

St. John Fisher College

## Fisher Digital Publications

---

Education Masters

Ralph C. Wilson, Jr. School of Education

---

8-2011

### Reading Assessments for Students with Autism

Cassie Pruitt

*St. John Fisher College*

Follow this and additional works at: [https://fisherpub.sjfc.edu/education\\_ETD\\_masters](https://fisherpub.sjfc.edu/education_ETD_masters)



Part of the [Education Commons](#)

### [How has open access to Fisher Digital Publications benefited you?](#)

---

#### Recommended Citation

Pruitt, Cassie, "Reading Assessments for Students with Autism" (2011). *Education Masters*. Paper 18.

Please note that the Recommended Citation provides general citation information and may not be appropriate for your discipline. To receive help in creating a citation based on your discipline, please visit <http://libguides.sjfc.edu/citations>.

This document is posted at [https://fisherpub.sjfc.edu/education\\_ETD\\_masters/18](https://fisherpub.sjfc.edu/education_ETD_masters/18) and is brought to you for free and open access by Fisher Digital Publications at St. John Fisher College. For more information, please contact [fisherpub@sjfc.edu](mailto:fisherpub@sjfc.edu).

---

# Reading Assessments for Students with Autism

## Abstract

This study aims to compare the use of standardized reading assessments and informal reading assessments in students with autism. I assert that informal reading assessments provide the most benefits for both the student with autism and the teacher, while aligning with the standardized Data was collected through the assessment and observation of a high school student with autism. The study reveals that both types of assessment evaluate reading level, structural elements, and cognitive components. assessment incorporates student interest. However, only the informal The use of the informal assessment allows for flexibility and more diagnostic data for the teacher to plan reading instruction.

## Document Type

Thesis

## Degree Name

MS in Literacy Education

## Department

Education

## First Supervisor

Joellen Maples

## Subject Categories

Education

Reading Assessments  
for Students with Autism

By

Cassie Pruitt

Submitted in partial fulfillment of the requirements for the degree  
M.S. Literacy Education

Supervised by

Dr. Joellen Maples

School of Arts and Sciences  
St. John Fisher College

August 2011

### Abstract

This study aims to compare the use of standardized reading assessments and informal reading assessments in students with autism. I assert that informal reading assessments provide the most benefits for both the student with autism and the teacher, while aligning with the standardized assessment scores and components. Data was collected through the assessment and observation of a high school student with autism. The study reveals that both types of assessment evaluate reading level, structural elements, and cognitive components. However, only the informal assessment incorporates student interest. The use of the informal assessment allows for flexibility and more diagnostic data for the teacher to plan reading instruction.

### **Reading Assessments for Students with Autism**

Over the past decade, reading assessment has become a cornerstone of the educational system due to reforms in education law. The “No Child Left Behind” (NCLB) Act of 2001 and the Individuals with Disabilities Education Act (IDEA) of 2004 have been the key factors in changing assessment practices in order to ensure accountability and appropriate education for all students (Abedi et. al., 2009, 2010; Burgin & Hughes, 2009; Goetze & Burkett, 2009; Johnstone, 2007). However, more and more students with cognitive disabilities, such as autism, are being integrated into the regular education classroom, and these students possess a wide range of abilities which are often difficult to assess through standardized assessments (LaBarbera & Soto-Hinman, 2009). From my experience, educators feel that they are not equipped to assess or instruct students with autism, especially in the area of literacy. These fears are legitimate and often teachers are not exposed to strategies for working with these students until the students are actually in their classes.

Autism itself is manifested in students very differently. There is a set of criteria called the DSM-IV that identifies individuals with autism when they demonstrate evidence of the indicators in varying degrees. The wide spectrum of behaviors makes the disability difficult to diagnose. These indicators include the following: “patterned, repetitive, focused behavior... resistance to change... language cognitive or other developmental delays...impaired ability to understand cause and effect relationships and draw inferences... literal, concrete thinking...and difficulty with language comprehension” (LaBarbera & Soto-Hinman, 2009, pp.1-2). Students with autism may experience one or many of the above indicators and in varying degrees. Therefore, it is a challenge for teachers to know what instructional strategies work and what ability level the child possesses without thorough observation.

Understanding how students with autism learn and acquire literacy is necessary to provide appropriate supports in the classroom. With the prevalence of autism increasing in our society, there are several research based methods for literacy instruction. These methods include the use of visuals to supplement instruction, priming for background knowledge, and the use of leveled, high interest reading materials to promote comprehension (Carnahan, Williams, & Haydon, 2009). Furthermore, the theories involving the acquisition of literacy are rooted in the works of Gee (2001) and Freebody and Luke (1990), which can also be interpreted for students with autism. Gee's (2001) theory involves the idea that all humans have a primary discourse that is acquired, and secondary discourses can be learned. Students with autism may be challenged by the secondary discourse, as their primary discourse does not directly align with the secondary discourse of many social institutions, such as school.

In addition, literacy involves control over distinct processes, specifically the four reader roles outlined in Freebody and Luke's (1990) research. Some roles, such as the code breaker, may come easily for students with autism to gain control over. Other roles, such as the text analyst, may be out of reach due to the cognitive challenges that these students experience. Nonetheless, control over multiple processes that are required of literate individuals is a challenging task for a student with ASD. However, McDermott and Varenne (1995) argue that society uses disabilities to marginalize people from the mainstream. Their approach of culture as a disability takes the stance that disability is not within the people who are labeled as such but rather in the mainstream culture which surrounds them. Using McDermott and Varenne's (1995) culture as a disability approach to think about students with ASD and their ability to acquire literacy, the following research suggests that there are multiple components to assessing the reading ability of a student with autism.

There is a distinct need for reading assessments that can appropriately assess the ability of students with autism. Without the proper identification of ability level, it is difficult to understand how students with autism acquire literacy and learn to participate in literacy activities. Currently, standardized reading assessments are used in order to comply with state and national education regulations; however these assessments make few modifications for students with disabilities. Informal reading assessments are being used regularly in some classrooms, but are not being used to determine placement and report the skill level of students.

In order to determine the accuracy and benefits of informal reading assessments, I compared the assessment results of an informal reading assessment, namely Johns (2008) Basic Reading Inventory to standardized reading assessments given in school on an adolescent student with autism. This study analyzed the assessment results and observed the application of reading skills in an English Language Arts setting for one high school student with autism. Through this research, I argue that effective reading assessment in students with autism spectrum disorders needs to identify reading level, structural and cognitive reading skills, incorporate student choice, and allow for flexibility in administration. The use of the informal reading assessment allows for flexibility and more diagnostic data for the teacher while aligning with the components evaluated on standardized assessments.

### **Theoretical Framework**

Before reviewing the research, it is important to understand how literacy is defined. The definition of literacy has multiple components that include the process for reading and the purpose. The main components of literacy are rooted in the works of Gee (2001) and Freebody and Luke (1990). Gee (2001) reveals that people develop literacy in multifaceted and culturally influenced ways, in order to be involved in one or more discourses. Freebody and Luke (1990)

argue that control of four distinct processes is necessary in order to be involved in the dominant discourse.

According to Gee (2001) the literacy activities that we are involved in are intimately related to the discourses that we take on, and humans all take on a primary discourse. Gee (2001) states, “All humans, barring serious disorder, get one form of discourse free, so to speak, and this through acquisition. This is our socio-culturally determined way of using our native language in face-to-face communication with intimates” (p. 22). It is through oral language and cultural experience that as children, humans acquire their primary discourse. Most humans access secondary discourses through “social institutions beyond the family” (Gee, 2001, p. 22). These discourses are learned rather than acquired. For example, academia carries its own discourse, which young students must learn as they move through their school experience. When I refer to the “dominant discourse,” I am referring to the discourse that is held by the majority. Gee’s (2001) definition of literacy is one that is derived from the idea that cultural background affects literacy. Gee (2001) refers to an individual’s primary language acquisition as their “primary discourse” (p. 22). The languages often learned in secondary settings, such as school, are referred to as “secondary discourses.” In order to be powerfully literate, an individual must be able to control the functions of the secondary discourse and use the secondary discourse to critique the primary discourse (Gee, 2001). Students with cognitive disabilities, such as autism, may not innately be able to gain control over the primary or the secondary discourse.

Students with autism experience difficulties with language comprehension, making both their primary and secondary discourses vary from same aged peers. As Gee (2001) points out, their primary discourse is going to be far from the academic secondary discourse that is required for them to be successful in school. The challenge of teaching and assessing students with

autism in the secondary discourse is compounded by the fact that, “students on the autism spectrum are not being provided with opportunities for language production and language practice, which is the foundation of literacy” (LaBarbera & Soto-Hinman, 2009, p. 13).

Language practice that is traditionally considered appropriate for students will differ for students with autism, because their primary discourse varies from the dominant discourse of society. For example Lord and McGee (2001) point out that:

There are several important problems commonly encountered in the assessment of children with autism and related conditions. First, it is common to observe significant scatter, so that, in autism, verbal abilities may be much lower than nonverbal ones... As a result, overall indices of intellectual functioning may be misleading. (p. 88)

Students with autism may not be able to make the connections necessary for comprehension or attend to the task at hand. Their success on literacy assessments is very important because it determines programming, placement, and instruction. However, students with ASD are too often being left out of the dominant discourse, which adversely affects their literacy acquisition, assessment, and instruction.

A second theory, provided by Freebody and Luke (1990) states that adequate literacy is based upon, “demands that any particular culture places on its members in their dealings with a written text” (p. 7). Freebody and Luke (1990) define literacy with four roles that are necessary for a literate individual. Freebody and Luke (1990) assert that, “... a successful reader in our society needs to develop and sustain the resources to adopt four related roles: code breaker...text participant... text user... and text analyst” (p. 7). These are distinct processes, which the literate

individual must have control over in combination in order to be involved in the dominant discourse.

These four processes all possess challenges for students with autism. The “code breaker” is a role that deals with, “the nature of the relationship between spoken sounds and written symbols” (Freebody & Luke, 1990, p. 8). According to Carnahan, Williamson, and Haydon (2009), “Students with ASD are better able to decode than comprehend written text” (p. 11). The “code breaker” reader role is a process that many ASD students can gain control over. Direct instruction on the visual representation of sounds at a young age leads to success with the code breaker reader role. When assessing reading in students with autism, it is usually evident that they are able to phonologically decode words on the page.

Secondly, the role of the text participant involves, “developing the resources to engage in the meaning systems of the discourse itself” (Freebody & Luke, 1990, p. 9). The text participant must be able to draw upon their schema in order to make connections within the text. Depending upon the topic of reading, students with autism may or may not be able to draw upon schema independently. Autistic students generally have a narrow focus of interest. If a student is reading about something within that area of interest, they will be able to engage extraordinary amounts of background knowledge. If the text is not within a realm of the student’s interest, the student will not be able to fully engage in the text participant role without direct instruction.

Third, the text user role involves, “learn[ing] our position as reader and our notion of what for us the texts are for” (Freebody & Luke, 1990, p. 11). The text user role primarily focuses on the social experiences involved in literacy. This process can be considered the most difficult for students with autism, as they are primarily disconnected from social experiences.

The Partnership for Accessible Reading Assessments (PARA) (2006) reinforce that literacy is a complex social process that not all students are innately able to navigate. PARA (2006) concludes that, “In essence, these and the other recommendations indicate that assessments should consider the social and communicative difficulties that a student with autism may exhibit” (“Assessment of students,” para.1). Being a text user will likely not come easy or be a natural process for students with autism. Rather multitudes of direct instruction will be necessary for students to gain control over this process, especially before completing a reading assessment.

Finally the fourth role, of the text analyst requires an understanding of the position of the reader within a text. However, cognitive challenges in interpreting text again may impede a student with autism’s ability to fully interpret this role. For example, the reading profile of a student with autism is described in Carnahan, Williamson, and Haydon’s (2009) research. The student is said to, “frequently respond to comprehension in literal ways...he has difficulty interpreting the emotions of characters in the stories he reads” (Carnahan, Williamson, and Haydon, 2009, p. 10). The student with autism is not going to be able to easily analyze the text. There is a disconnect between reading the words and being able to interpret and manipulate the meaning as well as build perspective from the text. Rather, direct experiences shape the student with autism. Their reading ability should not be simply based on a standardized assessment of interpretation, but rather basic comprehension and ability to apply that comprehension to other situations.

### **Research Question**

Based on Gee’s (2001) and Freebody and Luke’s (1990) theories, literacy is a socially and culturally influenced process that requires control over four distinct processes. In addition,

according to McDermott and Varenne (1995), it is evident that students with autism should not be marginalized by standardized reading assessments. Given that literacy is a process that students with autism have difficulty demonstrating ability, this research project asks, how can informal reading assessments be used to accurately measure the reading ability of students with autism in comparison to standardized reading assessments?

### **Literature Review**

The following literature review explores multiple perspectives on the issue of standardized assessments and students with cognitive disabilities such as autism. First, I will explore how students with autism are challenged by literacy instruction and therefore literacy assessments. Secondly, there is a significant amount of research on the impact of standardized assessments and the success of students with disabilities. In addition, the research offers that alternative assessments, such as informal reading inventories and running reading records, can be a reliable measure of progress and a more reliable measure for informing literacy instruction in the classroom. Finally, the implications of different assessment measures for students with autism are thoroughly investigated. The research indicates that students with autism are not participating in proper formative assessment to improve literacy instruction.

### **Reading Challenges for Students with Autism**

Appropriate placement for students with disabilities, especially autism, has been a debatable topic in the field of education. Students with autism acquire literacy much differently than students without disabilities due to the cognitive challenges that autistic students face. Prior to discussing how students with autism are impacted by standardized reading assessments, it is important to understand what the research says about the reading ability of students with autism spectrum disorders and their placement in general education classrooms.

Autism has only recently been recognized by the IDEA as a stand alone disability. In 1997, autism was defined as, “A developmental disability significantly affecting verbal and non-verbal communication and social interaction...that adversely affects a child’s educational performance” (Coffey & Obring, 2004). According to Coffey and Obring, the number of children with autism is growing, with an estimate of incidence at 4.8 per 10,000 children. More recently, there has been a movement to provide more students with a variety of disabilities instruction in the regular education classroom. Chandler-Olcott and Kluth (2009) state that, “Between 2002 and 2005, the number of students with autism placed in a regular classroom for 80% or more of the school day increased by 5%” (p. 549). More and more students with autism are expected to meet the same standards as general education peers. In addition Humphrey and Lewis (2008) found that integrating students with autism in the classroom comes with both challenges and opportunities. Educational professionals are being challenged to meet the needs of these students and provide high quality literacy instruction (Coffey & Obring, 2004; Humphrey & Lewis, 2008; Whalon & Hart, 2010). Although integration can be viewed as a challenge, integrating autistic students into the general education classroom is viewed by many as a positive experience for students with autism, as long as appropriate strategies are implemented in order to support these students.

Although autism is a spectrum disorder, there are some characteristics that are generalizable to students across the spectrum. In an extensive study by Humphrey and Lewis (2008), students with autism that were integrated into general education classrooms were thoroughly observed and interviewed to determine patterns of characteristics. Students with autism were found to have the following characteristics: special interests, good memory, difficulties reading moods or emotions, preference for visual learning, social naivety, different

use of imagination, and inflexible thinking (Humphrey & Lewis, 2008). These characteristics that were observed in children with ASD across environments translate into specific challenges for the school and learning environments. Children with ASD typically struggle with the following: difficulties concentrating, distractions from noise, disliked subject areas, test anxiety, and a desire to be isolated while in the classroom (Humphrey & Lewis, 2008). These characteristics have significant implications for instruction in the classroom. As concluded by both Humphrey and Lewis (2008) and Coffey and Obringer (2004), students with autism need high levels of support both at school and at home, both academically and socially.

In general, traditional reading instruction that takes place in general education classrooms is not appropriate for students with autism (Alfassi, 2004; Allor et. al., 2010; Basil & Reyes, 2003; Whalon & Hart, 2010). Students with ASD have varying literacy skills. However, most are characterized with effective decoding, but difficulty making meaning or comprehending from a given text (Whalon & Hart, 2010). Research by Whalon and Hart (2010) found that reading instruction in general education classrooms did not meet the individual needs of students with autism. Rather Whalon and Hart (2010) emphasize that there is a greater need for comprehension strategies, due to the cognitive inefficiency to generalize the use of background knowledge when reading. Similarly, Allor, Mathes, Roberts, Jones, and Champlin (2010) reinforced that students with intellectual disabilities are able to learn various aspects of reading. Both of these studies are consistent with Freebody and Luke's (1995) definitions of reader roles, as students appear to have control over some processes, while others are a challenge. Allor et. al. (2010) also identified that students with intellectual disabilities have difficulty generalizing their knowledge from one text to another. Their findings state, "Students with moderate IDs [intellectual disabilities] can learn basic reading skills given consistent, explicit, and

comprehensive reading instruction across a long period of time” (Allor et. al., 2010, p. 19). It seems obvious that teachers would identify effective literacy instructional practices, however that is not happening consistently.

Reading ability for students with autism, especially in the area of comprehension, is not being appropriately addressed. Alfassi (2004) looked at the literacy instruction specifically in secondary settings. Alfassi’s (2004) findings are consistent with Whalon and Hart (2010) and Allor et. al. (2010). Alfassi (2004) asserts that in order to comprehend students must engage in a text driven process and a knowledge driven process. The text driven process involves decoding the written language and the knowledge driven process involves using prior knowledge to interpret the meaning (Alfassi, 2004). Alfassi (2004) argues that students are not receiving enough instruction in this area because they are involved in rigorous test preparation. Teachers are struggling to meet the needs of their students and balancing the standards that are required by states. Test preparation, rather than solving problems for students with autism, is having adverse affects on their reading ability. Nation, Clarke, Wright, and Williams (2006) studied the patterns of reading ability in students with ASD. Their findings suggest that reading comprehension ability is significantly lower than IQ, while reading accuracy is intact (Nation et. al., 2006). In specific, the challenges with comprehension include: “a general difficulty with integrating information, difficulty understanding and resolving anaphoric reference, a difficulty with bringing prior knowledge to bear when reading text, and difficulties with comprehension monitoring” (Nation et. al., 2006, p. 917). These findings demonstrate that because ASD students can “read,” it does not mean that they have full control over the processes necessary for making meaning from text.

Although students with ASD pose significant challenges to the classroom, there are several techniques that are recommended to assist with literacy instruction. Basil and Reyes (2003) indicate that there are three strategies that have positive results when working with students with autism. The first is involving students in meaningful tasks that are scaffolded (Basil & Reyes, 2003). Scaffolding involves engaging students in conversations and creating meaningful problems to be solved rather than having students follow directions and participate in tasks that rely on rote memory (Basil & Reyes, 2003). More authentic literacy instruction that is tailored to the student's interest and needs is effective. Secondly, when visuals accompany the learning, autistic students are more motivated to engage in the learning (Basil & Reyes, 2003). As noted by Humphrey and Lewis (2008), students with ASD rely on visuals to accompany learning. Visuals are an easy way to engage students with autism when providing literacy instruction. Finally, students with autism should be allowed to work at their own pace (Basil & Reyes, 2003). Meeting individual student needs will require teachers to allow flexibility in the pacing of student learning. Overall a key finding for Basil and Reyes (2003) was that students with autism had the ability to gain control of reading processes. However, meaningful experiences, which were tailored toward individual needs, were the key to success with these students.

### **Standardized Reading Assessments**

The use of standardized reading assessments to measure reading progress for students has come out of an important educational movement in the United States. Many researchers cite the "No Child Left Behind" (NCLB) Act of 2001 and the Individuals with Disabilities Education Act (IDEA) of 2004 as the key components for a move toward standardized assessment in order to ensure quality education for all students (Abedi et. al., 2009, 2010; Burgin & Hughes, 2009; Goetze & Burkett, 2009; Johnstone, 2007). According to Burgin and Hughes (2009), "The

federal government's approval requires that states use standardized multiple choice tests" (p. 25). These tests are used to document the schools' "Adequate Yearly Progress" in multiple subject areas, but with a focus on reading and writing (Abedi et. al., 2009, 2010; Burgin & Hughes, 2009; Goetze & Burkett, 2009). In a study completed by Johnstone et. al. (2007), the standardized reading assessments for forty-nine states were compared to their own state standards. Johnstone et. al. (2007) found that there were three types of skills or competencies that received the most emphasis. Foundational skills, such as vocabulary and word identification, comprehension, and analysis and interpretation were the skills on which a majority of states focused. The implications of these assessments are that students are not being assessed on "personal development" or specific reading behaviors. Furthermore, the federal government has instituted a policy known as Response to Intervention (RTI). RTI involves using the standardized assessment scores to plan instruction for struggling readers (Goetze & Burkett, 2009). However, the emphasis that is being placed on high stakes reading assessments leads many researchers to question to reliability of the test's measures, and how it will inform reading instruction within the classroom setting.

The students that are challenged the most by reading are often classified as students with disabilities. In addition to the NLCB proposal of stricter mandates for student performance, the IDEA has mandated that students with disabilities be included in the general education curriculum. Abedi et. al. (2009) reports that eighty-five percent of middle school students with disabilities in the United States are participating in regular standardized reading assessments. In an extensive study completed by Abedi et. al. (2009), it is apparent that "Students with disabilities traditionally perform at substantially lower levels on standardized tests than students with no apparent disabilities" (p. 3). This inadequate performance is not just a problem for

reading assessments. Abedi et. al. (2009) cite that the difficulties that students experience with standardized tests in reading will also occur across subject areas. Therefore it is necessary to determine the current problems with standardized assessments, and find alternative means to assess students with disabilities.

There are many studies that pinpoint the problems with standardized reading assessments. In a study by Whitehead (2007), he compared student performance on local (teacher made exams) that required written response and higher order thinking, versus a standardized multiple choice exam given at the state level. Whitehead (2007) argues that standardized assessments are decontextualized from the classroom and learning needs of students. The findings of this study suggest that schools should focus on the use of “local” teacher made assessments that make sense for the learning environments in which students participate. Whitehead (2007) acknowledges that the over reliance on standardized assessment measures becomes an issue of social justice. Similar to McDermott and Varenne’s (1995) notion of culture as disability, Whitehead (2007) asserts that standardized assessments assume that all students have the same experiences, and can therefore be compared against similar norms. When viewing literacy through the lens of socio-cultural theory, it is evident that students acquire literacy in a culturally influenced way that standardized assessments and norms cannot accommodate.

Moreover, it is difficult to determine the validity of standardized assessment results when working with students from diverse populations. For example, Martin, Bibby, Mudford, and Eikeseth (2003) conducted a study on students with autism which actually argued for the use of standardized assessments. However, the study reports that it is difficult to find appropriate tests to use with autistic students because most are normed developmentally by age. Students with cognitive disabilities such as autism do not meet the same developmental milestones as same aged

peers. At best, normed standardized reading assessments can give an estimate of cognitive ability (Martin et. al, 2003).

The norm bias exhibited in this study was reproduced by Laing and Kamhi (2003). Laing and Kamhi (2003) report that there are three specific problems with normative standardized assessments. The first is content bias, which involves the extent of schema that students have acquired. Similar to Whitehead's (2007) argument, Laing and Kamhi (2003) state that, "Test stimuli are typically derived from the concepts and vocabulary of White middle class settings" (p. 45). Students who are not exposed to White middle class experiences, or are cognitively challenged, will not perform as well on standardized assessments because they lack the background knowledge or ability to apply background knowledge to a given situation. Abedi et. al. (2010) also identify background knowledge as a significant factor limiting students with disabilities' success on standardized assessments. Reading comprehension is directly impacted by the access to appropriate background knowledge and the ability to apply it.

Secondly, standardized assessments have linguistic bias, which refers to discrepancy between the language or dialect used on the test and that is required in the student's response and the language or dialect that is a part of the student's primary discourse (Laing & Kamhi, 2003) Linguistic difference can be a part of an expressive language disability or overall difference between the primary discourse of the student and the secondary discourse required of school (Gee, 2001). Finally, the third problem with standardized assessments is the disproportionate representation of culturally and linguistically diverse populations in normative samples (Laing & Kamhi, 2003). Laing and Kamhi (2003) describe the attempts of test developers to include more diverse populations of students in the norm group; however, these attempts have not eliminated the discrepancies in student performance. In addition, Abedi, Leon, and Kao (2007) completed

extensive research using differential item functioning analyses on standardized reading comprehension assessments for students with and without disabilities. Abedi et. al. (2007) found that there were several test items that demonstrated bias toward students with disabilities. As concluded by Abedi et. al. (2007), Laing and Kamhi (2003), Martin et. al. (2003), and Whitehead (2007) all found that standardized assessments alone cannot be used to accurately identify the reading abilities of students from diverse populations, such as those students with autism, because the assessments assume similar experiences amongst students and normative samples do not include students with disabilities.

### **Alternative Assessments**

Many of the studies that found problems with standardized testing also gave recommendations for the types of assessments that should be used to develop an informative picture of the students' reading abilities (Abedi et. al., 2010; Laing & Kamhi, 2003; Martin et. al., 2003). Laing and Kamhi (2003) recommend two different types of testing that could be used in place of the standardized tests that rely on multiple choice. One type of assessment is a processing dependent assessment (Laing & Kamhi, 2003). The processing dependent assessment would require no background knowledge, eliminating one of the core issues with standardized assessments. A second type of assessment could be a dynamic assessment (Laing & Kamhi, 2003). This type of assessment follows a specific process in which a student is pre-tested, taught a specific skill, and then retested in order to determine the growth in understanding (Laing & Kamhi, 2003). The notion of using a pre-test and post-test is one that is found in multiple studies. Martin et. al. (2003) also concludes that using pre-tests and post-tests are crucial to monitoring progress.

Other recommendations for making standardized assessments more accessible come from Thompson, Johnstone, Thurlow, and Clapper (2004) and Abedi et. al. (2010). Thompson et. al. (2004) studied thematic elements of state standardized reading assessments in comparison to the modes that students use to access texts. This study indicates that test design should allow for “diverse administration” (Thompson et. al., 2004, p. 19). There are multiple ways to format a test and still measure the same state standards. Abedi et. al. (2010) also asserts that certain features of assessments can be changed without altering the measure of the test. Items such as text features and lexical features could be changed to make assessments more accessible and still provide the same rigor and standardized measure. However, changing the assessment for accessibility does not appear to be the best option, especially for students with disabilities, because teachers are still challenged by interpreting scores for these students that will inform instruction.

Alternative assessments are already being used frequently in classrooms. These alternative assessments include informal reading inventories and running reading records. Running reading records are an informal assessment tool that teachers can administer as frequently as they like, and are useful in documenting even small growth in a student’s reading abilities (Fawson et. al., 2006; Goetze & Burkett, 2009; Ross, 2004). According to Fawson, Ludlow, Reutzel, Sudweeks, and Smith (2006), “A running reading record is a test of contextual reading accuracy and student strategy use...” (p. 113). The teacher sits closely with the student and marks miscues as well as self-corrections as the student reads orally. The student is generally asked to do a retelling of the passage or answer comprehension questions following the reading of the text (Fawson et. al., 2006; Goetze & Burkett, 2009; Ross, 2004). The information is used to determine the independent, instructional, and frustration reading levels for individual

students, as well as determine strategies the student is using to make meaning from the text (Fawson et. al., 2006; Goetze & Burkett, 2009; Ross, 2004). A study by Ross (2004), has paved the way for the frequent use of running reading records in the classroom. Ross (2004) found that running reading records convey three very important types of information about the student's reading ability. Appropriate leveled texts, reader attributes, and information about gaps in reading ability can be used by teachers to make informed instructional decisions (Ross, 2004). Ross (2004) also found that schools where teachers regularly used running reading records, outperformed schools that did not use running reading records as an assessment of student reading ability. In comparison to standardized assessments, running reading records provide more pertinent data for the teacher and can be logged over time to show student growth in order to meet state and local mandates. Ross's (2004) study is limited by the fact that running reading records are subjective, and this particular study did not demonstrate the reliability of scores between teachers (Burgin & Hughes, 2009; Fawson et. al., 2006; Ross, 2004).

Follow up research by Fawson et. al. (2006) and Goetze and Burkett (2009), have determined that running reading records can be a reliable measure of student reading ability. Fawson et. al. (2006) found that reliability in running reading record scores comes from using multiple passages (at least three) and averaging the scores. Many researchers against the use of running reading records, believe that teachers are the source of subjectivity in student scores. However, Fawson et. al. (2006) found that teachers, who were highly trained in the use of running reading records, were very accurate. Rather, topical differences between the text passages can lead to variability in scores. In addition to completing at least three running reading records at a given text level, Fawson et. al. (2006) recommend previewing the topic of the text before completing the running reading record in order to achieve the most accurate

results. Furthermore, Goetze and Burkett (2009) found that running reading records are a better method of reading progress monitoring than curriculum-based measures, such as standardized reading assessments. Although curriculum-based measures have established reliability and validity, Goetz and Burkett (2006) find that curriculum-based measures provided only data on student achievement and are not formative enough to drive instruction or provide a basis for reading intervention. In comparison, running reading records provide the diagnostic data necessary for teachers to provide high quality reading instruction, and intervention for those struggling readers. Burgin and Hughes (2009) also support the notion that running reading records may not be exactly comparable to standardized assessments, but they are more valuable than standardized assessments. They assert that although the standardized assessment is considered less biased, it does not lead to more validity because, “the most valid assessment would be the one that actually measures how well a child can actually read and write” (Burgin & Hughes, 2009, p. 27). The running reading record is an assessment that offers extensive data to teachers, frequent reliable results, and can be administered in a timely fashion (Burgin & Hughes, 2009; Fawson et. al., 2006; Goetze & Burkett, 2009; Ross, 2004).

Despite the recommended use of running reading records as an alternative assessment, there are several limitations to running reading records. The most obvious that has previously been discussed is the authenticity of the assessment. Bias exists within the standardized assessments, yet there can also be variability in the results of running reading records depending on the teacher administering the assessment and the topic of the text. A second limitation is that in order to align with state standards and the mandates of NCLB, schools need the hard data from assessments in order to demonstrate progress. Whitehead (2007) agrees that standardized assessments should not be the sole provider of student data, but “there is also a place for central

forms of assessment” (p. 437). However, as Fawson et. al. (2006) suggests, schools can track running reading record scores in order to monitor student progress. Finally, there is the issue of time. Standardized assessments are relatively quick to administer, however the results are often not available to teachers for months. Running reading records provide immediate feedback to the teacher, however it takes an extensive amount of time to assess multiple students in classroom and progress monitor over time (Laing & Kahmi, 2003). As Whitehead (2007) suggests it will be important for schools to move toward balancing standardized assessments and informal assessment measures in order for the teachers to effectively plan instruction and students to be placed in the appropriate curriculum.

### **Impact of Assessments on Students with Autism**

Given that research indicates standardized assessments are a challenge for students with disabilities, and that students on the autism spectrum require extensive, explicit, individualized reading instruction, it is necessary to understand how students with autism spectrum disorders perform on standardized reading assessments. In addition, expert opinion on how alternative types of assessment can affect the performance of students with autism is necessary.

Standardized assessments are clearly being used across grade levels for students with and without disabilities. However, students with disabilities are underperforming on these assessments, which gives educators an obscure picture of their reading abilities.. Valencia and Buly (2004) sought to determine how many students with various challenges such as English language learners and special education students were failing standardized reading assessments in a Northwestern school district. They found that nine percent of failing students were “disabled” readers that were non-ELL students (Valencia & Buly, 2004). Valencia and Buly (2004) argue for more individualized quality instruction, but also further diagnostic assessments

to determine the reasons why students with disabilities are failing standardized reading assessments. In addition, Dennis's (2009) study demonstrated a clear issue with the standardized assessment scores for struggling readers is that they simply state that the student did not meet proficiency. This information does not help educators to determine the specific challenges that the student is facing. Furthermore, this data is used to place students with little thought as to what their distinct abilities and disabilities are. Dennis (2009) states, "With increased pressure on school to raise the scores of struggling readers on state-mandated high-stakes assessments...teams are using these data when placing struggling students in remedial reading classes, without accompanying information designed to reveal the abilities these students display" (p. 287). Standardized assessments are an inaccurate measure of students with disabilities, and the scores obtained from these assessments are further impeding student progress.

There are several reasons why students with disabilities, such as autism, do poorly on standardized assessments. Moen et. al. (2010) studied students who were "less accurately measured" (p.1). The findings reveal that there are three specific factors that cause difficulty for students with disabilities. First, anxiety appears to play a significant role in student underperformance (Moen et. al., 2010). The stress that students feel when taking tests can change their response. In addition, Songlee, Miller, Tincani, Sileo, and Perkins (2008) found that students with ASD have "considerably higher levels of anxiety than students with specific language impairments and typically performing students without disabilities" (p. 218). Test anxiety obscures a student's true ability levels. Secondly, the test method appears to pose challenges for certain students (Moen et. al., 2010). Tests that rely on multiple choice, such as standardized assessments, limits student response. Students that could do a free response or

respond to questions orally, demonstrated significant discrepancies between their standardized reading assessment score and their performance in the classroom or informal assessments (Moen et. al., 2010). Finally, fluency as a barrier to comprehension caused significantly lower standardized assessment scores in students (Moen et. al., 2010). As previously discussed, a lack of background knowledge for students with autism will impact their ability to read and understand information being presented in a text.

The alternative assessments that have been recommended by several studies have also been proven to benefit students with autism by providing a more relaxed, familiar environment, and provide more accuracy in skill set. According to Kearns, Towles-Reeves, Keinert, Kleinert, and Thomas (2011), alternative assessments have been designed for students with cognitive disabilities that even with accommodations, standardized assessments would be “an inappropriate measure of student progress” (p. 3). The students who benefit most from alternative assessments have characteristics that align with those characteristics of students with autism described by Humphrey and Lewis (2008). In general students that have difficulty with communication need alternative assessments in order to use alternative means of expressive language to respond (Kearns et. al., 2011). Those students with difficulty attending to details or the “salient” features of a text would benefit from alternative assessments (Kearns et. al., 2011). Kearns et. al. argue that students with cognitive disabilities who are allowed to use alternative means of assessment are able to access and perform on grade level curriculum, rather than be marginalized by it. Vacca (2007) also explored how effectively students with autism are able to participate in standardized assessments. He argues that a four phase approach is necessary in order to students with autism to be effectively assessed. The four phases include: welcome, opening activity, administration of assessment with defined breaks, and closure activity (Vacca,

2007). In the welcome phase the student becomes familiar with the environment and surroundings as well as establishes a rapport with the adult (Vacca, 2007). The opening activity allows the evaluator to introduce the assessment that will be used as well as demonstrates the structure of the tasks (Vacca, 2007). During the assessment phase, the evaluator allows the student to have frequent breaks in order to reduce anxiety (Vacca, 2007). Finally, in the closure step involves transitioning the student on to the next part of his or her day (Vacca, 2007). The four phases take into account student interest, and individualized pacing, and susceptibility to anxiety, which are important aspects when working with students with autism. Vacca 2007 and Kearns et. al. (2011) demonstrate that assessments can be effective with flexibility in the implementation and a thorough understanding of the student's needs.

The best type of reading assessment for students with autism is one that values their interests as well as their strengths as a learner (Kearns, 2011; Valencia, 2004; Vacca, 2007). Standardized assessments do not accurately depict the reading levels of students with disabilities, nor do they give an accurate measure of the weaknesses that need to be addressed in instruction. Rather, teachers should use alternative assessments, such as running reading records, to determine the level at which a student with ASD reads, as well as the strategies and behaviors that the students exhibits. Students with autism are capable of reading and can grow and learn as readers. Teachers need formative assessments that allow them to properly assess students with autism without bias.

## **Method**

### **Context**

Fairway High School (pseudonym) is a small suburb situated just outside a larger city in Western New York. The community has about 22,000 residents with an average household size

of 2.3 persons (Public School Review, 2011). The average age of the community members is forty-two and seventy percent of the population holds a college degree, compared to a New York State average of only thirty-two percent (Public School Review, 2011). Fairway High School itself is made up of approximately 1200 students (Public School Review, 2011). The student body appears to be economically stable. Only five percent (64 students) are eligible for free lunch. Less than that, three percent (33 students) are eligible for reduced-price lunch (School report card, 2010). The majority of students live in homes that are above the poverty level. Fairway has very limited diversity in the ethnic make up of the student body. Seventy-five percent of the school population is made up of white, non-Hispanic students. Thirteen percent (156 students) are Asian, eight percent (94 students) are Black or African American, three percent (40 students) are Hispanic or Latino, and less than one percent (5 students) are identified as American Indian or Alaska Native (School report card, 2010).

According to the New York State Special Education profile for Fairway, district wide there are 520 students classified with special education services. Fifty-seven percent of special education students are in the general education setting eighty percent or more of the school day. Five percent of students are in the most restrictive settings, or are placed outside of the district (Special education, 2010).

In the high school, only 107 teachers support the entire student body, creating a 1:11 teacher to student ratio (Public School Review, 2011). Class sizes are slightly greater than this ratio at approximately twenty students. These class sizes are in the lower range compared to state averages. In addition, there are twelve paraprofessionals that support special education classes and individual students within the high school building. Finally, the school

administration consists of three Assistant Principals and one Principal (School report card, 2010). Overall, students have a multitude of professional staff to consult.

The classroom where observations took place is classified as a 15:1:1 English class. This classroom consists of thirteen ninth grade students, an English teacher, and a Special Education Teacher. In addition, there are two teaching assistants that work with individual students. Two adults in the classroom are white middle-aged females, and one of the teaching assistants is a middle-aged Indian female. The Special Education teacher is a white male in his early thirties. The student ethnic make up of the classroom includes four African American Males, two Hispanic males, one Hispanic female, one Asian female, and five White males. Students who are placed in this classroom all experience some type of disability which negatively impacts their ability to achieve in the general education English classroom.

### **Participants**

Joe (pseudonym) is the student participant in this study whom I have worked with for the past eight months. Joe is a fourteen year old, white, male student in the ninth grade. He lives with his mother, father, and younger brother. His family is very supportive of his educational environment. Joe is classified as a student on the autism spectrum and qualifies for special education services. As his disability precludes, Joe has a very narrow, intense interest in animals. He has memorized many obscure facts about a variety of types of animals. However, he has difficulty with basic life skills such as telling time and managing his materials. Joe has a one to one teaching assistant that attends all academic classes with him. This is not support that Joe readily accepts as he is very self-conscious of his differences as a learner and social participant. Joe is currently enrolled in Regents level courses, with intensive special education services. However, he is struggling to be successful in this program. Joe's current grades for

core subjects are in the D range. On unit assessments in the content areas, Joe has consistently scored in the low fifties. During midterm exams, Joe made his first attempt at a standardized assessment required for graduation. He took the Regents Competency Test (RCT) in Science. Joe scored a raw score of thirty-one on this exam. A passing score of fifty-two is required to receive credit. Joe will be required to pass RCT exams in all content areas in order to graduate with a Local Diploma.

Joe's teaching assistant, Ms. Rachel (pseudonym), emigrated from India seven years ago. She has been working as a teaching assistant at Fairway High School since she arrived. Her proficiency in English is still weak. Although they have worked together for eight months, Joe at times has difficulty understanding directions from Ms. Rachel. Ms. Rachel is responsible for helping Joe move from class to class, taking notes, assisting him with organization of his materials and completing class activities, and giving reminders to hand in homework. In addition Ms. Rachel monitors Joe's behavior in class. Ms. Rachel has very high expectations for Joe's behavior in class. She uses a visual schedule on his desk to help him monitor his behavior. She also rewards him for good behavior with "dog cards" (cards with a variety of types of dogs on them) by placing them on his desk during class.

Joe's English teacher, Ms. Hin (pseudonym), is an experienced veteran at Fairway High school. In particular she has taught the 15:1:1 class for the past four years. She has been teaching at Fairway for a total of twelve years. Ms. Hin is required to follow the general education ninth grade curriculum in her 15:1:1 class. She is assisted by Mr. Allen, the special education teacher, to make modifications for the students. Mr. Allen has been teaching at Fairway for seven years. He holds certifications in secondary Science, Special Education, and Literacy. This is the first year Ms. Hin and Mr. Allen have co-taught a class together.

### **Researcher Stance**

As an active researcher, my background is in secondary English and Special Education. Over the past four years, I have taught in a variety of long term substitute positions in both English and Special Education, in suburban and urban settings. Two years ago, I was hired at Fairway High School to teach Special Education. Furthermore, I am currently in the St. John Fisher secondary literacy certification program. During this study I take on both the privileged, active observer role and the active participant observer role (Mills, 2011). In my observations of Joe's English class, I will be the privileged, active observer because I will be passively watching him during instruction, but can also step in to work with him during independent work time. According to Mills (2011), "These times provide opportunities for teachers to work as "teacher's aide," while at the same time allowing them to withdraw, stand back, and watch what is happening during a particular teaching episode..." (Mills, 2011, p. 75). This position will balance my position as an active participant observer. As Joe's teacher, I "...monitor the effects of [my] teaching and adjust [my] instructional outcomes" (Mills, 2011, p. 75). Both roles will allow me to gather qualitative, observational data to analyze Joe's behaviors as a reader.

### **Method**

This action research project required a variety of data to be collected. I began the research by conducting an observation in Joe's English classroom. During the instructional time in that English class, I took notes on Joe's behavior, attention to the task, and receptiveness to the instruction as well as how the teaching assistant interacted with Joe. While Joe was participating in independent work in his English class, I took on a more active role. I sat next to him and asked him some questions while he was doing the work, and had him read aloud to me for a short time. In addition, I met with Joe for forty-five minutes every day in resource room. During this time, I

collected data about the types of reading he was required to complete for content area classes (textbook, article, short story, novel, etc.). This allowed me to evaluate the types of texts that were more challenging for Joe.

It was also important to find out from Joe how he feels about reading in school. I created a questionnaire that Joe completed in resource room. I read the questions to Joe, he responded by circling the choice that pertained to his interests. This method was more effective than asking Joe to respond verbally as he has difficulty with expressive language. Joe willingly completed all questions on the questionnaire.

Finally, to complete the comparison study aspect of this action research project, I gathered two types of assessment data. First, I obtained scores from the NWEA Measures of Academic Progress in Reading scores from Spring of 2011. Joe took this standardized assessment less than one month ago. As an alternative assessment, I administered the John's (2008) Basic Reading Inventory.

### **Quality and Credibility of Research**

It was necessary to evaluate the “trustworthiness” of this qualitative research (Mills, 2011, p. 103). Using Guba's (1981) ideas, Mills (2011) proposes that credibility, transferability, dependability, and confirmability are all necessary components of a qualitative research study's trustworthiness. In this action research project, all of these components are in place. Credibility can be justified through the use of triangulation. Triangulation, “...compare[s] a variety of data sources and different methods with one another in order to cross check data” (Mills, 2011, p. 104). I have triangulated this study by using experiential data, enquiry data, and examination data. Transferability is the notion that this study is not generalizable to large groups of people; rather the information should be used in context (Mills, 2011). Transferability is achieved in this

study through the use of detailed descriptions. These detailed descriptions will allow other researchers to "...make judgments about the fittingness with other contexts possible" (Mills, 2011, p. 104). Dependability involves overlapping methods so that the data is not biased (Mills, 2011). Dependability is also achieved through the triangulation process. In this study I am using multiple components of data in the triangulation process to further the dependability. Lastly, confirmability is the objectiveness of the data (Mills, 2011). I have practiced reflexivity throughout this research process, by writing down reflections throughout the data collection process. This has allowed me to "...intentionally reveal underlying assumptions or biases..." (Mills, 2011, p. 105). Through these processes, I am confident that this data is presented in a trustworthy manner, which will lead to a deeper understanding of reading assessments for students with autism.

### **Informed Consent and Protecting the Rights of the Participants**

Before initiating the research, I asked for informed consent from Joe's parents. In a letter, I explained the study and its purpose, the tasks their child would be involved in completing, and that all information would remain anonymous. They willingly consented to having Joe participate in the research project. To ensure the protection of the individuals involved in the study, all names have been changed to pseudonyms. During the interviews and assessments of the student, I acquired verbal consent. Joe willingly consented to all activities in the study.

### **Data Collection**

As previously discussed, I collected three different forms of data to fulfill the purposes of triangulation. Due to Joe's disability, I worked with him in four different sessions in order to avoid opposition and keep his attention. The first form of data collected was an active

observation of Joe in his English classroom. During this time, I passively took field notes while observing Joe, and I interacted with Joe when he worked on an independent activity. I paid close attention to Joe's body language, interactions with others, and attention to the tasks. After collecting this data, I wrote a reflection on my field notes to synthesize the information.

In a second session, I worked with Joe to complete a questionnaire about his reading attitudes. This questionnaire had graphics to indicate a scale of feelings toward the question presented. I read the questions aloud to Joe, and he circled the choice that reflected his feelings toward academic and recreational reading activities.

Finally, in two separate sessions, I obtained assessment data on Joe by administering the Johns (2008) Basic Reading Inventory. During one session, I administered the sight word lists as well as the fictional reading passages. In another session, I administered the non-fiction reading passages. For the sight word lists, Joe read aloud a list of grade specific sight words. The graded word lists assess phonics, phonemic awareness, fluency, vocabulary, and word identification strategies. Joe was given the graded word lists one list at a time and was asked to read the words aloud at a comfortable rate, with the option to pass if he was unsure of a word. Joe scored points if he knew the word as a sight word or if he was able to decode it. No points were given if the word was unknown. Joe continued to read word lists of increasing difficulty until he reached a frustration level.

The graded passages were administered second and consisted of both fiction and non-fiction passages that Joe read orally. This portion of the assessment allows the teacher to determine the student's fluency, comprehension level, phonemic awareness, and level of vocabulary. While Joe read, I marked and scored all miscues that he made. After reading the passage, I asked Joe several comprehension questions based on the passage. Without looking

back at the text, Joe gave oral responses to factual, evaluative, inferential, and vocabulary questions. I then scored the responses to the comprehension questions. This process was repeated until independent, instructional, and frustration levels were determined.

Finally, I obtained Joe's most recent standardized assessment scores on the NWEA Measures of Academic Progress (MAP) in Reading. Joe took this assessment in May of 2011. The MAP test is a computerized assessment. It is administered to students during their English class. When taking this test, Joe worked independently to read passages that were presented to him on the computer and answer questions based on the passages. The program tracks the student's performance. If the student responds incorrectly, the questions become easier. If the student answers several questions correctly, the questions become more challenging. The test takes about forty-five minutes. All of the results of the MAP assessment were available to me through an online reporting system. The system offers a variety of reports, including an individual report in the four areas evaluated: information and understanding, literary response, analysis and evaluation, and common reading competencies. I was also able to obtain data that showed Joe's MAP Reading assessment scores dating back to when he was in second grade. All of this information was reviewed and analyzed in order to complete the comparison study between informal reading assessments and standardized reading assessments.

### **Data Analysis**

Following the collection of data, it was necessary to organize and score all components of the data collected. First, I typed up all of my field notes from the observation in order to organize and make them legible and comprehensible. I then scored the Johns (2008) Basic Reading Inventory and the student questionnaire according to the scoring guides provided. The student questionnaire scoring guide identified student preference for academic versus

recreational reading. The BRI scoring guide analyzed the type and frequency of miscues, as well as the type and frequency of comprehension question errors. Next, I printed off all of the individual student reports for my student from the NWEA website. I also made several copies of all components of the data.

Once all of the data was scored and organized, I began to code the data in order to look for emerging patterns (Mills, 2011). By reading through my field notes, the student questionnaire, and the student's responses to the comprehension questions on the BRI, I was able to code for several items. Patterns emerged in the areas of decoding, student interest, dependence, and comprehension. Next, I coded the BRI miscues and errors and compared those items to the NWEA reports. In this comparison it became evident that there were patterns in the areas of higher level thinking, basic comprehension, decoding, vocabulary and determining importance. In addition to this work, I had a colleague code the same items. After extensive comparison of these codes, it became evident that the student possessed strengths in the areas of basic comprehension, identifying details, decoding, non-fiction reading passages, and texts that were of interest. Joe demonstrated weakness in the areas of vocabulary, dependence, higher level thinking, understanding point of view, and texts that were not of interest. Therefore, the data will be presented through four distinct themes: reading level, assessing for structural elements of reading, assessing for cognitive elements of reading, and incorporating student choice.

### **Findings and Discussion**

Literacy is a process that students with autism have difficulty demonstrating control over. This research aimed to measure the reading ability of a student with autism by comparing informal and standardized assessment measures. Reading assessments are used to determine the

appropriate reading level for a student, as well as measure growth and diagnose areas of weakness. This study looked at the assessment scores on informal and standardized reading assessments for one student identified with autism. In addition, the student was observed and interviewed to determine the application of the assessment skills in the classroom. The following findings from this research are presented through four themes: reading level, assessing for structural elements of reading, assessing for cognitive elements of reading, and incorporating student choice. The discussion of these themes explores how an informal reading assessment can produce similar, valid results in comparison to a standardized reading assessment. Furthermore, both measures accurately reflect the reading ability of one student with autism in the classroom and recreationally.

### **Reading Level**

Reading levels obtained through assessments are important for providing appropriate instruction for the student. It is necessary to determine both the independent and instructional levels for a student in order to provide the most valuable instruction. Guided reading instruction in areas of weakness is most effective when the child is reading a book at the instructional level. Independent practice with concepts and reading strategies is most effective when the student is reading a book at his or her independent reading level. Both the independent and instructional reading levels for the student in this study were identified through the Johns (2008) BRI and the NWEA MAP assessment in reading.

The MAP assessment clearly identifies Joe's reading level through a lexile score. Joe's lexile score is reported to range between 233 and 383. This range can be interpreted to be second to third grade reading level. Books at the lower end of this lexile range, approximately second grade, would be considered the student's independent reading level. At the higher end of

this lexile range 300 through 383, or third grade, books would be at the student’s instructional reading level. This information demonstrates that compared to same age peers, Joe is performing significantly below the expected reading level. In fact, he is considered to be in the second percentile for his age group (NWEA MAP assessment). As discussed by Laing and Kahmi (2003) and Martin et. al. (2003), scores from standardized assessments that rely on normed data need to be interpreted with caution because Joe is a student with a cognitive disability. His development is not comparable to that of a general education student.

In comparison, Joe’s scores on the Basic Reading Inventory varied from those on the MAP assessment. The BRI was administered as an alternative, formative assessment to compare reading level and determine specific student strengths and weaknesses. In tables A, B, and C, the scores have been calculated to indicate independent, instructional, and frustration levels.

Table A- Sight Word Decoding

Reading Level	Grade Level
Independent	5
Instructional	6-7
Instructional/Frustration	8-9
Frustration	10

Table A details the student’s scores on decoding sight word lists. The ability to decode words tells the administrator of the exam how well the student is able to actually read words without the context of a reading passage. In this component of the assessment, the student read each grade level list aloud individually. The score is based on the number of words that were sight words, the number of words that required analysis, and the number of words that were incorrect. On this assessment, the student was able to read words at the fifth grade level

independently. Words at the sixth through ninth grade level were instructional, and words at the tenth grade level and beyond were too difficult. This information indicates that Joe would be able to read a fifth grade text by himself and comprehend the information. Guided reading texts could be selected at the sixth through ninth grade level. Anything beyond the tenth grade level would be too difficult.

While observing the student during the administration of the assessment, I noticed that the student was able to read many words in isolation with little difficulty. Only when he encountered the sixth grade and seventh grade level, did he encounter words that were unfamiliar. While reading these words, the student did not attempt to sound them out. Rather, he used graphic similarity to make a guess at the unknown words. Throughout the administration of this section, the student read all word lists at the same rate. He did not slow down for the lists that were at the frustration level. Based on the data from Table A alone, it could be predicted that the student’s reading level was fifth to sixth grade. The following tables reveal the scores on both oral reading and comprehension for fiction and non-fiction passages, which significantly change that prediction.

Table B- Fiction Oral Reading Passages

Grade Level	Miscues	Comprehension
3	Independent	Instructional
4	Independent	Frustration
5	Independent	Instructional /Frustration
6	Instructional/Frustration	Frustration

Table C- Nonfiction Oral Reading Passages

Grade Level	Miscues	Comprehension
3	Independent	Instructional
4	Independent/Instructional	Instructional/Frustration
5	Instructional/Frustration	Instructional/Frustration
6	Instructional/Frustration	Frustration
7	Instructional/Frustration	Frustration

In tables B and C the miscue scores and the comprehension levels vary. Joe scored higher on the oral reading portion than on reading comprehension. Looking at the miscues separately, the student's reading level is approximately at fourth grade. This information indicates that Joe is capable of decoding words in a passage. This statement is confirmed by the isolation sight word lists because he was able to decode the words with little difficulty. However, the student was challenged when answering comprehension questions. On the lowest level of the Basic Reading Inventory, or third grade reading passages, the student scored at the instructional level. Based on this information, it is evident that the student can read the words on the page, but is not making appropriate meaning from the text. These findings align with Whalon and Hart (2010), Allor et. al. (2010), and Freebody and Luke's (1995) reader roles. Both Whalon and Hart's (2010) and Allor et. al. (2010) studies found that students with autism are capable of decoding, but need more explicit instruction in comprehension. Therefore, there is a gap in decoding and comprehension ability levels for a single student. The difference in skills required for reading is affirmed by Freebody and Luke's (1995) definitions of reader roles. Students may appear to have control over some processes, in this case decoding, while others are a challenge, such as comprehension. Without control over all aspects of reading, the student cannot fully make meaning from the text.

The data from this study asserts that identifying a reading level for a student is not a simplistic process. The NWEA MAP scores identify that the student reads at a second to third grade reading level, which may be an accurate depiction of his overall reading ability. However, the BRI indicates that the student has varied reading level depending on the genre of the text and the task that the student must complete. The BRI identifies reading levels, while pointing to specific areas of strength and weakness that need to be addressed.

### **Assessment of Structural Elements of Reading**

Both the BRI and the MAP assessment evaluate certain structural elements of reading. The BRI assess a student's ability to decode words, understanding of vocabulary words, and concepts about print. The NWEA MAP assessment evaluates for vocabulary knowledge, phonemic awareness, and concepts about print. Both assessments evaluated several criteria for determining the student's strengths and areas of need, however there was more information provided by the BRI.

On the BRI, Joe initially demonstrated strength in the area of decoding. As previously discussed, Joe performed much higher than his expected grade level on sight word lists. Decoding as an area of strength was reaffirmed by his miscues on the oral reading portion of the assessment. Joe was able to decode words in passages that were above his expected reading level. The BRI indicates that when Joe does not know a word, or makes a miscue, he uses graphic similarity to try to decode the word. An analysis of his miscues shows that he uses the beginning blends of unknown words fifty-five percent of the time when decoding them. He uses the graphic similarities in the middle of the word less often at only sixteen percent of the time. Graphic similarities at the ends of the word were used thirty-five percent of the time (BRI, June 10, 2011). Although Joe made miscues, it appears that he is using graphic similarities to identify unknown words. On the vocabulary section of the BRI, Joe scored in the average range. He was able to identify seventy-seven percent of the vocabulary words correctly. The vocabulary words that he was unable to identify were words that he could not decode while orally reading the assessment passages. This pattern is an important piece of information as it demonstrates how Joe's reading of individual words is impacting his overall comprehension of a given text. The

structural elements evaluated on the BRI demonstrated that Joe performed below his chronological grade level, however scored higher than his expected grade level.

On the MAP assessment, Joe's scores were reported on an achievement scale called the RIT scale. According to Joe's chronological age and grade level, he should achieve a RIT of 221 on all portions of the assessment. Joe's RIT score for the structural elements of the assessment ranged between 184 and 198, which were identified as below average. The strengths and weaknesses of this assessment were comparable to the BRI. On the vocabulary portion of the exam, Joe was able to "choose the appropriate vocabulary word based on the description in a paragraph" (NWEA, May 31, 2011). He also demonstrated adequate knowledge of the prefixes un-, re-, dis-, inter-, de-, mis-, tri-, im-, non-, and pre-. His knowledge of suffixes includes -ful, -less, -ly, and -er. These areas of strength align with the BRI findings that the student had strong knowledge of beginning blends and some knowledge of the ending sounds in words. The assessment evaluated decoding of only vowel sounds. The report indicates that Joe can identify both long and short vowel sounds. In contrast, there were some areas of weakness. Joe was unable to give the meaning of a vocabulary word when asked to infer the meaning in the context of a passage. In addition, Joe was unable to name root words found within larger words. Also, understanding of dividing a word into syllables was unknown to Joe.

As a student with autism, Joe demonstrated many patterns that were consistent with students with this type of cognitive disability. Joe is capable of decoding text, and determining the meaning of some vocabulary. His performance on the BRI offered a more diverse assessment of skills and measured the frequency of errors and correct responses. In addition, Joe's performance on the MAP assessment revealed the same findings, but was more general and did indicate specific skills that the student possessed. Rather it had a list of items he did or did

not know. Also, the student was being asked to complete the assessment without adequate background knowledge. The NWEA MAP assessment is not what Laing and Kamhi (2003) would call a processing dependent assessment. The questions asked require knowledge of specific vocabulary, such as the word syllables. Without that knowledge the student cannot properly demonstrate reading skills. As studied by Laing and Kamhis (2003), at times standardized assessments have linguistic bias. The language or dialect used on the test and the language or dialect that is a part of the student's primary discourse are different and cause misunderstanding (Laing and Kamhi, 2003). Rather the BRI is a processing dependent assessment which requires little to no technical background knowledge. The student simply reads a passage and answers questions. The differences in the assessment procedures also produce differences in the measurement of cognitive components of the assessment.

### **Assessment of Cognitive Components of Reading**

The cognitive components of reading are skills such as comprehension, inferencing, drawing conclusions, analysis, and understanding multiple points of view. The cognitive components work with the structural elements to not only make meaning from the text, but also to extend the text beyond a literal interpretation. Both the BRI and the MAP assessment evaluate a multitude of cognitive skills necessary for reading and an observation of Joe affirmed the findings of the assessments.

The cognitive components of the MAP assessment are given much more emphasis than structural elements. The cognitive components are broken down into three sections: information and understanding, literary response, and analysis and evaluation. As previously discussed, Joe should obtain a RIT score of 221 on each section. Table D details the student's RIT range in each component of the assessment.

Table D- NWEA MAP assessment scores on  
Cognitive Components

Cognitive Element	RIT Range
Information and Understanding	179-194
Literary Response and Expression	177-192
Analysis and Evaluation	172-186

In the area of information and understanding, or basic comprehension, the results revealed that Joe could identify the main idea of short passages (three to ten sentences) and could paraphrase information from the text. On literary response and expression section, Joe's scores were similar to the basic comprehension. This section required Joe to make inferences and draw conclusions about literary passages. In this section, Joe was able to make predications on shorter passage (one to five sentences) and applied an appropriate title to passages. However, identifying cause and effect relationships, determining resolution, making inferences, and giving examples from the text were skills in which Joe did not perform well. Finally, the area of analysis and evaluation was the weakest. Joe was expected to produce analysis as well as show an understanding of multiple points of view. The section lists one strength for Joe: "[He] gives an example of an event that is real" (NWEA MAP, May 31, 2011). Joe was unable to infer the author's point of view, determine the author's purpose, compare or contrast characters, or distinguish between real and make believe stories. These scores reveal that comprehension that requires higher level thinking is an area of weakness for Joe. Presenting him with this type of question without scaffolding or priming, may have led him to perform poorly on this section of the assessment.

The BRI measured the cognitive elements of reading in four categories: fact based questions, topic based questions, evaluation questions, and inferencing questions. These sections

were all comparable to the NWEA MAP assessment elements. Table E shows the percentage of questions answered correctly for each section.

Table E- John's (2008) Basic Reading Inventory scores on Cognitive Components

Question Type	Percentage of Questions correct
Fact	65%
Topic	72%
Evaluation	33%
Inference	17%

Joe showed a considerable amount of variation in performance between the types of questions asked on the BRI. The strongest area was the topic based questions. These questions involve identifying the main idea of the passage. These results are consistent with the MAP assessment results which listed identification of the main idea as a strength. Second, Joe was able to answer basic comprehension questions about the passages that he read. Again, similar findings were demonstrated on the MAP assessment. Joe can give a basic retelling of the important details in a story. On the evaluation and inferencing questions, Joe performed significantly below expected levels. Unlike the MAP assessment, evaluation questions were not Joe's weakest area. The format of the BRI allowed for Joe to use some of the literal level comprehension questions to lead up to evaluation questions. This scaffolding may have helped Joe to make more connections in order to respond to the evaluation questions. However, Joe only answered one inferencing question correctly on the BRI assessment. An inference requires Joe to use his background knowledge and new information from the text to draw a logical conclusion. This again is a higher order thinking mechanism that is difficult for a student with autism. Nonetheless, both assessments targeted similar cognitive components as weaknesses. The results of both assessments demonstrate that Joe is not making use of all cognitive components to make meaning while reading.

In an observation of Joe, he also showed that applying the cognitive components of reading independently is a challenge. During an English lesson on Romeo and Juliet, Joe was unable to answer a question about character point of view. The question asked, “How does Romeo feel when he sees Juliet in the tomb?” (Student observation, June 10, 2011). While attempting to answer the question, Joe could retell the basic plot elements of the scene, but could not interpret the feelings or reactions of characters. This information is consistent with the NWEA MAP and BRI assessment results, which showed that Joe could identify main ideas and retell facts from short passages. However, when asked to complete higher level thinking, Joe was unable to interpret the perspective of a character in order to make an accurate judgment about the feelings of the character. This required analysis and evaluation, which were noted weaknesses on both assessments.

Joe’s classroom experience yields comparable results to the assessments given. These results demonstrate that no matter the medium for assessment, Joe has certain documented strengths and weaknesses. Research by Fawson et. al. (2006) and Goetze and Burkett (2009), also confirmed that alternative assessments are a reliable measure of student reading ability in comparison to standardized assessment measures. Furthermore, Burgin and Hughes (2009) found that alternative assessments may not be exactly comparable to standardized assessments in that they will not provide the exact same types of results. However, alternative assessments provide enough diagnostic data to create appropriate reading instruction. Therefore, assessment practices for identifying the strengths and weaknesses, both standardized and alternative, only vary upon the type and amount of information available through the results.

### **Incorporating Student Interest**

Both the BRI and MAP assessments revealed consistently similar results in the areas of reading strength and weakness. Since both assessment types appear to be a valid measurement of the student’s reading ability, it makes sense to use the type of assessment that provides the most flexibility in timing, environment, and most of all can incorporate student interest. As revealed by Humphrey and Lewis (2008), students with autism were found to have the following characteristics: special interests, preference for visual learning, difficulties concentrating, easily distracted by noise, test anxiety, and a desire to be isolated while in the classroom. These characteristics require a certain level of flexibility when administering a reading assessment. Furthermore, Whalon and Hart (2010) and Allor et. al. (2010) emphasize the inability for students with autism to consistently generalize the use of background knowledge when reading. The use of their background knowledge is heavily dependent on the student’s interest level and engagement with the text. Through the assessment and observation of Joe, it became evident that his performance depended heavily upon level of interest in the topic of a given passage.

Prior to the administration of assessments, Joe completed a student questionnaire that revealed his preferences as a reader. The scores in table F detail his recreational, academic, and overall reading preferences.

Table F- Student questionnaire scores

Type of Reading	Percentile
Recreational	24%ile
Academic	2%ile
Full Scale	6%ile

According to the table F, Joe enjoys recreational reading much more than academic reading. In fact, the only question that he gave the highest score response was, “How do you feel

about getting a book for a present?” (Student questionnaire, June 9, 2011). However, those questions that asked reading preference before more appealing activities, such as summer vacation or playing, received the lowest score. Overall, positive reactions toward reading appeared in the questionnaire when Joe had control, or choice about the reading activity. In school, Joe has little choice about what he reads. When asked about the books he reads in school, both textbooks and stories, Joe consistently gave the lowest score. His response demonstrates Joe’s obvious preference for student choice when he has to read.

During the classroom observation, Joe was obligated to participate in a lesson that was not of interest to him. This observation was made clear through several events, the first of which was Joe’s disengagement. Throughout the class period, Joe showed his disengagement by staring at a wall in the classroom, rather than looking at the teacher or the visuals that accompanied instruction. In addition, Joe did not want to participate in the classroom activities. The teacher had students volunteer to read roles from an abridged version of *Romeo and Juliet*. Joe did not raise his hand to take on a role. Furthermore, Joe had to be prompted several times to remain on the same page as the class. His one-to-one TA gave twelve prompts throughout the class period. By the end of the class period, Joe was agitated by the frequent prompting. He responded in a harsh voice to his TA “*I know*” (Student observation, June 10, 2011). After the observation, I worked with Joe to reinforce some of the concepts covered in his English class. Joe had little to no recall of the material taught during class. Joe had very little interest in the literature being studied in English class. This observation was reflected in his level of engagement in the class, lack of participation, dependence on prompts, and minimal recall of the lesson. Joe’s performance in class is impacted by his level of interest, and his performance on certain components of the BRI assessment also reflect the same finding.

The BRI scores that Joe received were impacted by the topic of the passages. For example, on the fictional reading passages, there was some inconsistency between the fourth and fifth grade passages (See Table B). On the fourth grade passage, Joe scored at the frustration level. The passage was titled “The Detectives.” The passage described two children that followed clues to solve the mystery of a missing purse. Joe did not engage in this story, likely because it did not pertain to his interests. The fifth grade passage titled, “I Want to Fly,” was a passage that Joe demonstrated a high level of engagement. Joe has a unique interest in animals and likes to pretend he is like them. Joe was very interested in this passage that described a boy having a dream he can fly. After reading this passage and answering many questions, Joe revealed that he sometimes dreams he can fly. This passage connects directly to Joe’s personal interest and background knowledge. Joe scored much higher on this passage because he had explicit knowledge of the subject and could make appropriate connections. In addition to this specific example, Joe overall scored better on the non-fiction passage comprehension (See Table C). In school Joe enjoys classes, such as science, which involve the reading and knowledge of concrete facts. He is better able to recall and make connections with factual information. As previously noted, the passages only became too difficult for Joe on this portion of the assessment because he was having difficulty decoding the unfamiliar vocabulary words, like “iodine.” It is likely that Joe’s background knowledge and high level of interest in science and social studies helped him to perform better on the non-fiction reading passages. Again, Joe’s ability to connect with a text allows him to demonstrate skills that otherwise would have been obscured.

Reading for Joe is a task that requires concentration and a high level of engagement in order to perform well. The reader roles that a student with autism must take on to develop understanding of text that is unfamiliar or difficult can be less strenuous when incorporating

student interest in the assessments. In comparison to standardized assessments, alternative assessments offer flexibility in the topics of leveled passages. As concluded by Moen et. al. (2010), there are three limiting factors for students with autism when they are expected to perform on standardized assessments. Test anxiety, test method (in particular multiple choice), and a lack of background knowledge all interfere with the administration of standardized assessments (Moen et. al. 2010). The flexibility available through alternative assessments such as the BRI, allow students like Joe an opportunity for incorporating student interest, which leads to a more relaxed and conducive environment for assessment

This qualitative study reveals that a student with autism can be formatively assessed using both standardized assessments and informal, alternative assessments with little discrepancy in the reading level, strengths, and weaknesses. However, it also reveals that if given the choice, an alternative assessment is a better choice, because the administrator can incorporate student interest, as well as flexibility in setting and timing. Other research based studies have similar conclusions and overall it is evident that students with autism benefit from the use of alternative assessments.

### **Implications**

Through the assessment and observation of a high school student with autism, it has been found that informal and standardized reading assessments are aligned in skills assessed, and determining reading level. Not all students are the same, and those with cognitive disabilities need special attention when administering an assessment. It is important to choose and assessment that will help the teacher understand their reading level, as well as strengths and areas of need in order to provide appropriate instruction. Therefore, informal reading assessments are

the most beneficial for both the student with autism and the teacher, while aligning with the standardized assessment scores and components.

Overall, the student in this study benefitted most from the flexibility that the BRI provided. The BRI is a reliable assessment and can be used to assess students with autism because it allows for more flexibility with student choice, priming for background knowledge and overall environmental performance factors. As discussed earlier, the student was better able to perform on reading passages that aligned with his interests. Given the narrow interests of students with autism, and their tendency for low frustration tolerance, opportunities to demonstrate their skills on a text that is of interest and important to them reveals more information about their reading abilities. In addition, prior to administering the assessment, the teacher can activate background knowledge and prime the student to prepare them for the task. Priming is allowed because the informal reading assessment is processing dependent and assessing for skill rather than specific information (Laing & Kamhi, 2003). Finally, the assessment can be administered in a variety of environments, depending upon what is conducive for the individual student. For the student in this study, it was important to administer the assessment over several sessions in order to eliminate fatigue and low frustration tolerance. Other adaptations can be made to make the student comfortable and allow him or her the best opportunity to demonstrate reading skills. Research by Fawson et. al. (2006) and Goetze and Burkett (2009), also advocate for the use of alternative assessments because of the flexibility in administration. This study affirms that students with autism can benefit from alternative reading assessments due to the flexibility in a variety of factors.

Moreover informal reading assessments provide more meaningful, diagnostic data useful to the teacher in reading instruction. The BRI allows teachers to observe reading behaviors, see

small growth, and appropriately place students. Due to the one on one administration of informal reading assessments, teachers not only gain information from the scores of the assessment, but also gain information about observed reading behaviors. The scores on both standardized and informal reading assessments are limited by the fact that it is unknown what is actually going on while the student is completing the reading task. Some reading behaviors that are not recorded as errors on an assessment may be valuable to the teacher designing instruction. In addition, the informal reading assessment can be administered multiple times over short or long periods of time, which also allows the teacher to record even small growth in the student's achievement level. Ross's (2004) study of running reading records, another way to informally assess reading, supports that information about reading behaviors and reading progress are more readily obtained by informal reading assessments. This conclusion is important to teachers because appropriate leveled texts, reader attributes, and information about gaps in reading ability need to be used to make informed instructional decisions (Ross, 2004). Furthermore, the more information teachers have regarding student ability level, the better able they will be to appropriately place students with autism in an appropriate instructional program. Autism is a cognitive disability where overall student behavior may not match reading ability level. Student ability level can easily be obscured, and therefore it is important for teachers to have accurate, thorough data to create beneficial reading instruction. That data is more readily obtained through informal reading assessments such as the BRI.

### **Conclusions**

The purpose of this study was to compare the use of standardized reading assessments and informal reading assessments in order to determine the impact each has on determining the reading ability for a student with autism. Through the assessment of the student, observations,

and a review of the current research, I have found that both the informal and standardized reading assessments reveal similar information about reading level and student ability. However, given the choice when assessing a student with autism, the informal reading assessment is favorable because it provides flexibility for the student and more diagnostic data for the teacher.

The research I completed was limited in many ways. I looked at one instance of assessment for a single student. More research should be done to expand the sample size and look for patterns across the spectrum of students with autism. Also, it is necessary to look at other types of standardized reading assessments, and other types of informal assessments to see if similar results are obtained. In addition, my study was limited by time to complete the research for the project deadlines. More time for classroom observation and time to administer the BRI a second time may have provided clearer findings.

Since this study was limited, it leads me to further research questions that cannot be answered at this time. As stated above, I wonder if similar results would be achieved when comparing other standardized and informal reading assessments. I would also be interested to interview the student's teacher, or other teachers of autistic students, to find out how they use reading assessments to design reading instruction. This information would help to determine what components of the assessments are most pertinent for determining student ability and appropriate instruction.

Through this research, I have developed a better understanding of the reasons for the use of both standardized and informal reading assessments. I was surprised to find that both assessments depicted a similar reading level for the student. These findings lead me to believe that there is a place for both informal and standardized reading assessments in schools. As Whitehead (2007) suggests it will be important for schools and teachers to balance the use of

standardized assessments and informal assessment measures when working with students with autism. Students with autism are a growing population in the public school system, so appropriate reading assessment will lead to better overall reading instruction that values their interests and strengths, while addressing areas of need.

### References

- Abedi, J., Kao, J., Leon, S., Sullivan, L., Herman, J., Pope, R., Nambiar, V., & Mastergeorge, A. (2009). *Exploring factors that affect accessibility of reading comprehension assessments for students with disabilities: A study of segmented text*. Minneapolis, MN: University of Minnesota, Partnership for Accessible Reading Assessment.
- Abedi, J., Leon, S., Kao, J. (2007). *Examining differential item functioning in reading assessments for students with disabilities*. Minneapolis, MN: University of Minnesota, Partnership for Accessible Reading Assessment.
- Abedi, J., Leon, S., Kao, J., Bayley, R., Ewers, N., Herman, J., & Mundhenk, K. (2010). *Accessible reading assessments for students with disabilities: The role of cognitive, grammatical, lexical and textual/visual features*. Minneapolis, MN: University of Minnesota, Partnership for Accessible Reading Assessment.
- Alfassi, M. (2004). Reading to learn: Effects of combined strategy instruction on high school students. *Journal of Educational Research*, 97 (4), 171-184.
- Allor, J., Mathes, P., Roberts, J., Jones, F., & Champlin, T. (2010). Teaching students with moderate intellectual disabilities to read: An experimental examination of a comprehensive reading intervention. *Education and Training in Autism and Developmental Disabilities*, 45(1), 3-22.
- Basil, C., & Reyes, S. (2003). Acquisition of literacy skills by children with severe disability. *Child Language Teaching and Therapy*, 19 (1), 27-48. doi:10.1191/0265659003ct242oa
- Burgin, J., Hughes, G. (2009) Credibly assessing reading and writing abilities for both elementary student and program assessment. *Assessing Writing*, 14, 25-37.

- Carnahan, C., Williamson, P., & Haydon, T. (2009). Matching literacy profiles with instruction for students on the spectrum: Making reading instruction meaningful. *Beyond Behavior*, 10-17.
- Chandler-Olcott, K., & Kluth, P. (2009). Why everyone benefits from including students with autism in literacy classrooms. *The Reading Teacher*, 62(7), 548-557.
- Coffey, K., & Obringer, J. (2004). A case study on autism: School accommodations and inclusive settings. *Education*, 124(4), 632-639
- Dennis, D. (2009). "I'm not stupid": How assessment drives (in)appropriate reading instruction. *Journal of Adolescents and Adult Literacy*, 53(4), 283-290. doi:10.1598/JAAL.53.4.2
- Fawson, P., Ludlow, B., Reutzel, D., Sudweeks, R., & Smith, J. (2006). Examining the reliability of running records: Attaining generalizable results. *The Journal of Educational Research*, 100 (2), 113-126.
- Freebody, P., & Luke, A. (1990). Literacy programs: Debates and demands in cultural context. *Prospect*, 5(7), 7-16.
- Gee, J. P. (2001). What is literacy? In E. Cushman, E. R. Kintgen, B. M. Kroll & R. M. (Eds.), *Literacy: A critical source book* (pp. 525-544). Boston: Bedford/St. Martins.
- Goetze, S. & Burkett, J. (2009). Progress monitoring with whole text: A comparison study of running records and curriculum-based measures. *College Reading Association Yearbook*, (31), 295-316.
- Humphrey, N., & Lewis, S. (2008). Make me normal: The views and experiences of pupils on the autistic spectrum in mainstream secondary schools. *Autism*, 12(1), 23-46.  
doi:10.1177/1362361307085267
- Johns, J. (2008). *Basic Reading Inventory* (10<sup>th</sup> ed.). Dubuque, IA: Kendall/ Hunt Publishing.

- Johnstone, C., Thurlow, M., Moen, R., Matchett, D., Hausmann, K., & Scullin, S. (2007). *What do state reading test specifications specify?* Minneapolis, MN: University of Minnesota, Partnership for Accessible Reading Assessments.
- Kearns, J., Towles-Reeves, E., Kleinert, H., Kleinert, J., & Thomas, M. (2011). Characteristics of and implications for students participating in alternate assessments based on alternate academic achievement standards. *Journal of Special Education, 45*(1), 3-14.  
doi:10.1177/0022466909344223.
- LaBarbera, R., & Soto-Hinman, I. (2009). Toward a model of promoting literacy for students with autism spectrum disorder in the general education classroom. *Forum on Public Policy, 1*-14.
- Laing, S., & Kamhi, A. (2003). Alternative assessment of language and literacy in culturally and linguistically diverse populations. *Language, Speech, and Hearing in Schools, 34*, 44-55.
- Lord, C., & McGee, J. P. (Eds.). (2001) *Educating children with autism*. Washington, D.C.: National Academy Press.
- Martin, N., Bibby, P., Mudford, O., & Eikeseth, S. (2003). Toward the use of a standardized assessment for young children with autism: Current assessment practices in the UK. *Autism, 7*, 321-330. doi: 10.1177/1362361303007003007
- McDermott, R., & Varenne, H. (1995). Culture "as" disability. *Anthropology and Education Quarterly, 26*(3), 324-348.
- Mills, G.E. (2011) *Action research: A guide for the teacher researcher*. Boston: Pearson
- Moen, R., Liu, K., Thurlow, M., Lekwa, A., Scullin, S., & Hausmann, K. (2010). *Studying less accurately measured students*. Minneapolis, MN: University of Minnesota. Partnership for Accessible Reading Assessments.

- Nation, K., Clarke, P., Wright, B., Williams, C. (2006). Patterns of reading ability in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 36, 911-919. doi: 10.1007/s10803-006-0130-1
- New York. Department of Education. (2010). *Special education school district data profile for Brighton Central School District 2008-09*. Retrieved June 20, 2011 from <http://eservices.nysed.gov/sepubrep/mainervlet?f=report0809&school=260101060000>.
- New York. Department of Education. (2010). *The New York state school report card*. Retrieved June 20, 2011 from <https://www.nystart.gov/publicweb/District.do?year=2008&county=MONROE&district=260101060000>.
- Partnership for Accessible Reading Assessments. (2006). Reading and Students with Autism. *Regents of the University of Minnesota*. Retrieved from <http://www.readingassessment.info/resources/publications/readingandautism.htm>
- Public School Review. (2011). *Public school review: Public elementary, middle and high schools*. Retrieved June 20, 2011, from [http://www.publicschoolreview.com/school\\_ov/school\\_id/54647](http://www.publicschoolreview.com/school_ov/school_id/54647)
- Ross, J. (2004). Effects of running records assessment on early literacy achievement. *The Journal of Education Research*, 97 (4), 186-194.
- Songlee, D., Miller, S., Tincani, M., Sileo, N., & Perkins, P. (2008). Effects of test-taking strategy instruction on high functioning adolescents with autism spectrum disorders. *Autism*, 23(4), 217-228. doi:10.1177/1088357608324714.
- Thompson, S., Johnstone, C., Thurlow, M., & Clapper, A. (2004). *State literacy standards, practice, and testing: Exploring accessibility*. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

- Vacca, J. (2007). Incorporating interests and structure to improve participation of a child with autism in a standardized assessment: A case study analysis. *Focus on Autism and Other Developmental Disabilities, 22*(1), 51-59.
- Valencia, S., & Buly, M. (2004). Behind test scores: What struggling readers really need. *The Reading Teacher, 57*(6), 520-531.
- Whalon, K., & Hart, J. (2010). Children with autism spectrum disorder and literacy instruction: An exploratory study of elementary inclusive settings. *Remedial and Special Education, 32*(3), 243-255.
- Whitehead, D. (2007). Literacy assessment practices: Moving from standardized to ecologically valid assessments in secondary schools. *Literacy and Education, 21*(5), 434-452.  
doi:10.2167/le801.0