included. The total number of completed surveys was twelve. It should be noted that of the twelve completed surveys, three participants did not mark each section entirely; however, they only skipped, at most, one question in each section of the
survey. For example, one participant filled out each section of the survey, but in section three, he or she did not rate one of the interventions listed in the section on Writing. It can be assumed that these skipped questions occurred by accident or at random, as they do not seem to follow any pattern.

Initial questions gathered background information regarding participants’ education level and teaching experience (See Table 1). All participants held a bachelor’s degree and a special education credential. One participant held only a credential and a bachelor’s degree. Four participants had completed at least some post-graduate work, and six participants held a master’s degree. One participant held a doctorate. Seven participants (58.33%) had taught for more than 10 years. Three participants had between six and 10 years of experience and two participants had between three and five years of experience. When asked about their years of experience in teaching students with autism, participants experience levels varied. Eleven participants had taught students with ASD for over three years and one participant had between 0 and 2 years of experience teaching students with ASD. In addition, 10 participants indicated that they had attended at least five literacy workshops. Two participants had attended between 0 and 5 workshops.

Further questions gained information regarding the participants’ current instructional setting in which they taught as well as how much time was spent teaching and planning literacy instruction. Participants indicated that they provided instruction to students in a variety of settings. For example, four participants indicated that they provide literacy instruction in a self-contained special education classroom only. Two participants provided instruction in a general education classroom only and two participants marked
that they provided instruction in a general education resource room. Three participants indicated that they provided literacy instruction in both a general education classroom and a general education resource room. One participant marked that instruction was provided in all three settings. Participants were also asked to indicate whether they taught at least one literacy skill every day. Seven participants indicated that they taught at least one literacy skill daily, while three participants indicated that they did not teach at least one literacy skill daily. Two participants marked unsure on this question. When asked how much time participants spent planning literacy instruction, all of the participants indicated that they spent between 0 and 5 hours planning per week, with seven participants indicating that they spend between 0 and 2 hours planning literacy instruction for students with ASD and three participants indicating that they spend between 3 and 5 hours of planning.
Table 1

Demographics of Participants (N=12)

<table>
<thead>
<tr>
<th>Descriptive Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Years of Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-5</td>
<td>2</td>
<td>16.67</td>
</tr>
<tr>
<td>6-10</td>
<td>3</td>
<td>25.00</td>
</tr>
<tr>
<td>Over 10</td>
<td>7</td>
<td>58.33</td>
</tr>
<tr>
<td><strong>Years of Experience with Autism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td>3-5</td>
<td>4</td>
<td>33.33</td>
</tr>
<tr>
<td>6-10</td>
<td>4</td>
<td>33.33</td>
</tr>
<tr>
<td>Over 10</td>
<td>3</td>
<td>25.00</td>
</tr>
<tr>
<td><strong>Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree and credential</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td>Bachelor’s degree, credential and some graduate work</td>
<td>4</td>
<td>33.33</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>6</td>
<td>50.00</td>
</tr>
<tr>
<td>Doctorate</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td><strong>Credentials Held</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed. Specialist-Mild-Moderate Only</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td>Ed. Specialist-Moderate-Severe Only</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td>Ed. Specialist-Mild-Moderate and Ed. Specialist-Moderate-Severe</td>
<td>1</td>
<td>08.33</td>
</tr>
<tr>
<td>Multiple Subject and Mild-Moderate</td>
<td>8</td>
<td>66.66</td>
</tr>
<tr>
<td>Multiple Subject and Moderate-Severe</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multiple Subject, Ed. Specialist-Mild-Moderate, and Ed. Specialist Moderate-Severe</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td><strong>Literacy Workshops Attended</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>2</td>
<td>16.67</td>
</tr>
<tr>
<td>6-10</td>
<td>5</td>
<td>41.67</td>
</tr>
<tr>
<td>11-15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>More than 15</td>
<td>5</td>
<td>41.67</td>
</tr>
</tbody>
</table>
Beliefs about Literacy Instruction

Participants were asked to rate a series of statements regarding their beliefs about literacy instruction for students with ASD (See Table 3). Overall, participants strongly indicated that they agreed that all students can benefit from literacy instruction ($M=5.42$). This statement also had the second least amount of variation between responses ($SD=0.996$) within this section. Participants also indicated that they felt prepared to teach
literacy to students with ASD ($M=4.92$). Most participants also indicated strong agreement that literacy skills should be taught within the context of every day routines ($M=4.58$) and they indicated that they believed that their students’ social skills would improve with literacy instruction ($M=4.73$). In addition, participants agreed with the statement that more pressing needs on their caseloads prevented them from providing literacy instruction ($M=3.42$) as well as the statement that students benefit from more commercially designed programs than programs that they designed ($M=3.17$). On the other hand, participants neither agreed nor disagreed that the use of drill and practice activities promote literacy ($M=2.92$). Teachers did disagree with the statement that the older the student is, the less important literacy becomes ($M=1.92$).

Table 3

**Beliefs about Literacy Instruction (N = 12)**

<table>
<thead>
<tr>
<th>Statement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students can benefit from literacy instruction</td>
<td>5.42</td>
<td>0.996</td>
</tr>
<tr>
<td>I feel prepared to teach literacy to students with autism.</td>
<td>4.92</td>
<td>0.793</td>
</tr>
<tr>
<td>Literacy skills should be taught in the context of everyday routines.</td>
<td>4.73</td>
<td>1.009</td>
</tr>
<tr>
<td>I think that my students’ social skills will improve with literacy instruction.</td>
<td>4.58</td>
<td>1.165</td>
</tr>
<tr>
<td>More pressing needs on my caseload prevent me from implementing literacy instruction.</td>
<td>3.42</td>
<td>1.832</td>
</tr>
<tr>
<td>Students benefit from more commercially designed curricula than from programs that I design.</td>
<td>3.17</td>
<td>0.835</td>
</tr>
<tr>
<td>Drill and practice activities promote literacy skills.</td>
<td>2.92</td>
<td>1.240</td>
</tr>
<tr>
<td>The older the student is, the less important literacy instruction becomes.</td>
<td>1.92</td>
<td>1.379</td>
</tr>
</tbody>
</table>

*Note: 1 = strongly disagree; 6 = strongly agree*
Likelihood to Use Literacy Interventions

Participants were given a list of 31 interventions and asked to rate the likelihood that they would use these interventions. The interventions were divided into the following categories: Word Recognition and Vocabulary Development, Decoding and Phonological Awareness, Reading Text, Comprehension, Writing, Grouping Strategies, and Technology. In general, teachers were likely to use all statements to varying degrees (see Table 4). The sections that received the highest ratings were Decoding and Phonological Awareness with an average rating of 4.91 and Reading Text with an average of 4.91. The sections that received the lower ratings were Writing with an average rating of 4.44 and Comprehension with an average rating of 4.5; however, teachers still indicated that they were likely to use these strategies. The interventions that received the highest ratings overall were reading naturally occurring texts (e.g. letters, emails, brochures, news stories) \((M=5.33)\) and writing a letter, card, or email to a friend \((M=5.33)\). The interventions that received the lowest ratings overall were copying words or sentences from a book \((M=3.08)\) and spelling vocabulary words from textbooks \((M=3.64)\).

Participants’ beliefs about specific interventions within each category will be discussed below.

**Word Recognition and Vocabulary Development**

Participants demonstrated a likelihood to use all interventions in the Word Recognition and Vocabulary Development section. Average scores ranged from 5.25 to 4.83. The highest rated interventions were identifying relevant phrases or words during a conversation \((M=5.25)\) and defining words \((M=4.92)\). The interventions that were rated
lowest in this section were sight word instruction based on commonly occurring words in community and home environments \((M=4.83)\) and vocabulary journal of relevant words \((M=4.33)\).

**Decoding and Phonological Awareness**

On the Decoding and Phonological Awareness section, averages responses ranged from 5.25 to 4.58. Participants showed the strongest support for the use of identifying letter names and sounds \((M=5.25)\) and playing rhyming games \((M=4.92)\). They showed less support (although it still received favorable ratings) for the use of decoding CVC (consonant vowel consonant) words such as cat, log, or fun on flashcards \((M=4.58)\). This intervention also had the highest amount of variability of this section \((SD=1.832)\) indicating that teachers were varied in their agreement on the likelihood to use decoding CVC words in instruction.

**Reading Text**

On the Reading Text section, participants were likely to use all strategies listed, as all of the averages were above 4. The average scores ranged from 5.33 to 4.50. The highest rated intervention was reading naturally occurring texts (e.g. letters, emails, brochures, news stories) \((M=5.33)\). In fact, this intervention was one of the highest interventions among all 31 interventions listed. It also had the least amount of variability between all participants \((SD=0.888)\). The next highest rated intervention was reading stories or chapters from a textbook \((M=4.92)\). Repeated reading \((M=4.83)\) was rated lower than the previous two interventions, although participants indicated that they were still likely to use this intervention.
Comprehension

Responses to the likelihood to use interventions on the Comprehension section ranged from 4.83 to 4.17. Participants indicated that they were highly likely to explicitly teach comprehension strategies ($M=4.83$); however this intervention had more variability between responses in this section ($SD=2.082$). The intervention with the second highest rating was answering comprehension questions about a fictional story ($M=4.67$). The two interventions rated the lowest were using graphic organizers ($M=4.17$) and completing CLOZE statements ($M=4.50$); however, participants indicated that they were likely to use this intervention.

Writing

The section dedicated to writing had average responses per strategy that ranged from 5.33 to 3.08. The top intervention on the writing section was writing a letter, card, or email to a friend ($M=5.33$). This intervention was one of the highest rated interventions of all 31 interventions listed. The intervention that received the second highest ratings in this section was using texts based upon students’ particular interests ($M=5.25$). The two lowest rated interventions were copying words or sentences from a book ($M=3.08$) and spelling vocabulary words from textbooks ($M=3.64$).
### Table 4

**Likelihood to Use Literacy Interventions** \((N=12)\)

<table>
<thead>
<tr>
<th>Statement</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Word Recognition and Vocabulary Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying relevant phrases or words during a conversation</td>
<td>5.25</td>
<td>0.965</td>
</tr>
<tr>
<td>Defining words</td>
<td>4.92</td>
<td>1.165</td>
</tr>
<tr>
<td>Sight word instruction for high-frequency words (e.g. is, of, the, and)</td>
<td>4.67</td>
<td>1.497</td>
</tr>
<tr>
<td>Vocabulary journal of relevant words</td>
<td>4.33</td>
<td>2.060</td>
</tr>
<tr>
<td>Sight word instruction based on commonly occurring words in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community and home environments</td>
<td>4.83</td>
<td>1.528</td>
</tr>
<tr>
<td><strong>Decoding and Phonological Awareness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying letter names and sounds</td>
<td>5.25</td>
<td>1.422</td>
</tr>
<tr>
<td>Playing rhyming games</td>
<td>4.92</td>
<td>1.564</td>
</tr>
<tr>
<td>Decoding CVC (consonant-vowel-consonant) words such as cat, log, or fun</td>
<td>4.58</td>
<td>1.832</td>
</tr>
<tr>
<td>on flashcards</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reading Text</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading naturally occurring texts (e.g. letters, emails, brochures,</td>
<td>5.33</td>
<td>0.888</td>
</tr>
<tr>
<td>news stories)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading stories or chapters from a textbook</td>
<td>4.92</td>
<td>1.564</td>
</tr>
<tr>
<td>Repeated Reading (e.g. reading one passage multiple times)</td>
<td>4.50</td>
<td>1.834</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td>4.83</td>
<td>2.082</td>
</tr>
<tr>
<td>Explicitly teaching comprehension strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answering comprehension questions about a fictional story</td>
<td>4.67</td>
<td>1.875</td>
</tr>
<tr>
<td>Identifying the main idea of a text</td>
<td>4.58</td>
<td>2.065</td>
</tr>
<tr>
<td>Completing CLOZE statements</td>
<td>4.50</td>
<td>1.784</td>
</tr>
<tr>
<td>Using graphic organizers</td>
<td>4.17</td>
<td>1.115</td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing a letter, card, or email to a friend</td>
<td>5.33</td>
<td>1.073</td>
</tr>
<tr>
<td>Using texts based upon students' particular interests</td>
<td>5.25</td>
<td>1.712</td>
</tr>
<tr>
<td>Identifying the correct punctuation to use in a pre-written</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentence</td>
<td>4.67</td>
<td>1.231</td>
</tr>
<tr>
<td>Dictating a story</td>
<td>4.67</td>
<td>1.497</td>
</tr>
<tr>
<td>Tracing letters</td>
<td>4.50</td>
<td>1.784</td>
</tr>
<tr>
<td>Spelling vocabulary words from textbooks</td>
<td>3.64</td>
<td>1.963</td>
</tr>
<tr>
<td>Copying words or sentences from a book</td>
<td>3.08</td>
<td>2.021</td>
</tr>
</tbody>
</table>

*Note: 1=Highly Unlikely; 6=Highly Likely*
Grouping and Technology Strategies

Participants were asked the likelihood that they would use different grouping strategies (peer tutoring, partner reading, homogenous grouping, and heterogeneous grouping) when teaching literacy skills (See Table 5). In general, participants were likely to use all of the grouping strategies listed, with the average rating of 5.29. The highest rated grouping technique was peer tutoring ($M=5.58$). This strategy also had the lowest level of variability ($SD=0.669$). The second highest rated grouping technique was partner reading ($M=5.42$). The two grouping techniques that were rated the lowest were homogeneous grouping ($M=5.08$) and heterogeneous grouping ($M=5.08$), but still were very likely to be used. Heterogeneous grouping also had the highest amount of variability ($SD=1.505$) indicating that teachers’ ratings varied for this strategy.

Teachers were also asked to rate the likelihood that they would use four different technology strategies (i.e., e-books or computer-based reading programs, iPads or tablets, word processing, and interactive whiteboard activities) (see Table 6). Overall, teachers indicated that they were likely to use all of the strategies listed, as the average rating was 5.37 and responses on this section ranged from 5.08 to 5.58. The strategy that received the highest rating was the use of e-books or computer-based reading programs ($M=5.83$). This strategy had the least amount of variability within this section with a standard deviation of 0.389. The strategy with the second highest rating was using iPad or tablets ($M=5.33$). The two lowest rated strategies were the use of interactive whiteboards ($M=5.17$) and word processing ($M=5.17$), however a response of over 5 indicates that participants were still likely to use these two strategies.
Factors Affecting Literacy Skills Taught

Participants were asked to rate the importance of certain factors affecting the literacy skills that they teach. Overall, participants believed that most of the factors listed were important in terms of affecting literacy skills taught with the exception of two factors (i.e. student is expected to acquire the skill quickly and amount of planning time needed to prepare for instruction is minimal) (See Table 7). The two highest rated factors were that the skill was relevant to students’ current environment and the skill is useful in multiple environments. This finding may suggest that teachers value teaching strategies that help students generalize in their current setting. The two categories that received the

Table 5

Likelihood to Use Grouping Strategies (N=12)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Tutoring</td>
<td>5.58</td>
<td>0.669</td>
</tr>
<tr>
<td>Partner Reading</td>
<td>5.42</td>
<td>0.669</td>
</tr>
<tr>
<td>Homogenous Grouping</td>
<td>5.08</td>
<td>0.996</td>
</tr>
<tr>
<td>Heterogeneous Grouping</td>
<td>5.08</td>
<td>1.505</td>
</tr>
</tbody>
</table>

Note: 1=Highly Unlikely; 6=Highly Unlikely

Table 6

Likelihood to Use Technology Strategies (N=12)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-books or computer-based reading programs</td>
<td>5.83</td>
<td>0.389</td>
</tr>
<tr>
<td>iPads or Tablets</td>
<td>5.33</td>
<td>1.497</td>
</tr>
<tr>
<td>Word processing</td>
<td>5.17</td>
<td>1.403</td>
</tr>
<tr>
<td>Interactive Whiteboard Activities</td>
<td>5.17</td>
<td>1.586</td>
</tr>
</tbody>
</table>

Note: 1=Highly Unlikely; 6=Highly Likely
lowest ratings in terms of having the least impact on factors affecting literacy skills taught were the amount of time needed to prepare instruction is minimal ($M=2.45$) and student is expected to acquire the skill quickly ($M=2.42$). In other words, teachers indicated that these factors are less important when considering literacy instruction for students with ASD.

Table 7

*Factors Affecting Literacy Skills Taught ($N=12$)*

<table>
<thead>
<tr>
<th>Statement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant to students' current environments</td>
<td>5.25</td>
<td>1.485</td>
</tr>
<tr>
<td>Skill is useful in multiple environments</td>
<td>5.08</td>
<td>1.564</td>
</tr>
<tr>
<td>Teaching skill will promote inclusion in current and future environments</td>
<td>5.00</td>
<td>1.651</td>
</tr>
<tr>
<td>Acquisition of the skill will promote social skills</td>
<td>4.92</td>
<td>1.564</td>
</tr>
<tr>
<td>Relevant to students' future environments</td>
<td>4.92</td>
<td>1.564</td>
</tr>
<tr>
<td>A high number of opportunities exist to teach the skill throughout the day</td>
<td>4.50</td>
<td>1.567</td>
</tr>
<tr>
<td>Important to student's family</td>
<td>4.50</td>
<td>1.732</td>
</tr>
<tr>
<td>Skill is age appropriate</td>
<td>4.42</td>
<td>1.832</td>
</tr>
<tr>
<td>Skill is linked to grade level curriculum</td>
<td>4.25</td>
<td>1.765</td>
</tr>
<tr>
<td>Addresses the general education curriculum adopted by the school</td>
<td>4.08</td>
<td>1.730</td>
</tr>
<tr>
<td>Can be taught in the general education classroom</td>
<td>3.67</td>
<td>1.775</td>
</tr>
<tr>
<td>Addresses standards targeted in the California Standards Test or California Modified Assessment</td>
<td>3.25</td>
<td>1.712</td>
</tr>
<tr>
<td>Amount of planning time needed to prepare for instruction is minimal</td>
<td>2.45</td>
<td>1.368</td>
</tr>
<tr>
<td>Student is expected to acquire the skill quickly</td>
<td>2.42</td>
<td>1.379</td>
</tr>
</tbody>
</table>

*Note: 1=Not Important; 6=Very Important*

**Likelihood to Choose Settings for Literacy Instruction**

When asked in which setting teachers preferred to teach literacy skills to students with ASD, participants indicated that they are most likely to teach in special education classrooms ($M=5.25$) (See Table 8). Academic general education classrooms ranked
second in terms of teacher preferences for settings to provide literacy instruction ($M=5.00$). The places that received the two lowest ratings were non-academic general education classrooms ($M=4.67$) and other school environments ($M=4.75$), although participants still indicated that they were likely to choose these settings. Results from this section of questions indicate that teachers may prefer to teach literacy in self-contained special education classrooms and general education classrooms. Teachers were less likely to indicate that they preferred to teach literacy to students with ASD in general education classrooms during non-academic times, such as music or art. They also were less likely to teach literacy in non-academic settings, such as during recess, lunch, or in hallways. These results may indicate that teachers prefer to teach literacy during academic instructional times rather than non-academic times.

Table 8

*Likelihood to Choose Settings for Literacy Instruction (N=12)*

<table>
<thead>
<tr>
<th>Statement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Education Classroom</td>
<td>5.25</td>
<td>1.055</td>
</tr>
<tr>
<td>Academic General Education Classrooms</td>
<td>5.00</td>
<td>1.477</td>
</tr>
<tr>
<td>Non-Academic General Education Classrooms (e.g. music, art)</td>
<td>4.67</td>
<td>1.670</td>
</tr>
<tr>
<td>Other School Environments (e.g. lunch, bus, hallways)</td>
<td>4.75</td>
<td>1.712</td>
</tr>
</tbody>
</table>

*Note: 1=Not Likely; 6=Very Likely*

**Factors Considered When Choosing Location for Literacy Instruction**

Teachers were asked to rate a series of 10 statements regarding factors considered when choosing a location for literacy instruction. On these questions, a score of 1 indicated that the statement was not important when choosing a location for literacy instruction, whereas a score of 6 indicated that the statement was very important when
choosing a location for literacy instruction for students with high functioning autism.

Participants indicated that they agreed with all 10 factors (See Table 9). In other words, all statements were considered important when choosing a location for literacy instruction. The factor that received the highest rating from teachers was that the school culture promotes inclusion of students with disabilities ($M=5.67$). This statement also had the least amount of variability between participants within this section ($SD= .492$). After this statement, the next two factors that participants agreed with in terms of influencing the location of literacy instruction were the openness of other professionals to providing instruction in a particular setting ($M=5.25$) and the cognitive level of the student receiving instruction ($M=5.17$). The statements that received lower ratings from participants were skills of other students in the setting ($M=4.25$) and potential stigma of instructional methods ($M=4.27$). Still, these factors were rated as important to teachers when choosing a location for literacy instruction.

Table 9

*Factors Considered When Choosing a Location for Literacy Instruction (N= 12)*

<table>
<thead>
<tr>
<th>Statement</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>School culture promotes inclusion of students with disabilities</td>
<td>5.67</td>
<td>0.492</td>
</tr>
<tr>
<td>Openness of other professionals to providing instruction in a particular setting</td>
<td>5.25</td>
<td>1.055</td>
</tr>
<tr>
<td>Cognitive level of student receiving instruction</td>
<td>5.17</td>
<td>1.267</td>
</tr>
<tr>
<td>Ability to address literacy during life skills routines</td>
<td>5.08</td>
<td>1.084</td>
</tr>
<tr>
<td>Availability of paraprofessional support</td>
<td>4.92</td>
<td>1.084</td>
</tr>
<tr>
<td>Ability to address literacy within general education content</td>
<td>4.92</td>
<td>1.379</td>
</tr>
<tr>
<td>Behavior of student receiving instruction</td>
<td>4.92</td>
<td>1.564</td>
</tr>
<tr>
<td>Opinions of parent of student receiving instruction</td>
<td>4.83</td>
<td>1.115</td>
</tr>
<tr>
<td>Potential stigma of instructional methods</td>
<td>4.27</td>
<td>1.618</td>
</tr>
<tr>
<td>Skills of other students in the setting</td>
<td>4.25</td>
<td>1.815</td>
</tr>
</tbody>
</table>

*Note: 1=Not Important; 6=Very Important*
Barriers to Literacy Instruction in General Education Settings

The final questions of the survey asked teachers to rate statements regarding barriers to literacy instruction for their students with ASD. Generally, participants agreed that all statements were barriers to literacy instruction for students with ASD, as all ratings indicated a score of 3 or higher. The ratings ranged from averages of 5.25 to 3.67 (See Table 10). The highest rated barrier was not enough staff ($M=5.25$). This statement also had the least amount of variability ($SD=0.754$). The second highest rated barrier was lack of cooperation from other professionals ($M=5.08$). Participants also indicated that lack of appropriate materials ($M=5.00$) and not enough time for instruction in general education classrooms ($M=4.92$) were barriers to a great extent. In addition, lack of expertise from other professionals ($M=4.83$) and paraprofessionals ($M=4.83$) were rated highly among participants. Furthermore, teachers indicated that the parents of students with disabilities ($M=3.83$) and parents of students without disabilities ($M=4.67$) did not support inclusion. The two lowest rated barriers were general education environment is not a safe place for the students on my caseload ($M=3.67$) and insufficient opportunities to address goals in general education settings ($M=3.75$).
Summary of Survey Results

The above survey results show the beliefs of teachers with regard to literacy instruction for students with high functioning autism. In general, teachers believed that all students with high functioning autism could benefit from literacy instruction. Teachers were also likely to use a variety of instructional strategies when teaching literacy to students with high functioning autism, including instructional strategies, grouping strategies, and technology strategies. Additionally, a variety of factors influenced their beliefs about literacy skills to be taught, and these factors affected where teachers chose
teach literacy to students with high functioning autism. These results will be discussed in further detail in Chapter 5.
Chapter 5
DISCUSSION

This study examined teacher’s perspectives of literacy interventions for students with high functioning autism in a large suburban school district within Sacramento County. Overall, 24 participants submitted surveys, but only 12 complete surveys were included. This study asked the following research questions:

1. What are teachers’ beliefs about literacy instruction for students with high functioning autism?
2. What interventions are teachers likely to use for literacy instruction with students with high functioning autism?
3. What do teachers view as barriers to literacy instruction for students with high functioning autism in general education settings?
4. What factors affect teachers’ perspectives of literacy instruction for students with high functioning autism?

After analyzing the data from each survey question, several trends began to appear and the research questions related to teachers’ perspectives of literacy instruction for students with ASD were considered.

Teachers’ Beliefs About Literacy Instruction

With regard to teachers’ beliefs about literacy instruction, several patterns emerge. First, participants indicated that they believed that all students can benefit from literacy instruction. This statement received the highest ratings ($M=5.42$) compared to other statements in the section, and had the second lowest amount of variability in the
section, which means that participants were more consistent in their agreement with this statement. It is not surprising that most participants agreed with this statement. All of the participants were special education teachers with more than 2 years of experience. It may be assumed that they chose this field because they wanted to work with children with disabilities and as a result believe that children with disabilities can benefit from literacy instruction.

In addition, participants indicated that they believed that they were prepared to teach literacy to students with autism (M=4.92). This information is expected because all of the teachers had at least two years of experience and 7 teachers had over 10 years of experience. This finding is also encouraging because it may suggest that these teachers feel confident in addressing the needs of their students with ASD, at least in terms of literacy.

In contrast, participants disagreed with the statement that the older the student is, the less important literacy instruction becomes (M=1.92). This may indicate that the participants believed that literacy is important for students, regardless of age. This information is reassuring, since many of the studies conducted in the literature review showed positive outcomes for adolescents with ASD (Flores & Ganz, 2009; O’Connor & Klein, 2004;).

Other statements showed neither strong agreement nor disagreement among participants. The statement regarding students benefiting from more commercially designed curricula than from programs designed by the teacher had a mean of 3.17. This shows that teachers may be using a variety of curricula to address literacy with their
students with high functioning autism. As schools and districts have become more focused on Common Core standards as well as statewide assessments, many teachers are required to use specific curriculum outlined by their district. However, special education teachers may also need to supplement these curricula with materials of their own so that their students can work on their IEP goals. Neither agreement nor disagreement toward this statement may indicate that teachers are using both teacher-created and commercially created curricula to address literacy for their students with high functioning autism.

Additionally, teachers neither agreed nor disagreed with the statement regarding drill and practice activities promoting literacy skills ($M=2.92$). This finding may indicate that teachers are thinking more progressively. Drill and practice activities are widely known as a somewhat dated method for instruction (Gallagher, 2009). Teachers now are encouraged to employ a variety of other teaching strategies such as hands-on activities and project-based learning. On the other hand, students with autism may benefit from the direct instruction components that drill and practice activities often have (Flores & Ganz, 2009). This may be one reason why teachers did not show strong agreement or disagreement toward this statement.

In looking at the Ruppar et al. (2011) study from which this survey was modified, there were many similarities and some differences. For example, like the current study, Ruppar et al. (2011) found that their participants also believed that all students could benefit from literacy instruction. They also found that teachers rated the statement about using drill and practice activities lower. On the other hand, Ruppar et al. (2011) also compared participants’ settings with their overall beliefs and found that the type of
setting in which participants taught affected the degree to which they agreed or disagreed with certain statements (i.e. all students can benefit from literacy instruction). Although the current study collected demographic information regarding participants’ current settings, all teachers taught in similar settings (i.e. schools that have both general education and special education settings on campus) and therefore, it could not be analyzed whether responses of teachers differed according to the setting in which they taught.

**Interventions Likely to be used for Literacy Instruction**

The survey used in the current study devoted several questions to gauging participants’ likelihood to use interventions. Overall, the interventions that teachers were most likely to use were reading naturally occurring texts (e.g. letters, emails, brochures, news stories) \( (M=5.33) \) and writing a letter, card, or e-mail to a friend \( (M=5.33) \). (It should be noted that the section regarding Writing interventions was rated the lowest overall compared to other sections. This will be discussed in a later section.) These two interventions are similar in that they both focus on using real life situations to promote literacy. Teachers may have preferred to use these two interventions because they utilize students with high functioning autism’s strengths. Students with high functioning autism are often literal thinkers who enjoy practicing real life skills for which they have a personal reference. For example, a child with autism may prefer to write a letter to a friend rather than a fictional story, because a letter is more literal and concrete than a fictional story. Overall, these two interventions were the highest rated interventions and therefore, the most preferred interventions among participants in this study.
In looking at the data regarding teachers’ likelihood to use certain interventions, one pattern emerged. The two highest rated sections were Reading Text \((M=4.91)\) and Decoding and Phonological Awareness \((M=4.91)\), whereas the two lowest rated sections were Reading Comprehension \((M=4.55)\) and Writing \((M=4.44)\). Incidentally, this mirrors the strengths and need areas of students with ASD. As noted previously in the literature review, several studies have found that students with ASD have average to above average decoding or text reading abilities, but below average reading comprehension and writing skills (Huemer & Mann, 2009). The sections that received the highest ratings from teachers are also the areas that tend to be strength areas for students with ASD. On the other hand, the lowest rated areas among participants were those areas with which students with ASD often struggle. This may suggest that teachers have difficulty using appropriate interventions for students with ASD in reading comprehension and writing. This is a concern given that reading comprehension and writing are often the greatest need areas for these students.

Teachers also indicated that they were likely to use technology strategies. All of the strategies listed were rated as highly likely to be used by teachers. Technology is becoming increasingly popular in teaching literacy to all students, including students with autism. In addition, the visual nature of technology programs presents information according to students with ASDs’ strengths. Interestingly, teachers rated e-books or computer based reading programs the highest of all of the technology strategies. This may be because this district uses the program Read 180, a computer-based reading program, as a reading intervention program for their students. The use of iPads or tablets
was also indicated as a strategy that teachers were highly likely to use. IPads and tablets are becoming increasingly popular in schools. They are portable and user-friendly, which allows teachers to use these with a wide range of student populations. The use of word processing programs was also rated high. The fact that this strategy was rated higher than many other writing strategies in the section on Writing (i.e. dictating a story, tracing letters, or copying words or sentences from a book) suggests that teachers may prefer to use technology strategies instead of paper and pencil strategies. Given the fine motor difficulties that students with ASD often have, it is not surprising that teachers would prefer to employ strategies that accommodate handwriting tasks.

Results also showed that grouping strategies were rated highly among participants. In fact, all scores in the section regarding grouping strategies received mean ratings of at least a 5, which indicates that teachers were highly likely to use all strategies. The top two strategies used were peer tutoring and partner reading. Both of these grouping strategies involve pairing two students. It can be assumed that students with ASD would be paired with typical peers in order to improve literacy skills. As noted in the literature review, peer tutoring can be an effective way of increasing literacy abilities for students with ASD (Kamps et al., 1994). Rating this strategy highly shows that teachers are in agreement with this research. In addition, partner reading is another grouping strategy involving two students. Interestingly, partner reading also requires students to engage socially with each other, which is often difficult for students with ASD if they are not explicitly taught how to do this. Heterogeneous ($M=5.08$) and Homogenous ($M=5.08$) grouping were the two lowest strategies in this section, although they were still very
highly rated. The fact that teachers rated these two grouping techniques may suggest that they are differentiating instruction.

**Barriers to Literacy Instruction in General Education Settings**

Teachers rated several barriers to literacy instruction in general education settings. The barrier ranked the highest, according to participants, was lack of staff. Ratings of this statement had the least amount of variability ($SD=0.754$) and the highest average ($M=5.25$). This can be compared to questions from the previous section regarding settings for literacy instruction. The majority of teachers said that they provided their instruction in a self-contained special education classroom. If teachers were providing instruction in one self-contained classroom, then it would be difficult to provide support in an inclusive setting without enough staff to support the students. Teachers also indicated that lack of cooperation from other professionals was another barrier to literacy instruction for students with high functioning autism ($M=5.08$). Identifying general education teachers and other professionals who are willing to support students in inclusive environments can be difficult, depending upon the school site.

Teachers also indicated agreement with other barriers to literacy instruction in general education settings, such as lack of appropriate materials, lack of expertise of paraprofessionals, and other professionals and administration does not support inclusion of students with disabilities. This may indicate that barriers to literacy instruction may have to do with administrative issues. For example, the administration at a school is responsible for ensuring that teachers have adequate materials for instruction. It is also the district administration’s responsibility to hire and train paraprofessionals and other
professionals in teaching all students, including students with autism. While in many districts, teachers receive professional development related to their practice, paraprofessionals often do not receive the same trainings. In many instances, it is the teachers’ responsibility to train paraprofessionals regarding instructional practices. In addition, professionals such as speech therapists or occupational therapists who provide related services are usually responsible for receiving their own professional development through continuing education. Continuing education courses are often selected at the individual’s discretion, so other professionals may not have adequate training in literacy instruction for students with ASD.

Furthermore, two barriers that teachers agreed with were related to parents. Teachers agreed with the statement that parents of students without disabilities do not support inclusion ($M=4.67$). They also agreed, although to a lesser extent, that parents of students with disabilities do not support inclusion ($M=3.83$). This information is surprising for several reasons. While in the past, inclusive practices may not have been widely accepted by parents, these practices have existed for over 30 years. Many studies have shown positive parent perspectives of inclusion (Leyser & Kirk, 2011). In addition, many other studies have demonstrated the positive effects that inclusive practices can have on students with ASD and students without disabilities (Giangreco, 2011). The data presented in this study is disheartening because it may suggest that teachers do not believe that parents are supportive of inclusive practices. This finding may indicate the need for the district to develop programs that utilize appropriate inclusive practices and support teachers and parents in enacting these practices within the classroom.
Participants also agreed with barriers related to behavior. Teachers agreed with the statement that the behavior of the students on their caseload was too disruptive for general education classrooms ($M=4.00$). Teachers also indicated that the general education environment is not a safe place for their students ($M=3.67$). Agreement with these two statements may elude to teachers’ difficulties with challenging behavior of students with ASD. As noted in the literature review in Chapter Two, students with ASD struggle with maintaining appropriate behavior. However, as pointed out in the Koegel et al. (2010) study, there are ways to motivate students with autism in general education settings. On the other hand, teachers indicated that general education was not a safe place for their students with ASD. This finding may suggest that participants believed that the setting was not prepared to provide students with ASD with a safe environment.

Other barriers that teachers agreed with may suggest that students and teachers do not have enough support in general education settings. For example, teachers indicated that there were insufficient opportunities to address goals in general education settings ($M=3.75$). They also ranked that the level of content taught in general education was not appropriate to teach literacy ($M=4.17$). Agreement on both of these statements may indicate that instruction was not being modified in general education settings. Students with ASD may need instruction adapted or modified in order to meet their needs. If this were not happening, then it would be difficult for students to reach their IEP goals. Moreover, in order to modify instruction, special education teachers need the time and support in order to outline these accommodations and modifications to students.
Additionally, general education teachers need training and support in carrying out these modifications and accommodations in general education settings.

**Factors that Affect Teachers’ Perspectives of Literacy Instruction**

Teachers indicated a variety of factors that affected the literacy skills selected to be taught to their students with high functioning autism. The factor that teachers rated the highest was whether the skills were relevant to students’ current environments ($M=5.25$). This may suggest that teachers are teaching students with high functioning autism the literacy skills necessary for their current environment, and that they value skills that can be useful right away. Teachers also gave high ratings to the statement about the literacy skill being useful in multiple environments, which may indicate that teachers believe it is important for literacy skills to be taught and generalized in many different environments. This finding could also indicate a desire for literacy skills to be taught in the community and at school. The lowest rated factor was whether the student is expected to acquire the skill quickly. Teachers disagreed with this statement ($M=2.42$), indicating that they do not believe that it is important for students to acquire literacy skills quickly.

Results related to factors that affect teachers’ perspectives of literacy instruction are similar to those found in the Ruppar et al. (2011) study. The researchers found that participants gave high ratings to the statement about literacy skills being useful in current environments. This indicated, as it did in the current study, that teachers wanted the skill to be useful right away. On the other hand, participants in the Ruppar et al. (2011) study indicated that they did not think skill being taught in general education classroom was an important factor in the selection of literacy skills to be taught. This was different from
participants in the current study, in which teachers rated that whether the skill was taught in the general education setting was important.

Limitations

Several limitations affected this study. The largest limitation was that the sample size of this study was relatively small, given the population. The sample size also was greatly decreased because some potential participants did not fill out the survey completely. Another limitation was the decision to allow teachers to pick which sections they were able to fill out. It may have been more beneficial to design the survey where participants were required to answer all of the questions in one section in order to move on to the next section. Due to the small sample size, conclusions may not be an adequate representation of the entire population.

In addition, teachers were not able to explain their answers. They also were not able to expand upon any answers. This means that information gathered is just a starting point for this topic. Teachers were asked to rate only the questions selected. There may have been other interventions or preferences; however, they were only asked to rate the items selected. Limiting items on the Likert scales to a finite number of interventions and factors means that they could have preferred to use other interventions that were not listed. This study could have left room for comments, which would have enabled participants to write in other answer options.

Furthermore, the theoretical framework of this study demonstrated that people’s intentions become actions (Ajzen, 1991). People are also constantly trying to maintain harmony with their own beliefs (Festinger, 1957). Therefore, it was assumed that if
teachers believed literacy practices to be effective, they were in fact using them. However, another limitation to the study is that there was no way to know if the practices and interventions rated highly likely to use were actually used by the participants. Further research regarding which practices and interventions teachers actually use would be warranted.

The format of this study also may have limited teachers who participated. Since this study was conducted through the Survey Monkey website, it may have limited the participants. For example, teachers who did not have sufficient technology skills may not have filled out the survey. In addition, recruiting teachers through an e-mail may have limited which teachers decided to participate. Since a large number of teachers were sent a mass e-mail regarding the survey, potential participants may have easily overlooked the e-mail. Furthermore, the person sending the e-mail was a district administrator and not the researcher and only one reminder e-mail was sent out. Allowing the researcher to communicate directly with participants may have yielded different results because she could have sent out more frequent reminder e-mails.

**Implications for Practice**

Looking at the results of this study can inform educators about how to improve practices in literacy instruction for students with ASD. For example, as noted before, overall teachers rated the word reading and reading text interventions more highly in terms of likelihood to use than the comprehension and writing interventions. This may suggest that teachers need additional professional development in the areas of teaching comprehension and writing to students with ASD. Furthermore, previous research studies
showed that students with high functioning autism and Asperger’s syndrome often have average to above average abilities when reading text or decoding, but below average abilities in comprehension and writing (Huemer & Mann, 2009). Since reading comprehension and writing are such strong need areas, it is important for teachers to receive proper training in effective teaching strategies that address these need areas.

In light of the findings regarding barriers to literacy instruction in general education settings, it is clear that further support regarding inclusive practices needs to be developed at the district, school, and classroom level. For example, teachers cited not enough staff and lack of cooperation from other professionals as the top two barriers to providing literacy instruction for students with ASD in general education settings. Not having enough staff is a general problem that could be solved at the district and school level. Districts are charged with interpreting IDEA (2004) and providing the necessary staff and materials to support students according to their IEPs. They are responsible for allocating the funding and resources to schools so that they are able to provide staffing. Furthermore, school administrators are responsible for providing these staff members at the classroom level.

Findings also indicate that there is need for further professional development for all staff members that work with students with ASD. On the survey question regarding barriers to literacy instruction in general education settings, participants rated that the lack of expertise of other professionals ($M=4.83$) as well as lack of expertise of paraprofessionals ($M=4.83$) were barriers to literacy in general education settings. This may suggest that participants believed that these professionals and paraprofessionals were
not trained to work with students with ASD in general education settings. It is important for the district and school to provide adequate professional development for these professionals. Professional development courses that teach professionals how students with ASD learn as well as how to modify instruction in inclusive settings would help them to provide more support to these students in inclusive settings.

Results from this study also show a need for collaboration among administrators, teachers, support staff, and parents. Participants indicated that a barrier to teaching literacy in general education settings was that parents of students with disabilities ($M=3.83$) and parents of students without disabilities ($M=4.67$) did not support inclusion. They also indicated, as barriers, that general education students were not receptive to students with disabilities ($M=3.83$) and that general education was not a safe place for their students ($M=3.67$). Many of these barriers can be prevented with effective collaboration. Collaboration needs to happen at the school level as well as at the classroom level, and it can happen between administrators, support staff members, general education teachers, and special education teachers. Collaboration is a vital component to an effective inclusive setting.

**Implications for Future Research**

After conducting this study, several implications for future research developed. Due to the small amount of participants in this study, a larger, more comprehensive study would be warranted. An expanded study to include more participants as well as a variety of different districts would provide additional data to expand this information base. In addition, conducting another study among a variety of professionals may show differing
perspectives. For example, another study could look more specifically at the perspectives of general education teachers compared to those of special education teachers in terms of literacy instruction for students with high functioning autism. Parent perspectives could also be explored through additional research. For example, parents could be surveyed regarding home-based literacy interventions for their child with ASD.

Although this study collected information regarding teachers’ perspectives of literacy interventions for students with ASD, there was little information about why they selected each answer. A qualitative study on this topic area would allow participants to expand upon their answers. Expanding the survey to include short answer responses may produce different results. On the other hand, conducting face-to-face interviews may provide the most useful information because a researcher would be able to ask participants to elaborate on their responses. Moreover, observations could be gathered to see if teachers are actually using the practices that they rate as highly likely to use.

**Conclusions**

This study collected and analyzed 12 teachers’ perspectives of literacy interventions for students with high functioning autism. Teachers indicated that they believed that students with high functioning autism benefited from literacy instruction. Teachers also showed that they were likely to use many different research-based interventions for students with high functioning autism, with the most likely interventions to be used in the areas of Phonological Awareness and Decoding as well as Reading Text. Teachers also rated factors that influenced the selection of literacy skills to be taught to students with ASD. Among these factors, teachers believed that the usefulness of the skill
in a student’s current and future environments to very important when selecting and teaching literacy skills to students with ASD. Finally, teachers indicated that they believed that many barriers to literacy instruction in inclusive settings existed. These barriers included lack of support and experience from other professionals as well as lack of time and materials.

Furthermore, the theoretical framework of the current study assumed that by selecting answers on this survey, participants were showing intent of behavior, which would eventually lead to actions. In other words, it was assumed that teachers’ responses on the likelihood to use an intervention mirrored their beliefs, and would lead to their intentions to use the interventions. However, more research is needed to address whether or not these theories remain true and whether teachers actually use practices that they indicate that they were highly likely to use.

Finally, teaching strategies to specifically address reading comprehension and writing in students with high functioning autism are needed. Results from this study have also demonstrated the need for teachers, administrators, and support professionals to have further professional development in literacy instruction for students with high functioning autism. Further collaboration between administrators, teachers, and support staff is also needed to maintain effective literacy practices in inclusive settings. In brief, further research in this area will support teachers in meeting the literacy needs of students with high functioning autism, thereby improving their academics and overall quality of life.
Appendix A: Introduction e-mail and link to web survey

~ PLEASE DISREGARD IF YOU DO NOT PROVIDE CLASSROOM INSTRUCTION AT AN ELEMENTARY OR MIDDLE SCHOOL ~

Dear Special Education Teacher,

You are invited to participate in research that will be conducted by Elizabeth Isaacs, a graduate student in the Department of Special Education at California State University, Sacramento. Elizabeth is conducting this study as part of her Master’s thesis, with supervision from faculty member, Dr. Jean Gonsier-Gerdin. The purpose of this survey is to gain information about special educators’ perspectives of literacy instruction for students with autism spectrum disorders. This survey is voluntary and your responses will be kept anonymous and confidential. Participants who choose to complete the survey and supply contact information will be entered to win a $10 Starbucks gift card. Providing your contact information is voluntary, and you can complete the survey without providing this information.

XXXXXXX XXXXXXX School District is not conducting this survey, but is forwarding this survey on behalf of Elizabeth. Your responses will not be seen by XXXXXXX XXXXXXX School District staff and the name of the school district will be kept anonymous.

Sincerely,

XXXXX XXXXXX, Ed.D.
Director, Assessment, Evaluation & Planning

If you are interested in completing this survey, please click on the link below. You will be redirected to the survey through Survey Monkey. The first page of the survey is a consent page. Please read this page carefully and then proceed with the survey. Your responses are greatly appreciated!

Survey Link: https://www.surveymonkey.com/s/literacyasd

If you have questions or concerns about this research, you may contact Elizabeth Isaacs at (XXX) XXX-XXXX or via e-mail at XXXXXXXXX@yahoo.com and/or Dr. Jean Gonsier-Gerdin at (916) 278-4619 or via e-mail at jgonsier@csus.edu.

You will have three weeks to complete the survey. The deadline to participate in this survey is October 9, 2013.

Thank you for your participation!

Elizabeth Isaacs
Master’s Candidate
California State University Sacramento
Appendix B: Reminder e-mail to complete survey

~ PLEASE DISREGARD IF YOU HAVE ALREADY RESPONDED OR DO NOT PROVIDE CLASSROOM INSTRUCTION AT AN ELEMENTARY OR MIDDLE SCHOOL ~

Dear Special Education Teacher,
This is a friendly reminder that you are still invited to participate in research being conducted by Elizabeth Isaacs as part of her Master’s thesis on Teachers’ Perspectives of Literacy Instruction for Students with Autism. **The survey will be open until Wednesday October 9, 2013 and your responses are greatly appreciated!**

Participants who choose to complete the survey and supply contact information will be entered to win a $10 Starbucks gift card. Providing your contact information is voluntary, and you can complete the survey without providing this information.

If you are interested in completing this survey, please click on the link below. You will be redirected to the survey through Survey Monkey. The first page of the survey is a consent page. Please read this page carefully and then proceed with the survey. Your responses are greatly appreciated!

**Survey Link:** [https://www.surveymonkey.com/s/literacyasd](https://www.surveymonkey.com/s/literacyasd)

If you have questions or concerns about this research, you may contact Elizabeth Isaacs at (XXX) XXX-XXXX or via e-mail at XXXXXXXXXX@yahoo.com and/or Dr. Jean Gonsier-Gerdin at (916) 278-4619 or via e-mail at jgonsier@csus.edu.

Thank you for your participation!

Elizabeth Isaacs
Master's Candidate
California State University Sacramento

Approved by Donna O’Neil, Ed.D., Director Assessment, Evaluation and Planning
XXXXXXX XXXXXXX School District
Appendix C: Survey Instrument

Perspectives of Literacy for Students with Autism Spectrum Disorders

Informed Consent

Purpose of this Study:
This is a study being conducted by a student from California State University Sacramento as part of her Master's Thesis in Special Education. The purpose of this study is to examine teachers' perspectives about literacy instruction for students with autism spectrum disorders.

What will be Done:
You will complete this survey, which will take approximately 30 minutes. This survey will include questions about your perspectives about literacy instruction for students with autism who take the California Standards Test (CST) or the California Modified Assessment (CMA). You will also be asked demographic information so that the researcher can adequately describe the characteristics of the sample group for this study.

Benefits of this Study:
By answering these survey questions, you will be contributing to knowledge about what teachers believe about literacy instruction for students with autism spectrum disorders. In addition, after completing the survey, you have the option of being entered into a drawing to win one of five $10 Starbucks gift cards. You will need to supply your name and contact information if you decide to participate in the drawing. It is anticipated that approximately 100 teachers will participate in this study.

Risks or Discomforts:
There are no risks or discomforts associated with this study. You may skip any question that makes you feel uncomfortable. You may decide to quit the survey at any time. If you quit the survey before the end, your information will not be used in this study.

Confidentiality:
Your responses will be kept confidential and anonymous. Your IP address will not be traceable. You will not have to supply your name or contact information, unless you decide to participate in the drawing. If you choose to supply your name and contact information, your information will be kept confidential. The only people who will have access to the names and numbers are the researcher and her faculty advisor. The name of the school and district that you work in will also remain anonymous.

Decision to Quit at Any Time:
You may quit this survey at any time. If you quit the survey, your responses will NOT be counted. If you choose to withdraw from this survey, you may simply exit the website.

How the Findings will be Used:
The findings of this study will only be used for scholarly purposes. The results from this study will be published as part of a Master's thesis. Results may be presented by the researcher at professional conferences.

Contact Information
If you have any questions or concerns, you are welcome to contact the researcher, Elizabeth Isaacs, at eburns81@yahoo.com or her faculty advisor, Dr. Jean Gonsier-Gercin at jgonsier@csus.edu.
Perspectives of Literacy for Students with Autism Spectrum Disorders

Directions for Completing the Survey

By beginning this survey, you are acknowledging that you have read this information and agree to participate in this research. You may withdraw your consent at any time without penalty.

Thank you for agreeing to participate in this study!

In this survey, you will be asked for your perspectives about how to teach literacy to students with high functioning autism and/or Asperger’s syndrome.

I am interested to know what you think, so there are no right or wrong answers.

Please answer the questions while thinking about your students with high functioning autism or Asperger’s syndrome who participate in the California Standards Test (CST) or California Modified Assessment (CMA). If you teach students in kindergarten and first grade who do not participate in STAR testing, please consider students who have Asperger’s syndrome or high functioning autism.

For the purpose of this survey, please consider the following:
1. When you see the word, "autism" please consider this to mean high functioning autism and/or Asperger’s syndrome.

2. Literacy is defined as the ability to read words and understand what those words mean as well as being able to write in order to convey messages with meaning to audiences. Literacy instruction involves the teaching of oral language, reading, and writing skills.
# Perspectives of Literacy for Students with Autism Spectrum Disorders

## Part 1: Demographic Information

**Directions:** Please fill in the blank or mark your answer.

1. **How many years of teaching have you completed?**
   - 0-2 years
   - 3-5 years
   - 6-10 years
   - Over 10 years

2. **What is your education level?**
   - Bachelor's degree and credential
   - Bachelor's degree, credential, and some graduate work
   - Master's degree
   - Doctorate

3. **What teaching credentials do you currently hold? (Mark all that apply)**
   - Multiple Subject
   - Single Subject
   - Ed. Specialist-Mild-Moderate
   - Ed. Specialist-Moderate Severe
   - Ed. Specialist-Early Childhood
   - Other (please specify)

4. **How many years have you taught students with autism?**
   - 0-2 years
   - 3-5 years
   - 6-10 years
   - Over 10 years
Perspectives of Literacy for Students with Autism Spectrum Disorders

6. In the past five years, where have you provided literacy instruction for your students with autism? (check all that apply)
   - Self-contained special education classroom
   - Special education resource room
   - General education classroom
   - I have not provided literacy instruction for my students with autism
   Other (please specify) __________________________

6. Do you teach one or more literacy skills to students with autism every day?
   - Yes
   - No
   - Unsure

7. Approximately how many hours per day do you spend on literacy instruction for students with autism?
   - 0-2 hours
   - 3-5 hours
   - More than 5 hours

8. Approximately how many hours per week do you spend planning for literacy instruction for students with autism?
   - 0-2 hours
   - 3-5 hours
   - More than 5 hours

9. In your teaching career, how many workshops on literacy instruction have you attended?
   - 0-5
   - 6-10
   - 11-15
   - More than 15
**Part 2 Beliefs about Literacy Instruction**

10. Please rate the extent to which you agree with the following statements about literacy instruction for students with autism:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students benefit more from commercially available resources than from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>programs that I design.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All students can benefit from literacy instruction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More pressing needs on my caseload prevent me from implementing literacy instruction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The older the student is, the less important literacy instruction becomes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think that my students' social skills will improve with literacy instruction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literacy skills should be taught in the context of everyday routines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drill and practice activities promote literacy skills.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel prepared to teach literacy to students with autism.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Perspectives of Literacy for Students with Autism Spectrum Disorders

### Part 3 Literacy Interventions

**11. What is the likelihood that you would use the following interventions to address Word Recognition and Vocabulary Development for students with autism?**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sight word instruction based on commonly occurring words in community and home environments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sight word instruction for high-frequency words (e.g., is, of, the, and)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining words</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying relevant phrases or words during a conversation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocabulary journal of relevant words</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12. What is the likelihood that you would use the following interventions to address decoding and phonological awareness for students with autism?**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decoding CVC (consonant-vowel-consonant) words such as cat, log, or fur on flashcards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying letter names and sounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing rhyming games</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**13. What is the likelihood that you would use the following interventions to address reading text for students with autism?**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading stories or chapters from a textbook</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading naturally occurring texts (e.g., letters, emails, brochures, news stories)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeated Reading (e.g., reading one passage multiple times)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**14. What is the likelihood that you would use the following interventions to address comprehension for students with autism?**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answering comprehension questions about a fictional story</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying the main idea of a text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completing CLOZEE statements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using graphic organizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explicitly teaching comprehension strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Perspectives of Literacy for Students with Autism Spectrum Disorders

### 16. What is the likelihood that you would use the following interventions to address writing for students with autism?

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing a letter, card, or email to a friend</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracing letters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling vocabulary words from textbooks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dictating a story</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copying words or sentences from a book</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying the correct punctuation to use in a pre-written sentence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using texts based upon students’ particular interests</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 16. What is the likelihood that you would use the following instructional strategies to address literacy for students with autism?

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Tutoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner Reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homogeneous Grouping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneous Grouping</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17. What is the likelihood that you would use the following technology strategies to address literacy for students with autism?

<table>
<thead>
<tr>
<th>Technology Strategy</th>
<th>Not Likely</th>
<th>Highly Likely</th>
<th>Not Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-books or computer-based reading programmes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactive Whiteboard Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iPads or Tablets</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Perspectives of Literacy for Students with Autism Spectrum Disorders

#### Part 4 Teaching Literacy Skills

18. Thinking in general about students with autism who take the CST or CMA in your current setting, please indicate to what extent you find the following to be important when choosing a literacy skill to teach?

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill is linked to grade level curriculum</td>
<td></td>
</tr>
<tr>
<td>Skill is age appropriate</td>
<td></td>
</tr>
<tr>
<td>Skill is useful in multiple environments</td>
<td></td>
</tr>
<tr>
<td>Relevant to students’ current environments</td>
<td></td>
</tr>
<tr>
<td>Relevant to students’ future environments</td>
<td></td>
</tr>
<tr>
<td>Addresses the general education curriculum adopted by the school</td>
<td></td>
</tr>
<tr>
<td>Amount of planning time needed to prepare for instruction is minimal</td>
<td></td>
</tr>
<tr>
<td>Student is expected to acquire the skill quickly</td>
<td></td>
</tr>
<tr>
<td>Important to student’s family</td>
<td></td>
</tr>
<tr>
<td>Addresses standards targeted in the California Standards Test or California Modified Assessment</td>
<td></td>
</tr>
<tr>
<td>Can be taught in the general education classroom</td>
<td></td>
</tr>
<tr>
<td>A high number of opportunities exist to teach the skill throughout the day</td>
<td></td>
</tr>
<tr>
<td>Acquisition of the skill will promote social skills</td>
<td></td>
</tr>
<tr>
<td>Teaching skill will promote inclusion in current and future environments</td>
<td></td>
</tr>
</tbody>
</table>
### Perspectives of Literacy for Students with Autism Spectrum Disorders

#### Factors Affecting Literacy Skills Taught

19. If all of the following environments were available to you, what is the likelihood that you would provide literacy instruction in the following settings to your students with autism?

<table>
<thead>
<tr>
<th>Environment</th>
<th>Not Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special education classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic general education classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-academic general education classes (e.g., music, art)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other school environments (e.g., lunch, bus, hallways)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. Please rate the extent to which you find the following factors important when choosing a location to provide literacy instruction to students with autism.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of paraprofessional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to address literacy during skill routines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to address literacy within general education content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential stigma of instructional methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills of other students in the setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness of other professionals to providing instruction in a particular setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opinions of parent of student receiving instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School culture promotes inclusion of students with disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive level of student receiving instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavior of student receiving instruction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
21. Please rate the extent to which you find the following to be BARRIERS to providing literacy instruction in general education settings for students with autism.

<table>
<thead>
<tr>
<th>Not at All</th>
<th>To a Great Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration does not support inclusion of students with disabilities</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Lack of cooperation from other professionals (i.e. general education teacher, therapists)</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Parents of students WITH disabilities do not support inclusion</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Parents of students WITHOUT disabilities do not support inclusion</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Not enough staff</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Lack of appropriate materials</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Not enough time for instruction in general education classrooms</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Lack of expertise of other professionals (i.e. general education teacher, therapists)</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Lack of expertise of paraprofessionals</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Instructional techniques necessary for skill acquisition are stigmatizing for the student</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>General education students not receptive to students with disabilities</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Insufficient opportunities to address goals in general education settings</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>General education environment is not a safe place for the students on my caseload</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>The behavior of the students on my caseload is too disruptive for general education classrooms</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Level of content taught in general education is not appropriate</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Time needed to adapt general education materials to student needs</td>
<td>☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>
References


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