OBSERVING READING GROWTH AND INSTRUCTIONAL PRACTICES FOR STUDENTS WITH INTELLECTUAL DISABILITY AND AUTISM

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OBSERVING READING GROWTH AND INSTRUCTIONAL PRACTICES FOR STUDENTS WITH INTELLECTUAL DISABILITY AND AUTISM

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OBSERVING READING GROWTH AND INSTRUCTIONAL PRACTICES FOR STUDENTS WITH INTELLECTUAL DISABILITY AND AUTISM

A Dissertation Presented in Partial Fulfillment of the Requirements for the degree of Doctor of Philosophy

by

Jennifer Stewart

Southern Methodist University

July, 2020
To my parents, for everything.

And to Brudder, for the extra smiles to go the extra mile.
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Abstract

The purpose of this study was to describe reading instruction within the Response to Intervention (RTI) framework for students with ID and autism in three areas: a) participation in universal screening, b) reading growth across the school year on the screening measure (NWEA MAP-R, iStation ISIP, or DIBELS), and c) describe and compare business-as-usual reading instruction within general education and special education classrooms. Using an adapted model for literacy for students with severe disabilities, I explored the participation in and reading growth on universal screening measures and compared growth to classroom instructional practices for target students within this population. I sampled a total of 154 elementary students with intellectual disability or autism across three school districts. I describe their growth relative to the national normative group, their typically-developing district peers, and other students identified with a special education designation. A more in depth case study of eight students was conducted to explore if there were plausible explanations of how literacy skills were being taught to students within this population and whether their instruction varied from the general education setting to special education setting. Students with intellectual disability and autism have low participation rates in universal screening. Students with ID show growth until third grade while students with autism showed promising growth across grade level. Phonics and word study dominated instruction in the lower elementary grades while comprehension was emphasized in upper elementary. Across all students in the case study, there was no evidence of instruction in fluency or vocabulary.
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CHAPTER 1

INTRODUCTION

Approximately 1.2 million students between the age of six and twenty-one received special education services under the categories of autism and/or intellectual disability (ID) within the 2017-2018 school year (US Dept. of Education, 2018). These students represented 17% of all students receiving special education and around 2.5% of the total school population. It has been mandated through federal laws, such as No Child Left Behind (NCLB, 2002) and the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), that schools provide a free and appropriate education therefore improving the outcome in reading for all students, inclusive those with disabilities. Such policies have also entailed that all students have access to age-appropriate, meaningful, and evidence-based reading instruction (e.g., National Reading Panel Report, 2000) delivered within the student’s least restrictive environment. An ideal that is often discussed for students with severe disabilities is that all education should lead to an enhanced quality of life (Westling & Fox, 2004) and the development and growth of literacy skills should build access to a more independent life.

However, the recent National Assessment of Educational Progress Report (NAEP, 2018), showed only 12% of students with disabilities were at proficient or above levels in the fourth grade when compared to 39% of their peers without disabilities. This percentage is significantly lower for students with ID, who typically have with a proficiency reading level around 3% (Trexler, 2013). However, even as instructional practices shift for students with ID and autism from a more traditional sight word- only approach toward more phonics-based, multi-component instruction (Browder & Xin, 1998; Joseph & Seery, 2004; Afacan et al., 2018), reading and academic outcomes for students in this population are low. When compared to other students
with learning disabilities, students with ID and autism experience lower rates of reading growth (Wei et al., 2011) making reading instruction for students within this population especially important due to a slower rate of literacy skill acquisition compared to their nondisabled peers (Browder et al., 2009).

Serving Students with Severe Disabilities within Response to Intervention

There has been controversy among researchers, practitioners, and policy-makers over Response to Intervention (RTI) and the role of special education in RTI implementation. Some argue that special education should be the most intensive instructional level in the RTI framework (e.g., Tier 3), while others say it should exist outside RTI rather than be redefined or “blurred” into general education services (Fuchs et al., 2010). With 39.7% of students with autism being served in the general education classroom for 80 percent or more of their school day and 27.2% of students with intellectual disabilities spending at least half of their school day in general education (NCES, 2019), the role of RTI implementation and student participation within their school’s RTI framework, including Tier 1 instruction and more intensive intervention increases. With a shift to broader uses of “multi-tiered systems of supports”, there are not only academic supports and interventions being implemented, but additional social and emotional learning and behavioral interventions in which students who struggle receive increasingly intensified levels of intervention (Fuchs et al., 2012). However, as currently implemented within an RTI framework on school campuses, there is still not an effective plan to meet the needs of students with more significant academic needs (Fuchs et al., 2010).

As educational expectations grow commensurate with individual characteristics, expectations for students with autism and ID continue to increase through recent Supreme Court rulings (Endrew v. Douglas County School District, 2017). Therefore, reading instruction for
students with more significant learning needs will need to support students in making adequate growth in reading in order to be considered a free and appropriate public education. This case refined former precedent on the standard for learning for students with significant disabilities. With the assessment of a student’s progress in their reading skills being documented through their individualized education plan (IEP), the Supreme Court declared that this document must be reasonably calculated to “enable a child to make progress appropriate in light of the child’s circumstances.” (Endrew, 2017, p.14). While this standard did not create a model for the design and delivery of appropriate instruction for students with more significant learning needs, it does shift the focus on creating an educational plan dedicated to “the unique circumstances of the child for whom it was created.” (Endrew, 2017, p.16; Yell & Bateman, 2017).

**Universal Screening and Progress Monitoring**

One constant component throughout the varying implementation frameworks of RTI is the requirement of assessment screening to identify the risk of not responding to the core instructional programming. Universal screening measures are typically provided to all students to determine academic skills relative to a normed population of students who are in the same age/grade (Gersten et al., 2009). Gersten and colleagues recommend that these assessments be standardized and implemented with fidelity, and suggested the use curriculum-based measurement (CBM) for formative assessment. CBM is defined as a formative evaluation process used to measure basic skills (Deno, 2003). However, the ability to adopt a universal screening measure may be difficult for students with ID and autism due to a number of potential barriers (i.e. limited experience with the requirements to participate in these types of assessments, behavioral and communication barriers, or the assessments lack of sensitivity to this population’s emerging reading skills).
**Curriculum Based Measures.** In a recent review of CBM-R for students with ID, Snyder & Ayres (2020) found promising results across 11 studies for using CBM measures to assess reading skills of students with ID. This process not only aligns to the decision making instructional practices in the classroom but can align to the IEP process through more frequent formative assessments to demonstrate progress across IEP goals and objectives. However, due to the large variation of students with ID and autism, the implementation of these screeners should meet the needs of the individual student (Snyder & Ayres, 2020) and may require additional prompting to stay on task and respond during the assessment (Jones et al., 2018). The addition of these prompts has the potential to impact the student’s ability to respond to as many test items as possible during the CBM-R timeframe and impact their overall reading score. Furthermore, it may be difficult to sustain the student’s attention throughout the testing administration without prompting; however, their response to the prompt may mask the student’s true fluency potentially impacting the technical adequacy of the CBM-R administration (Snyder & Ayres, 2020).

**Computer- Based Progress Monitoring.** Over the last ten years, schools have begun to rely on computer-based assessments which can be administered in a large, whole group setting depending on computer access. These assessments are able to assess multiple reading skills which can provide more diagnostic information than a typical screening measure (Klingbeil et al., 2015). During the administration of these assessments, the testing battery is presented to the student based on how the student responded to the previous questions (Shapiro & Gebhardt, 2012). If the computer-based assessment is “adaptive,” then a student’s ability level is based on a unique sequence of test items. The selection and administration of test items depends on the student’s score response. The adaptive testing continues until a “reliable” ability estimate is
obtained. Participation of students with severe disabilities in computer based progress monitoring is relatively unknown, however, may be required by school districts within their testing battery for all students.

**Reading Instruction for Students with Intellectual Disability and Autism**

Research about effective reading instruction for students with intellectual disability has been shifting over the past twenty years from exclusively sight word instruction to more comprehensive, multi-component instruction. Browder & Xin (1998) took the first comprehensive look into sight word instruction for students with intellectual disability. In their meta-analysis, they examined the effectiveness of sight word research for individuals with moderate and severe disabilities within elementary grades. Browder & Xin specifically spoke to the lack of generalization of sight word identification skills and an absence of a comprehension measurement that was not able to show that students understood the words that they were learning or had the ability to apply them to their daily routines.

Joseph & Seery (2004) reviewed the shift from sight word only instruction for students with low IQ to phonics instruction for students within this population. Their analysis examined fifteen studies that used phonics for students with intellectual disability, however, the review could not draw a substantial conclusion about the effectiveness of this type of instruction. This review set the groundwork for future development of more multicomponent reading instruction for this population.

Browder et al. (2006) extended the analysis of more comprehensive reading instruction for individuals with significant cognitive disabilities. They evaluated 128 studies and for the first time drew a comparison with the National Reading Panel (2000) components of reading. While
strong comparisons could not be made in regards to the consideration of the components of reading, this review provided strong evidence for teaching sight words using systematic prompting and fading. Foundational reading instruction for students with autism were consistent with outcomes in low reading achievement comparable to their peers with intellectual disability. Browder and colleagues also (2006) described the exclusion of some students with autism spectrum disorder (ASD) from more comprehensive, multi-component reading programs. Their reading instruction entailed an emphasis on more narrow skills, such as sight word instruction, and lacked systematic instruction in more meaning-focused components of reading such as comprehension.

A study by Afacan and colleagues (2018) was the first to examine multicomponent reading instruction, in contrast to prior reviews that just focused on single skill instruction. From the seven articles included within the review, findings indicated that students with ID who were taught through multicomponent reading programs significantly improved their overall reading skills compared to their peers with ID who had only received conventional sight word instruction.

The Case for Multi-Component Instruction

The ultimate goal of reading is to understand what has been read, so Castle, Rastle, & Nation (2018) suggested that the goal of reading development is to build a system that allows students to construct meaning from print. Nevertheless, learning to read for meaning is a complex process. The National Reading Panel (NRP, 2000) convened to examine available research on how children learned to read. This panel recognized five key components of reading: phonics, phonemic awareness, fluency, vocabulary, and comprehension. These five components may be contextualized within the Simple View of Reading (Gough & Tunmer, 1986), which
suggests components can be categorized into two broad skill sets: code-focused skills, such as phonemic awareness, decoding, sight word reading, and reading with fluency, and meaning-focused skills vocabulary and the ability to comprehend while listening or reading. Through systematic and explicit instruction of these skills, students with ID and/or autism could optimistically have increased opportunities to build independence as readers. The goal is often to ensure that these skills are developed together, with instruction concentrated primarily on code-focused skills within the early grades as children are learning to read, then reducing around the third grade. At this point reading with prosody and building comprehension skills takes greater precedence in reading instruction as children read to learn (Adams, 1990). In early elementary, we would expect interventions to be heavily focused on foundational and code-focused skills: phonemic awareness, fluency, and decoding strategies; in fourth grade and beyond, we expect interventions to continue to support word reading and fluency, but to provide support for vocabulary and comprehension (Adams, 1990).

**Literacy for Students with Severe Developmental Disabilities**

This body of research converges to provide evidence that students with ID, autism, or both can learn to read, which has important implications for impacting students’ overall quality of life. While students with ID have demonstrated various strengths and difficulties in reading tasks such as word recognition, reading comprehension, phonemic awareness, and writing vocabulary, roughly four out of five of students in this population did not meet the full criteria for minimal levels of literacy (Katims, 2001). By emphasizing instruction across the recommended components of reading (e.g.-phonemic awareness, phonics, fluency, vocabulary, and comprehension), students could have an immediate literacy benefit such as learning one’s name as well as long-term benefits such as being able to decode text to understand a print of
interest increase opportunities for independence (Browder et al., 2006). Overall, the literature showed that when provided with intensive, systematic instruction, students with severe developmental disabilities learned specific reading skills with prompting and feedback (Browder et al., 2009).

Figure 1 provides an adapted model for literacy for students with severe developmental disabilities by Browder et al. (2009). This model focuses on a more distal outcome of developing independence as a reader for students with severe developmental disabilities. Browder and colleagues incorporated systematic instruction of the five recommended beginning reading components of the NRP (2000), that built the foundation for how reading instruction for those with severe developmental disabilities should be implemented. Text application, functional activities, and the incorporation of positive behavior intervention supports sets the opportunities to generalize reading skills to everyday functional and independent tasks.

As students continue to generalize these reading skills, they increase their ability to be a more independent reader. This growth in independence can lead to higher life quality for students with severe developmental disabilities. This could include having the skills to complete an alternative high school diploma, independence in workplace tasks, the ability to read well enough to participate in reading for enjoyment, the creation and execution of a grocery list at the store, and more active awareness and participation in social media activities.

The Present Study

The purpose of this study was to describe reading instruction within the Response to Intervention (RTI) framework for students with ID and autism in three areas: a) participation in universal screening, b) reading growth across the school year on the screening measure (NWEA
MAP-R, iStation ISIP, or DIBELS), and c) describe and compare business-as-usual reading instruction within general education and special education classrooms. The study aimed to extend current knowledge of instructional practices for this population using data from a larger study that examined the relations among student reading outcomes and response to intervention implementation. That larger study included student level data on universal screeners, classroom observations, and observational field notes on reading curriculums and additional classroom behavioral supports. This study is guided by four research questions:

Research Question 1: What percentage of students with ID and/ or autism participated in campus-wide universal screening?

Research Question 2: Of those that participated in screening, what was average yearly growth on percentile scores for the three reading measures?

Research Question 3: How did observed instruction and intervention for students with ID or ASD vary in general education and special education settings (types, amounts, grouping, engagement)?

Research Question 4: How did observed instruction align with recommendations from research on evidence-based practices for this population?

To answer these, I focused on three specific universal screeners with an overall student population of 12,173 students, which included a total of 154 students with ID or autism. Of the total number of students included within the study, observation data was collected for eight students with ID or autism. I further describe participant demographics, measures used, and data analysis in the methods section below.

Key Definitions
While a set of guidelines have been provided to help educators support students through RTI, there is still varied implementation and definitions of the services provided within an individual framework. For the purposes of this dissertation the following definitions will be used:

**Response to intervention (RTI).** RTI as an academic instructional framework that consists of tiers of increasing instructional intensity provided to students. As listed below, this typically consists of three tiers and this dissertation focused only on reading, not other content areas, or multi-tiered systems of support (MTSS).

**Tier 1.** Within Tier 1, all students receive general education or core instruction. The RTI Practice Guide (Gersten et al., 2009) recommends that Tier 1 reading instruction for elementary students should be 1) evidence-based, 2) include the five components of phonemic awareness, phonics, fluency, vocabulary, and comprehension as identified by the National Reading Panel Report (2000), and 3) differentiated to student need. Additionally, Tier 1 includes universal screening of all students at least twice per year to identify students at-risk for reading difficulties.

**Tier 3.** Tier 3 is synonymous with the term *intensive intervention*, and is used to specify interventions that include a combination of frequent instruction, increased duration, small or individualized student grouping, and ongoing progress monitoring (Gersten et al., 2009). Participating schools identified students who received intensive intervention. Across schools, intensive intervention most commonly consisted of a specialized, pull-out intervention (e.g. special education, dyslexia services) provided to a small percentage of students with or at risk of disabilities and who did not respond adequately to less intensive instruction.

**Special Education.** Special education is individualized instruction provided to students who qualify to receive an individualized education plan (IDEIA, 2004). Across the sample, students who received special education services were also identified receiving either Tier 1
and/or Tier 3. Throughout this dissertation, Tier 3, intensive intervention, and special education may be used interchangeably.

**Negative Growth.** Negative growth is the case of students scoring lower at the end of the year than at the beginning of the year. For this dissertation, this reflects negative growth in RIT points on two CAT assessments, the MAP-R and ISIP. Across the two measures, the sample of students within a grade level demonstrated negative growth on the universal screener from fall to spring. For the purpose of this dissertation, negative growth will be discussed descriptively in relation to a national normative group, non-disabled district peers, and peers with a special education designation.

**Unique Event.** A unique event is a described activity that met eligibility for coding on the ICE-R (Edmonds & Briggs, 2003) observation form. Eligibility for inclusion was an instructional event that occurred for one minute or more of observed instruction. For the purpose of this dissertation, unique events will be used to create a frequency account of individual instructional events that occurred for one minute or more.
CHAPTER 2

METHODS

Project FOCUS

The data for this dissertation are derived from a subset of multiple data sources collected by Project FOCUS (IES Grant R324A160132). Across three years of data collection, the larger project sought to explore the relation of Response to Intervention (RTI) implementation and student reading outcomes specifically in their core reading instruction (Tier 1) and with those students identified with more intensive learning needs that are receiving Tier 3 and/or special education services. The larger study is currently implementing a mixed methods approach to analyze the larger data set across the logic model. Data for this project was collected using: (1) structured administrative interviews that discussed the school-wide implementation of the RTI framework from the perspective of the leadership in charge of implementing the framework, (3) a standardized protocol for classroom observations of school-identified students receiving intensive intervention, and (4) district-collected student reading data that includes universal screening and progress monitoring data.

For my dissertation, using a subset of students with ID and autism from 13 schools nested within five school districts across one school year, I studied the reading growth for students with ID and autism in two ways: a) participation in assessments and reading growth on a school-wide universal screening assessment, and b) a case study of observed reading instruction in general education and intensive intervention reading blocks.

Restatement of Purpose for the Current Study
As previously stated, the purpose of this study was to describe reading instruction within the Response to Intervention (RTI) framework for students with ID and autism in three areas: a) participation in universal screening, b) reading growth across the school year on the screening measure (NWEA MAP-R, iStation ISIP, and DIBELS), and c) describe and compare business-as-usual reading instruction within general education and special education classrooms. This study aimed to extend current knowledge of instructional practices for this population using data from the larger Project FOCUS study that examined the relations among student reading outcomes and response to intervention implementation. That larger study included student level data on universal screeners, classroom observations, and observational field notes on reading curriculums and additional classroom behavioral supports.

For the quantitative portion of my dissertation study, I described the participation rate and growth by grade level on three types of universal screening measures for which the larger study incorporated student reading data: the NWEA-MAP-R, iStation ISIP assessment, and DIBELS oral-reading fluency measure. Therefore, for the qualitative analysis, I conducted a case study with observations of students with ID and autism within a smaller sample of schools to describe instructional practices in reading. The aim of the case study was to describe instruction in reading for students with ID and autism, explore plausible differences in student reading growth, build a current snapshot of skills provided that might further inform the adapted model of literacy for students with severe developmental disabilities (Browder et al., 2009), and to inform future research. To the greatest extent possible, using the available data, I followed quality indicators for rigorous research in both the quantitative and qualitative portions of my study.

**Study Participants**
Within this section, I describe the student participants across each of the three universal screening measures and describe the inclusion criteria for participants within the case study. Throughout this dissertation, I focused on describing student participation and reading growth across the overall student population, students identified with a special education diagnosis, students with an ID diagnosis, and students with an autism diagnosis during the 2017-2018 school year across five participating school districts in two states.

**Student Participants**

Within this dissertation, I focused on the subset of students in first through fifth grades who were identified as a student diagnosed with ID, autism, or both during Year 2 of data collection and who participated in the NWEA MAP assessment, iStation, or DIBELS at the beginning of the school year (Fall 2017) and end of year (May 2018). Figure 1 displays the flowchart of participants from overall student participants to the precise sample to be studied within my research questions.

Across all measures there were a total of 12,173 students that the included school districts had provided assessment data for. Year 2 MAP-R data was collected on a total of 3,274 students from the District Falcon in Texas. From the overall student population, 253 of these students were identified as students with a special education designation by the district. While the total population of students represented a variety of special education needs, for the purpose of this study, I focused on the 35 students identified by the school district as receiving special education services for intellectual disability (N = 12) and/or autism (N = 23). iStation data was collected on a total of 6,778 students from the District Avenger in Texas. From the overall student population, 441 of these students were identified as students with a special education designation by the district. From this district, 115 students identified by the school districts as receiving special education services for intellectual disability (N = 28) and/or autism (N = 87). DIBELS data was
collected on a total of 2,121 students from Captain Schools and Soldier Schools. From the overall student population, 36 of these students were identified as students with a special education designation by the district. From this district, 4 students identified by the school districts as receiving special education services for intellectual disability ($N = 2$) and/or autism ($N = 2$).

For the case study, I focused on the 8 students identified with ID, autism, or both within these five participating school districts. Students were identified by their schools for observation and following informed consent, our team observed them within their school setting during their scheduled reading instructional block. Table 4 outlines the demographics for the students included in this study. Observations of their reading instruction were conducted using the ICE-R to report on reading instruction in core and intensive intervention instructional time. Our team provided schools with the following inclusion criteria for observation participation: (the student was in grades 1-5 and the student received Tier 3 or special education services and the family consented to participate). In addition, to be included in my case study: (a) the student was in grades 1-5, (b) the student had a special education designation of intellectual disability and/or autism, (c) the target student had an observation of instruction in their core curriculum (Tier 1) and intensive intervention (Tier 3) or special education instruction.

**Measures and Data Sources**

**Student Reading Growth Universal Screening Measures**

**NWEA MAP-R.** NWEA MAP- R is a computerized adaptive assessment used as a universal screening tool to report the instructional level of each student and measure growth over time. The MAP provides Rasch Unit (RIT) test scores. The RIT score is a unit of measure that employs individual item difficulty values to estimate student achievement to measure growth.
over time. This score is independent of grade or age of the student, with most student scores falling within a range of 140 and 300. NWEA’s MAP can provide local normative data allowing the district to compare the student to other students within the district. These individual student comparisons/district group comparisons can also be compared to national normative data (Measures of Academic Progress, 2010. Test-retest reliability for overall reading RIT scores for the normative population within the state of Texas is \( r = .804 \) (Measures of Academic Progress, 2011). Concurrent validity and predictive validity with state accountability tests were not provided for the state of Texas within the current technical manual.

**iStation ISIP Early Reading and Advanced Reading Assessment.** ISIP Early Reading is a computer adaptive assessment that alters each assessment to the performance ability of individual children while measuring progress across the five early reading skill domains as outlined by the NRP (2000): (a) phonemic awareness, (b) alphabetic knowledge and skills, (c) connected text fluency, (d) vocabulary, and (e) comprehension. The intent of this assessment tool is to support instructional decisions made by teachers in two domains: (a) students at-risk of failing reading and (b) degree of intensity of instructional support a student may need.

ISIP assessments use a measurement scale that aligns student performance levels with test question difficulties on the same scale. This scale is divided into equal parts called ability scores. All test questions are placed on the ability score scale according to their difficulty. Each increasing ability score is assigned a numeric value that indicates a higher level of difficulty. As a student takes an ISIP assessment, he or she is presented with test questions of varying ability scores or levels of difficulty. Using Cronbach’s alpha, test-retest reliability for overall reading ability range from 0.927 to 0.970 for their normative population (iStation, 2009). Concurrent validity with external measures on phonemic awareness (CTOPP), alphabetic decoding
(TOWRE, WIAT-II), spelling (Woodcock-Johnson-III), fluency (DIBELS-ORF), vocabulary (PPVT-III), and comprehension (GORT-4) had correlations ranging from 0.517-0.890 (iStation, 2014).

Once ISIP determines the difficulty level at which the student is able to perform, the test ends and the student is assigned an overall reading ability score, as well as ability scores for individual subtests. The student will additionally be assigned an instructional tier goal for RTI, as defined by the normative grouping at the 40th and 20th percentile. These assignment recommendations suggest students scoring above the 40th percentile be placed into Tier 1, between the 21st and 39th percentile be placed in Tier 2, and those with a score below the 20th percentile are placed in Tier 3- indicating a need for more intensive reading intervention and instruction (iStation, 2014). Tier 2 information was not a focus of this study and was not included in the analysis or results.

**Dynamic Indicators of Basic Early Literacy Skills- Oral Reading Fluency (DIBELS-ORF).** DIBELS oral reading fluency (DIBELS ORF) is a standardized, individually administered test of word accuracy and fluency with connected text. Much like the previously two measures, the procedures used within the administration of DIBELS ORF are designed to (a) identify children who may need additional instructional support and (b) monitor progress toward instructional goals (University of Oregon, 2018-2020). The administered passages measure student performance by having the target student read a passage aloud for one minute. Errors in passage reading include: omitted words, substitutions, and hesitations that last more than three seconds. Each of the administered passages are standardized for each grade level. The median reliability for the ORF measure was 0.92 or above in all grades, however, it was strongest for first grade with a median reliability of 0.96 (University of Oregon, 2018-2020).
Tier 1 and Tier 3 Reading Instruction Observations: Instructional Content Emphasis

in Reading (ICE-R). The ICE-R is a tool that allows for multidimensional and taxonomic coding of observed reading instruction. ICE-R coding allows for chronological analysis of curricular content and grouping, as well as student engagement and instructional quality. Dimension A describes observed instructional content category (e.g., phonological awareness, phonics and word study, comprehension). Dimension B describes instructional grouping (e.g., whole class, small group, individual). There is a total of 20 categories that have the potential to be coded within the observation form. To meet eligibility for coding, an instructional event in any of the categories with Dimension A had to occur for one minute or more. After coding, student grouping was assigned by dimensions following the ICE-R codebook guidelines as shown in Appendix A. Student Engagement is a Likert-type code designating the level to which the target student was on-task during a given instructional activity (1 = low, 2 = medium, 3 = high). Likewise, a global quality indicator used Likert-type codes (1 = weak, 2 = low average, 3 = high average, 4 = high) to denote teacher instructional quality depending on several predetermined criteria. For each instructional category (i.e., Dimension A) identified in the ICE-R, the following data can be collected and analyzed: total instructional minutes allotted, grouping formats, student engagement, and instructional quality.

Prior to observations, thirteen graduate assistants and participating research staff from Southern Methodist University and two additional large universities in the Midwest were trained to become reliable on the ICE-R. Reliability training included in-person and virtual sessions that introduced the low-inference observation form to the observers. Details of the form and coding manual were shared and an example of the gold-standard coding sheet was shared and discussed alongside an instructional video. Upon completion of the training session, an initial reliability
video was sent to the observer to be coded. Reliability was met when the observer met 90% agreement with the gold-standard coder. As part of the larger study, schools assisted in the recruiting and consent procedures and were asked to nominate students for observation (eligibility criteria included either participation in Tier 3 or special education). The graduate research assistants observed literacy instruction for students who received general education and Tier 3 reading support as defined by the school. For the purpose of this dissertation, following the intent of the original project, we did not link specific observations to student reading growth data, rather the student observations were representative snapshots of what children receiving Tier 3 or special education received for their reading intervention and reading instructional Tier 2 blocks.

**Data Analytic Methods**

**Participation in Universal Screening**

To address research question one, I calculated the percentage of students who participated in universal screening by subgroups using the following formula:

\[
\% \text{ of student participation} = \frac{\# \text{ of students in subgroup with valid gain score}}{\# \text{ of overall students with valid gain score}} \times 100
\]

This allowed me to obtain an overall percentage rate for each measure for students within each subgroup (special education, ID, and autism) that participated in school-wide universal screening.

To address research question two, a growth score for each measure was calculated using the following formula:

\[
RDG_{Growth} = May\_Score\ (Spring) - September\_Score\ (Fall)
\]
To qualify for inclusion in both of the analyses, a student needed to have a valid Fall and Spring score reported by the district.

To address research questions three and four, a qualitative analysis of the data collected through observations on a low-inference observation form (ICE-R, Edmonds & Briggs, 2003) was used to compare and contrast reading instruction by time, reading dimension, instructional grouping, and student engagement in general and special education settings. As illustrated in Figure 2, the case study data was presented and analyzed in two distinct ways. To be able to compare instructional time and grouping across reading dimensions, I calculated an overall percentage of time taught for each construct in respect to the total reading time observed. This was calculated by minutes of dimension observed/total minutes of reading instruction observed. This calculation allowed me to better compare across observations that had varied times of instructional time observed. These percentages were calculated for each instructional observation within general education (Tier 1) and intensive intervention (Tier 3 or special education). These percentages were used to create a pie graphs that allowed me to visually analyze the percentage of time that each reading dimension taught and instructional grouping type was used during the observed instructional block.

To create a deeper look into what occurred during the observed instructional period, the raw ICE-R forms were uploaded into the NVivo 12 to be coded for frequency of individual instructional events (unique events) that occurred within the observation. This included each time a specific dimension was coded throughout the observation and any descriptive event included in the larger descriptive text that may not meet the criteria (instruction that occurred for less than one minute) for inclusion to be coded as an instructional event on the ICE-R. This analysis allowed me to explore how many times any dimension of reading may be used within a
given lesson as well as account for a dimension of reading that may have been used during instruction but was not captured in the overall ICE-R coding scheme.
CHAPTER 4

RESULTS

I used a mixed-methods design to study the average annual reading growth and reading instructional practices for students with ID and/or autism within the RTI framework. First, I quantitatively analyzed the data across three different universal screening measures to describe participation and reading growth by grade and disability designation. Analyzing by grade and disability designation permitted me to learn if and how student growth differed between the two disability categories, their typically developing peers, and those students that were identified by the school districts as receiving special education services. This additionally allowed me to examine the instruction received by individual students with ID or autism through qualitative case studies to obtain a snapshot of their reading instruction and intervention that might provide possible explanations for differences in growth and instruction across general and special education settings for this population.

Research Question 1: What percentage of students with ID and/or autism participated in campus-wide universal screening?

Research Question 2: Of those that participated in screening, what was average yearly growth for the three reading measures across grade levels?

NWEA MAP-R

Of the 12,173 students that participated across all three measures, 3,274 students were screened using the NWEA MAP-R assessment. This equates to 29.6% of the total sample for this study. Of the MAP-R sample, the district reported 253 students that had a valid test score in September and May as a student with a special education designation. These students accounted for eight percent of the overall proportion of students that participated in the MAP assessment.
As seen in Figure 3, NWEA provides means and standard deviations by each grade and screening point. Table 1 summarizes results for the average yearly growth scores for students who participated in the NWEA MAP-R assessment during the 2017-18 school year.

**Students with Intellectual Disability.** Of those students with a special education designation, the district reported that 12 students had an intellectual disability. Students with an intellectual disability diagnosis accounted for 0.3 percent of the overall proportion of students that participated in the MAP-R assessment. (Note that there were insufficient data within this sample to obtain an average yearly growth score for students with ID on the NWEA-MAP-R within the fifth grade).

**First Grade.** The average yearly growth from Fall to Spring for a typically developing student in first grade on the MAP test is 16.8 points with a $SD = 8.09$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 17 points with a $SD = 9.18$. For students with a special education designation in the first grade, the average yearly growth was 17 points with a $SD = 9.82$. For a student with ID, the average yearly growth was three points with a $SD = 32.52$. Students with ID in the first grade started the school year 21.7 points lower than the national MAP norm and 17 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with ID scored 34.5 points below the NWEA norm and 31 points below their district peers. In contrast to other first grade students that the district reported having a special education designation, first grade students with ID began the school year 11 points below other students receiving special education services and ended the academic school year 23 points below their special education peers.
**Second Grade.** The average yearly growth from Fall to Spring for a typically developing student in second grade on the MAP test is 14.00 points with a $SD = 8.20$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 14 points with a $SD = 8.45$. For students with a special education designation in the second grade, the average yearly growth was nine points with a $SD = 10.48$. For a student with ID, the average yearly growth was nine points with a $SD=2.00$. Students with ID in the second grade started the school year 26.7 points lower than the national MAP norm and 23 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with ID scored 31.7 points below the NWEA norm and 22 points below their district peers. In contrast to other second grade students that the district reported having a special education designation, second grade students with ID began the school year 12 points below other students receiving special education services and ended the academic school year 13 points below their special education peers.

**Third Grade.** The average yearly growth from Fall to Spring for a typically developing student in third grade on the MAP test is 10.30 points with a $SD = 7.59$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 12 points with a $SD = 8.72$. For students with a special education designation in the third grade, the average yearly growth was ten points with a $SD = 9.99$. On average, a third grade student with ID had negative growth of one point with a $SD = 8.48$. Students with ID in the third grade started the school year 34.3 points lower than the national MAP norm and 27 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with ID scored 45.6 points below the NWEA norm and 41 points below their district peers. In contrast to other third grade students that the district reported having a special education designation,
third grade students with ID began the school year 13 points below other students receiving special education services and ended the academic school year 25 points below their special education peers.

**Fourth Grade.** The average yearly growth from Fall to Spring for a typically developing student in fourth grade on the MAP test is 7.80 points with a $SD = 7.05$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 10 points with a $SD = 7.93$. For students with a special education designation in the fourth grade, the average yearly growth was nine points with a $SD = 9.09$. On average, a fourth grade student with ID had negative growth of 5.5 points with a $SD = 2.12$. Students with ID in the fourth grade started the school year 33.2 points lower than the national MAP norm and 27 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with ID scored 45.9 points below the NWEA norm and 42 points below their district peers. In contrast to other fourth grade students that the district reported having a special education designation, fourth grade students with ID began the school year eight points below other students receiving special education services and ended the academic school year 12 points below their special education peers.

**Students with Autism.** Of those students with a special education designation, the district reported that 23 students had an autism spectrum disorder. Students with an autism diagnosis accounted for 0.7 percent of the overall proportion of students that participated in the MAP-R assessment.

**First Grade.** The average yearly growth from Fall to Spring for a typically developing student in first grade on the MAP test is 16.8 points with a $SD = 8.09$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 17 points with a
SD = 9.18. For students with a special education designation in the first grade, the average yearly growth was 17 points with a SD = 9.82. For a student with autism, the average yearly growth was 28 points with a SD = 12.06. Students with autism in the first grade started the school year 6.3 points above the national MAP norm and 11 points higher than their typically developing peers within District Falcon. By the end of the academic year, students with autism scored 2.5 points above the NWEA norm and six points above their district peers. In contrast to other first grade students that the district reported having a special education designation, first grade students with autism began the school year 17 points above other students receiving special education services and ended the academic school year 14 points above their special education peers.

**Second Grade.** The average yearly growth from Fall to Spring for a typically developing student in second grade on the MAP test is 14.00 points with a $SD = 8.20$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 14 points with a SD = 8.45. For students with a special education designation in the second grade, the average yearly growth was nine points with a SD = 10.48. For a student with autism, the average yearly growth was nine points with a SD = 13.65. Students with autism in the second grade started the school year 2.7 points lower than the national MAP norm and one point higher than their typically developing peers within District Falcon. By the end of the academic year, students with autism scored 10.7 points below the NWEA norm and one points below their district peers. In contrast to other second grade students that the district reported having a special education designation, second grade students with autism began the school year 12 points above other students receiving special education services and ended the academic school year eight points above their special education peers.
Third Grade. The average yearly growth from Fall to Spring for a typically developing student in third grade on the MAP test is 10.30 points with a $SD = 7.59$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 12 points with a $SD = 8.72$. For students with a special education designation in the third grade, the average yearly growth was ten points with a $SD = 9.99$. For a student with autism, the average yearly growth was 17 points with a $SD = 5.51$. In the third grade, students with autism started the school year 17.3 points lower than the national MAP norm and ten points lower than their typically developing peers within District Falcon. By the end of the academic year, students with autism scored 5.6 points below the NWEA norm and one point below their district peers. In contrast to other third grade students that the district reported having a special education designation, third grade students with autism began the school year five points above other students receiving special education services and ended the academic school year 15 points above their special education peers.

Fourth Grade. The average yearly growth from Fall to Spring for a typically developing student in fourth grade on the MAP test is 7.80 points with a $SD = 7.05$ (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of 10 points with a $SD = 7.93$. For students with a special education designation in the fourth grade, the average yearly growth was nine points with a $SD = 9.09$. On average, a fourth grade student with autism had an average yearly growth of eight points with a $SD = 5.77$. Students with autism in the fourth grade started the school year 22.2 points lower than the national MAP norm and 16 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with autism scored 21.9 points below the NWEA norm and 18 points below their district peers. In contrast to other fourth grade students that the district reported having a special
education designation, fourth grade students with autism began the school year three points above other students receiving special education services and ended the academic school year two points above their special education peers.

Fifth Grade. The average yearly growth from Fall to Spring for a typically developing student in fifth grade on the MAP test is 6.11 points with a SD = 7.15 (NWEA 2015). Within District Falcon, the overall student population had an average yearly growth of six points with a SD = 7.88. For students with a special education designation in the fifth grade, the average yearly growth was six points with a SD = 8.00. On average, a fifth grade student with autism had an average yearly growth of 4.5 points with a SD = 11.44. Students with autism in the fifth grade started the school year 20.7 points lower than the national MAP norm and 17 points lower than their typically developing peers within District Falcon. By the end of the academic year, students with autism scored 25.8 points below the NWEA norm and 22 points below their district peers. In contrast to other fifth grade students that the district reported having a special education designation, students with autism began the school year one point above other students receiving special education services and ended the academic school year five points below their special education peers.

IStation ISIP Early and Advanced Reading Assessment

Of the 12,173 students that participated across all three measures, 6,778 students were screened using the ISIP Early and Advanced Reading assessment. This equates to 56% of the total sample for this study. Of the ISIP sample, the district reported 441 students that had a valid test score in September and May as a student with a special education designation. These students accounted seven percent of the overall proportion of students that participated in the ISIP assessment. As seen in Figures 4 and 5, Istation provides tiered benchmark goals for each
grade and screening point. Table 2 summarizes results for the average yearly growth scores for students who participated in the ISIP assessment during the 2017-18 school year.

**Students with Intellectual Disability.** Of those students with a special education designation, the district reported that 28 students had an intellectual disability. Students with an intellectual disability diagnosis accounted for 0.4 percent of the overall proportion of students that participated in the ISIP assessment. Across grade levels, ISIP scores for students with ID were below the cut point for risk and categorized as Tier 3 or needing intensive instruction in reading. Students classified at Tier 3 scored below the 20th percentile in relation to the ISIP norm. There were insufficient data within this sample to obtain an average yearly growth score for students with ID on the ISIP for students in the first grade.

**Second Grade.** The average yearly growth from Fall to Spring for a typically developing student in second grade on the ISIP is 12 points (Istation 2015). Within District Avenger, the overall student population had an average yearly growth of 13 points. For students with a special education designation in the second grade, the average yearly growth was 12 points. For a student with ID, the average yearly growth was two points. Students with ID in the second grade started the school year 45 points lower than the national ISIP norm and 32 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with ID scored 55 points below the NWEA norm and 43 points below their district peers. In contrast to other second grade students that the district reported having a special education designation, second grade students with ID began the school year 22 points below other students receiving special education services and ended the academic school year 33 points below their special education peers.
Third Grade. The average yearly growth from Fall to Spring for a typically developing student in third grade on the ISIP is 10 points (Istation, 2015). Within District Avenger, the overall student population had an average yearly growth of 10 points. For students with a special education designation in the third grade, the average yearly growth was three points. On average, a third grade student with ID had negative growth of three points. Students with ID in the third grade started the school year 36 points lower than the national ISIP norm and 27 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with ID scored 49 points below the NWEA norm and 39 points below their district peers. In contrast to other third grade students that the district reported having a special education designation, third grade students with ID began the school year 11 points below other students receiving special education services and ended the academic school year 17 points below their special education peers.

Fourth Grade. The average yearly growth from Fall to Spring for a typically developing student in fourth grade on the ISIP is 222 points (Istation, 2015). Within District Avenger, the overall student population had an average yearly growth of 89 points. For students with a special education designation in the fourth grade, the average yearly growth was 56 points. On average, a fourth grade student with ID had negative growth of nine points. Students with ID in the fourth grade started the school year 336 points lower than the national ISIP norm and 331 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with ID scored 550 points below the ISIP norm and 411 points below their district peers. In contrast to other fourth grade students that the district reported having a special education designation, fourth grade students with ID began the school year 196 points below
other students receiving special education services and ended the academic school year 259 points below their special education peers.

**Fifth Grade.** The average yearly growth from Fall to Spring for a typically developing student in fifth grade on the ISIP is 191 points (Istation, 2015). Within District Avenger, the overall student population had an average yearly growth of 59 points. For students with a special education designation in the fifth grade, the average yearly growth was 48 points. On average, a fifth grade student with ID had negative growth of 60 points. Students with ID in the fifth grade started the school year 398 points lower than the national ISIP norm and 395 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with ID scored 702 points below the ISIP norm and 557 points below their district peers. In contrast to other fifth grade students that the district reported having a special education designation, fifth grade students with ID began the school year 239 points below other students receiving special education services and ended the academic school year 405 points below their special education peers.

**Students with Autism.** Of those students with a special education designation, the district reported that 87 students had an autism spectrum disorder. Students with an autism diagnosis accounted for one percent of students that participated in the ISIP assessment. Across grade levels, ISIP scores for students with ID were below the cut point for risk and categorized as Tier 3 or needing intensive instruction in reading with the exception of the beginning of year screening in fourth grade. At the start of the fourth grade, students with autism on average were classified as Tier 2. Students classified at Tier 2 scored between the 21st and 39th percentile while Tier 3 scored below the 20th percentile in relation to the ISIP norm.
First Grade. The average yearly growth from Fall to Spring for a typically developing student in first grade on the ISIP test is 21 points (Istation, 2015). Within District Avenger, the overall student population had an average yearly growth of 20 points. For students with a special education designation in the first grade, the average yearly growth was 14 points. For a student with autism, the average yearly growth was 10 points. Students with autism in the first grade started the school year 14 points below the national ISIP norm and 6 points below their typically developing peers within District Avenger. By the end of the academic year, students with autism scored 17 points below the ISIP norm and seven points below their district peers. In contrast to other first grade students that the district reported having a special education designation, first grade students with ID began the school year one point above other students receiving special education services and ended the academic school year five points above their special education peers.

Second Grade. The average yearly growth from Fall to Spring for a typically developing student in second grade on the ISIP test is 12 points (Istation 2015). Within District Avenger, the overall student population had an average yearly growth of 13 points. For students with a special education designation in the second grade, the average yearly growth was 12 points. For a student with autism, the average yearly growth was 17 points. Students with autism in the second grade started the school year 20 points lower than the national ISIP norm and seven points lower than their typically developing peers within District Avenger. By the end of the academic year, students with autism scored 24 points below the ISIP norm and performed equally to their district peers. In contrast to other second grade students that the district reported having a special education designation, second grade students with autism began the school year three points
above other students receiving special education services and ended the academic school year ten points above their special education peers.

**Third Grade.** The average yearly growth from Fall to Spring for a typically developing student in third grade on the ISIP test is 10 points (Istation 2015). Within District Avenger, the overall student population had an average yearly growth of ten points. For students with a special education designation in the third grade, the average yearly growth was three points. For a student with autism, the average yearly growth was three points. In the third grade, students with autism started the school year 15 points lower than the national ISIP norm and six points lower than their typically developing peers within District Avenger. By the end of the academic year, students with autism scored 24 points below the ISIP norm and 14 points below their district peers. In contrast to other third grade students that the district reported having a special education designation, third grade students with autism began the school year ten points above other students receiving special education services and ended the academic school year eight points above their special education peers.

**Fourth Grade.** The average yearly growth from Fall to Spring for a typically developing student in fourth grade on the ISIP test is 222 points (Istation 2015). Within District Avenger, the overall student population had an average yearly growth of 89 points. For students with a special education designation in the fourth grade, the average yearly growth was 56 points. On average, a fourth grade student with autism had an average yearly growth of 88 points. Students with autism in the fourth grade started the school year 43 points lower than the national ISIP norm and 38 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with autism scored 179 points below the ISIP norm and 40 points below their district peers. In contrast to other fourth grade students that the district reported
having a special education designation, fourth grade students with autism began the school year 97 points above other students receiving special education services and ended the academic school year 112 points above their special education peers.

**Fifth Grade.** The average yearly growth from Fall to Spring for a typically developing student in fifth grade on the ISIP test is 191 points (Istation 2015). Within District Avenger, the overall student population had an average yearly growth of 59 points. For students with a special education designation in the fifth grade, the average yearly growth was 48 points. On average, a fifth grade student with autism had an average yearly growth of 52 points. Students with autism in the fifth grade started the school year 61 points lower than the national ISIP norm and 58 points lower than their typically developing peers within District Avenger. By the end of the academic year, students with autism scored 196 points below the Istation norm and 51 points below their district peers. In contrast to other fifth grade students that the district reported having a special education designation, students with autism began the school year 98 points above other students receiving special education services and ended the academic school year 101 points above their special education peers.

**DIBELS**

Of the 12,173 students that participated across all three measures, 2,121 students were screened using the DIBELS assessment. This equates to 17% of the total sample for this study. Of the DIBELS sample, the district reported 36 students that had a valid test score in September and May as a student with a special education designation. These students accounted for two percent of the overall proportion of students that participated in the DIBELS assessment. As seen in Figure 6, DIBELS provides benchmark goals and cut points for risk at each grade and
screening point. Table 3 summarizes results for the average yearly growth scores for students who participated in the DIBELS assessment during the 2017-18 school year.

**Students with Intellectual Disability.** Of those students with a special education designation, the district reported that two students had an intellectual disability. Students with an intellectual disability diagnosis accounted for less than .01 percent of the overall proportion of students that participated in the DIBELS assessment. There were insufficient data within this sample to obtain an average yearly growth score for students with ID on the DIBELS for students in the second through fifth grade.

**First Grade.** The average yearly growth from Fall to Spring for a typically developing student in first grade on DIBELS is 42 points (DIBELS 2018). Within Districts Captain and Soldier, the overall student population had an average yearly growth of 76 points. For students with a special education designation in the first grade, the average yearly growth was 36 points. For the two students with ID, there was a negative average yearly growth of 18 points. These students started the school year 95 points lower than the DIBELS benchmark and 116 points lower than their typically developing peers within Districts Captain and Soldier. By the end of the academic year, these students scored 173 points below the DIBELS benchmark and 225 points below their district peers. In contrast to other first grade students that the district reported having a special education designation, these first grade students with ID began the school year 68 points below other students receiving special education services and ended the academic school year 131 points below their special education peers.

**Students with Autism.** Of those students with a special education designation, the district reported that two students had an autism spectrum disorder. Students with an autism diagnosis accounted for less than .01 percent of the overall proportion of students that
participated in the DIBELS assessment. There were insufficient data within this sample to obtain an average yearly growth score for students with ID on the DIBELS for students in the first, fourth, and fifth grade.

**Second Grade.** The average yearly growth from Fall to Spring for a typically developing student in second grade on the DIBELS benchmark is 97 points (DIBELS 2018). Within Districts Captain and Soldier, the overall student population had an average yearly growth of 80 points. For students with a special education designation in the second grade, the average yearly growth was 62 points. For the one student with autism, the average yearly growth was 104 points. This student started the school year 70 points higher than the DIBELS benchmark and equal to their typically developing peers within the districts. By the end of the academic year, this student scored 67 points above the DIBELS benchmark and 27 points high than their district peers. In contrast to other second grade students that the district reported having a special education designation, this student began the school year 103 points above other students receiving special education services and ended the academic school year 172 points above their special education peers.

**Third Grade.** The average yearly growth from Fall to Spring for a typically developing student in third grade on the DIBELS benchmark is 110 points (DIBELS, 2018). Within Districts Captain and Soldier, the overall student population had an average yearly growth of 131 points. For students with a special education designation in the third grade, the average yearly growth was 96 points. For this student with autism, the average yearly growth was four points. In the third grade, this student started the school year 202 points lower than the DIBELS benchmark and 267 points lower than their typically developing peers within the districts. By the end of the academic year, this student scored 308 points below the DIBELS benchmark and 393 points
below their district peers. In contrast to other third grade students that the district reported having
a special education designation, this student began the school year 114 points below other
students receiving special education services and ended the academic school year 206 points
below their special education peers.

**Research Question 3: How did observed instruction and intervention for students with ID
or ASD vary in general education and special education settings (proportions of dimensions
of reading instruction, amounts, grouping, engagement)?**

**Research Question 4: How did observed instruction align with recommendations from
research on evidence-based practices for this population?**

For research questions 3 and 4, I used a qualitative exploratory, multiple case study
approach (Yin 2018) to investigate how reading instruction for students with ID and autism may
vary by educational setting (general education vs. special education) and how this observed
instruction aligned to evidence-based reading practices for students with ID and intellectual
disability. For the purpose of this case study, the cases have been split into a lower elementary
band (students in grades 1 & 2, when reading instruction typically focuses primarily on learning
to read and foundational skills) and upper elementary (students in grades 3 & 5, when reading
instruction typical shifts to focus more on reading to learn). Instruction was observed in their
general education/core curriculum (Tier 1) classroom and intensive intervention/special
education (Tier 3) classroom. Results are discussed by grade level band and classroom type.

As seen in Table 4, eight students met eligibility criteria to be included in the case study
analysis. Of the eight students, three were in first and second grade which banded them together
for analysis at the lower elementary level. Within this lower elementary level, two males (Bucky
and Howard) and one female (Peggy) were observed. All three students were served in special
education as a student with intellectual disability. Additionally, both males had a speech impairment designation as reported by the school district. The other five students included within the case study were in grades three through five which banded them at the upper elementary level. Within the upper elementary level, three males (Steven, Sam, Grant) and two females (Natasha and Sharon) were observed. Grant and Sharon are the only two students within the case study that had a special education designation of autism spectrum disorder. The other three students (Steven, Sam, Natasha) had an intellectual disability designation as reported by their individual districts.

**Lower Elementary**

Three students (Bucky, Peggy, Howard) were in lower elementary and included two students in Michigan and one from the state of Texas. Across facets of the ICE-R (Edmonds & Briggs, 2003) six out of the twelve categories met criteria to be coded in Tier 1 instruction and seven were coded within Tier 3 instruction.

**Tier 1.** Overall classroom observation time in general education for this group of students ranged from 20 to 61 minutes. Within this time, six of the twelve ICE-R dimensions (see Appendix A) met criteria for coding. As displayed in Figure xxx, students were observed engaging in instruction in phonics and word reading, text reading, comprehension, and grammar. The other two dimensions that were observed were other academic instruction and non-instructional. As shown in Table 5, in Tier 1 for the lower elementary there were 25 unique events that met criteria for coding on the ICE-R across these three observations.
Instruction in phonics and word reading occurred in two of the observations and ranged from 46 to 66 percent of the Tier 1 instruction. It was coded in seven out of the twenty-five unique events observed. Descriptions of the activities within the field notes included:

Teacher instructs them to take 6 letters off the tray and put them in a row on the table. She says words and students spell with magnetic letters on table. (big, bug, rug, run, bun, bin).

Teacher points towards an array of letters. Students say the sound of the letter being pointed to aloud as a group.

Students do a work sheet. Many words with missing letters, students are to fill in the missing short vowel and color each lily pad on worksheet with the corresponding color.

Text reading was observed for two of the students and contributed to a range of seven to 44 percent of observed general education instruction. Additionally, it was coded in three of the twenty-five unique events coded. A description of the observed instruction included:

Teacher sits on chair and reads to class from book; she holds up for all to see pictures.

Comprehension skills were observed for two students and taught for 27 to 39 percent of observed instructional time in Tier 1. Instruction in comprehension was coded in seven unique events. A description of the activities included:

Teacher instructs students to picture walk independently; all students engaged.
Story Time: “Three Little Pigs”; Teacher reads cover and synopsis to group.

Teacher shows students pictures in book to prep for story.

One student, Howard, participated in grammar instruction during their observed snapshot of time in Tier 1. This was 12 percent of his instructional time in general education. This instruction occurred in one unique event. A description of the activity included a brief synopsis of a “Daily Grammar Review” worksheet during whole class instruction.

Lastly, observers recorded instances of other (non-reading) academic instruction and non-instructional activities. Other academic instruction was 28 percent of Bucky’s instructional time in general education and included small group intervention with a speech-language pathologist. Non-instructional time ranged from 7 to 17 percent of observed instructional time for all three observed lower elementary students. This observed time included transitional time between activities that involved rotating between stations and transitional time from whole group to small group work.

**Tier 3.** Overall classroom observation time in intensive intervention/special education for this group of students ranged from 26 to 41 minutes. Within this time, seven of the twelve ICE-R dimensions met criteria for coding. As displayed in Figure 8, students were observed engaging in instruction in phonics and word reading, comprehension, and writing. The other two dimensions that were observed were behavior management and non-instructional. As shown in Table 5, in Tier 3 for the lower elementary there were 20 unique events that met criteria for coding on the ICE-R across these three observations. Bucky was a student that received all reading instruction within the special education classroom. His Tier 1 and 3 instruction occurred concurrently.
Comprehension instruction was observed for two of the students in their special education settings with 13 and 58 percent of their instruction that involved developing this skill. Instruction in comprehension was coded in three unique events. A description of the activities included:

[Student] reads book about elephants aloud to teacher. When finished, they discuss story and discuss elephants. Teacher uses website printout to reinforce book discussion.

Completed sentence stem to answer questions about what they learned from the book

Writing was observed during Tier 3 instruction in the lower elementary grades. This was 47 percent of Howard’s instruction and was coded as one unique event. A description of his writing activity included:

[Student] goes back to his desk to sit with [teacher]. They discuss the story he plans to write. [Student] starts writing. [Teacher] is helping him, sometimes dictating what he should write next and talking with him about the structure of his sentences.

Non-instructional time, including transition between work stations, ranged from 7 to 30 percent of instructional time spent in special education. It is within special education that behavior management met criteria for coding on the ICE-R. This was coded in three unique events for Howard. Behavior management was described by the observers as:

[Teacher] is discussing with students how they should be sitting at the circle.

As stated in Chapter 1, experts define high-quality Tier 1 as instruction that includes the five components of foundational reading (phonemic awareness, phonics, fluency, vocabulary,
and comprehension) and allows students multiple opportunities to engage with written text (Ehri, 2004; National Reading Panel, 2000). Though the goal is often to ensure that these skills are developed together, instruction in primarily code-focused skills (decoding and reading with fluency) tend to be the focus of early grades when children are learning to read, then taper off by third grade. These lower elementary students, within their Tier 1 instruction, actively engaged in phonics & word study, comprehension, and text reading. Within this snapshot of Tier 1 instruction, these students are developing skills that would be anticipated for this population and age range of students.

Upper Elementary

Five students (Steven, Sam, Natasha, Grant, Sharon) were clustered together in upper elementary. One of the students was from Michigan and four came from the state of Texas. Across facets of the ICE-R (Edmonds & Briggs, 2003) six out of the twelve categories met criteria to be coded in Tier 1 instruction.

Tier 1. Overall classroom observation time in general education for this group of students ranged from 30 to 74 minutes. Within this time, six of the twelve ICE-R dimensions (see Appendix A) met criteria for coding. As displayed in Figure 9, students were observed engaging in instruction in phonics and word reading, text reading, comprehension, and grammar. The other two dimensions that were observed were behavior management and non-instructional. As shown in Table 5, in Tier 1 for the upper elementary there were 64 unique events that met criteria for coding on the ICE-R across these five observations.
Instruction in phonics and word reading occurred for one student and was 100 percent of their Tier 1 instruction. It was coded in seven out of the sixty-four unique events observed.

Descriptions of the activities included:

Teacher and student work together to finish phonics worksheet. Focus on sound accuracy and visual ID of ending sounds “magic e’s” –vowel, consonant, e

Student works on phonics worksheet to match letters with sounds on his own (ID last sound in duck, fish, cat…)

Text reading was observed for two of the students and contributed to a range of 35 to 50 percent of observed general education instruction. Additionally, it was coded in eight of the sixty-four unique events coded. A description of the observed instruction included:

Student reads to self. This particular student is listening to reading on the iPad.

Teacher reads the end of the passage to the class.

Comprehension skills were observed for three students and taught for 50 to 73 percent of observed instructional time in Tier 1. Instruction in comprehension was coded in 28 unique events. A description of the activities included:

Independently reads STAAR practice passages and answers questions.

Bingo game with words that relate to reading comprehension strategies.

Discussion about what they had just read. How would you feel? Put yourself in someone else’s shoes. What about the girl that had the courage to sit with him? What are her character traits? Does she care about what other people think?
One student, Natasha, participated in grammar instruction during their observed snapshot of time in Tier 1. This was 69 percent of her instructional time in general education. This instruction occurred in three unique events. A description of the activity included:

Square Share practicing grammar. The car is dirty. The car needs to be washed.

What is the most effective way to combine these sentences? (2 3 1 because of pair (2), square (4), share (everyone)).

Behavior management was observed as unique event in upper elementary general education for two students. Behavior management ranged from four to 26 percent of the observed instruction. Behavioral instruction ranged from teacher reminders of behavioral expectations to district personnel working with the general education teacher and special educator in the classroom to develop a behavior plan for including the student within the classroom environment.

Chapter 1 discussed how the goal of literacy instruction is often to develop code-focused and meaning-focused skills together—reducing explicit instruction of code-focused skills around third grade. The reduction in explicit instruction in decoding and phonics opens the door for developing learning to read with prosody and the development of comprehension skills. Comprehension skills greatly dominated the reading instruction for students in the upper elementary grades. However, this current snapshot did not capture any fluency or vocabulary instruction. Without fluency or vocabulary instruction, instruction or intervention in comprehension strategies and skills may not be effective for students in the upper elementary grades.
CHAPTER 4

DISCUSSION

The purpose of this study was to explore and describe the participation and reading growth of students with intellectual disability and autism on campus-wide universal screening across grade levels. Additionally, this study aimed to use observational data from the larger Project FOCUS to look at differences in general and special education instruction and interventions that may present contributing factors to participation and growth in universal screening assessments and alignment to current recommended instructional practices for these students. Since the direction of findings for research questions one and two are related, I discuss their combined implications. Additionally, research questions three and four will be connected to discuss the overall implications of the qualitative case study.

While there have been several researchers (Allor et al., 2014; Hill & Lemons, 2015; Jenkins et al., 2017; Lemons et al., 2012) that have used reading curriculum-based measures such as DIBELS to assess the basic reading skills of students with intellectual disability and autism, current research has not extended to computer adaptive, universal screening measures that are being implemented and administered to their general education peers by many school districts. Many factors may be involved in the decision to exclude students of this population from participating in these universal screeners such behavioral and communication barriers that may impact the student’s ability to participate in a formal, large-group testing administration (Jones et al., 2018).

Research Question 1: What percentage of students with ID and/or autism participated in campus-wide universal screening?
Research Question 2: Of those that participated in screening, what was average yearly growth for the three reading measures across grade levels?

Students with Intellectual Disability

Across all three measures, less than one percent of students with an intellectual disability made up the sample of students who took each screener in this study. Students with ID account for six percent of the national population of students being served under IDEA (NCES, 2020) and appear to be highly underrepresented within this universal screening sample.

Observed reading growth for students who were screened using the MAP-R assessment only occurred within the early elementary grades (first and second). There was a shift to a negative growth score in upper elementary with an average loss of one point in third grade which carried over and a loss of 5.5 points in fourth grade. Students in the fifth grade that were being served for an intellectual disability within District Falcon did not have the two valid points of screening data to be included within this descriptive analysis. Across grade levels, students with ID performed below the national norm, their typically developing district peers, and in comparison to their peers that the district reported as receiving a special education designation. The only exception to this is in second grade. This population, on average, grew nine points on the MAP assessment over the course of the school year which was equal to the average growth of other students with a special education designation.

Observed reading growth for this population of students screened with the Istation ISIP assessment reflected similar findings to those that participated in MAP-R. However, this screener had insufficient data to calculate a growth score for the first grade. The only observed positive reading growth was within the second grade with students gaining an average of two points on
their assessment over the course of the school year. This is ten points below the national Istation benchmark score and 11 points behind the growth of their district peers. Much like those who to the MAP-R assessment in District Falcon, negative growth scores were observed for this student population in District Avenger starting in the third grade with the gap extensively widening with those students that participated in the fifth grade. These findings align with Wei et al. (2011) in that students with ID have significantly slower growth rates in reading than students with learning disabilities.

The sample for students with intellectual disability that participated in the administration of the DIBELS reading assessment was significantly smaller in comparison to those that participated in the MAP-R and ISIP assessments. With only two students in the sample with a fall and spring assessment point, results are difficult to interpret. This is further driven by the fact that the range of scores for the Spring assessment was 0 to 0, pushing the conclusion that the two students with a recorded score at the fall administration of the screener did not participate in the spring administration and for the purpose of having a complete record were scored a zero.

While Wei and colleagues (2011) show that deceleration in reading growth is not significant over time for students with ID, this exploration and descriptive study of growth in Tables 1 and 2 display steady growth in the lower elementary grades with a sharp deceleration and shift to negative growth across measures when students reach the third grade- much sooner than the deceleration of reading growth age of 12.67 discussed by Wei and colleagues. With the shift to a negative growth score from the third grade and up to insufficient participation to calculate a growth score in a few of the grade levels, it may be possible that computer adaptive measures are not sensitive enough to detect incremental growth in these student’s reading performance (Wallace & Ticha, 2012) presenting their teachers with one less option for formally
assessing their student’s reading skills. Moreover, participation in these measures may require extensive accommodations that are not aligned to the allowable accommodations from the developer’s guidelines thus hindering participation in the administration of the computer based measures.

**Students with Autism**

Students with autism had a participation rate around one percent on the computer adaptive (MAP-R and ISIP) assessments and less than .01 percent on the DIBELS administration. Eleven percent of the national population of students being served under IDEA (NCES, 2020) have the autism designation and much like their peers with ID appear to be under represented within this universal screening sample.

While the participation rate is low, on average students with autism made positive growth over the course of the school year. In contrast to their peers with intellectual disability, students with autism performed closer to or above the national norm and their district peers. These findings diverge from Wei et al. (2019), who reported a significant slowing of growth for students with autism by age 12.67. Overall, students with autism performed at a similar achievement level or higher than not only their peers with a special education designation, but their typically developing peers within their districts and the national screening norms and benchmark scores.

Within first grade, students with autism grew 28 points on average from the fall to spring administration of the NWEA MAP- R screener. This growth is 12 points higher than the national norm group for first grade and 11 points above their district peers. Additionally, in third grade, students within this population grew 17 points over the course of the school year. This was a
seven point gain over the national norm and five over their district peers. These findings may indicate that computer adaptive testing for students with autism may be an adequate measure to detect stable and incremental growth in these student’s reading performance growth over time.

Research Question 3. How did observed instruction and intervention for students with ID or ASD vary in general education and special education settings (proportions of dimensions of reading instruction, amounts, grouping, engagement)?

Research Question 4. How did observed instruction align with recommendations from research on evidence-based practices for this population?

The predominance of phonics and word reading instruction within this subset of observations potentially indicate and reflect a shift from traditional sight word reading instruction for students with ID and autism (Browder et al., 2016) to more recently developed recommendations of multi-component, phonics-based instruction (e.g.- Allor et al., 2010; Allor et al., 2014, Browder et al., 2008; Stewart, 2019). This holds especially true for students in the early elementary grades, where systematic and explicit instruction in more code-based reading skills (i.e., phonics and fluency) may give students the opportunity to develop and connect to more meaning-focused reading skills across the conceptual framework (Browder et al., 2009) with the eventual opportunities to apply and generalize their reading skills developing improved reading outcomes and increased independence as a reader. Text reading was prevalent in both lower and upper elementary Tier 1 instruction and Tier 3 instruction for students in upper elementary, however, the description of each unique event for text reading most often came as the teacher reading the text aloud to the whole group of students as they listened to the text being read and extended to limited opportunities for the student to read the text themselves either out loud or silently.
Comprehension was observed across all grades and tiers of reading instruction. It was a large percentage of the intensive intervention instruction of one student in the lower elementary grades and dominated instruction for Tier 1 and 3 in the upper elementary grades. However, one of the key aspects of comprehension is the meaning and understanding that a student obtains from the text. Within the observations, comprehension instruction was often described as a teacher asking proximal questions about events that occurred within a specific line or page of text. However, the field notes did not reveal instances of instruction for inferential comprehension, or strategy instruction for reading for meaning. Comprehension itself builds upon reading fluency, vocabulary, world knowledge, comprehension strategies, and motivation (Honig, 2013). Reading fluency and vocabulary skills were notably absent across all observations and neither occurred as a unique event at any grade level or instructional setting.

The absence of fluency across observations signifies a missed instructional opportunity within these snapshots to apply and generalize their phonics and word reading instruction to promote increased reading independence. In addition, the lack of vocabulary instruction- inclusive of no unique events in the activity descriptions- adds an additional barrier to deepening instruction in comprehension and generalization to how students with ID and autism understand the meaning of the world around them and how they use that understanding to gain independence within their individual environments.

Limitations

The student demographic, special education designations, and reading data collected for this study from the larger grant was sent into the research team by each individually participating school district. Thus, while I have some incomplete data in regards to the number of students with ID and autism at the school level, I do not know the exact number of students with ID or
ASD in each district to inform the actual proportion tested. The research project did not have access to IEPs or student’ IQ scores, so I did not have access to any IEP to further narrow the scope of this study to students that meet the criteria for both intellectual disability and autism. With the scope of the autism spectrum being broad and diverse, the autism population included the analyses is reflective of the broad scope of students with autism spectrum disorder within this sample and not narrowly focused on a student with autism and intellectual disability. In addition to the dataset available, information on the subgroup information, or on allowable testing modifications for the subgroups within the normed groups across measures was not available within the technical manuals of the assessments so comparisons could only be made to the overall national norms and benchmark scores provided by the individual developers. Without accessing IEPs. I am not certain whether students participated in alternative assessments based on their own plan.

The observations included within the case studies only included a small number of students across multiple school districts. With these students coming from a larger dataset, they were not intentionally recruited for the larger study due to the special education designation but were nominated for participation by their school leaders. As such, findings from the case studies should not be generalized to describe experiences for the entire population. Specificity in future recruitment and increasing the number of observations would add to future generalizability of findings and allow for a more complete analysis of classroom instruction.

In addition, observations were scheduled at the convenience of the school and classroom teacher. While the research team made considerable efforts to schedule observations for the complete literacy instructional block, there was some difficulty in obtaining full observations within the classroom due to student and school level scheduling issues. While the team met a
gold standard for inter-rater reliability on major codes (type, quantity, grouping, engagement, and quality), the research team did not have to meet a gold standard on field notes or descriptions of the reading activities observed through the ICE-R. Descriptions were often short and did not provide an in-depth snapshot of instruction to develop a clear picture of the overall observed instructional block.

**Implications for Practice**

With findings from this study suggesting that there is emerging evidence of research-based, multi-component reading practices in general and special education classes serving students with ID and autism spectrum disorder, continued observation and reflection of classroom instructional practice is needed to support educators in developing independent readers within this population of students. The latest research in this area reveals that students with ID can improve reading skills when provided intensive, systematic instruction in the five components of reading (Afacan et al., 2018; see Allor et al., 2010; Browder et al., 2008). By incorporating recommendations from research on systematic and explicit instruction, teachers may able to adapt current classroom curriculum and materials to the needs of their students.

As students with ID and ASD continue to be included in school accountability data and universal screening, the findings from this study may inform professional development for general education classroom teachers on how to support and continue to grow these students with more severe learning needs within their classroom settings. For example, this may encourage an IEP team to create systematic and collaborative plans across service providers (e.g. district behavior specialists, SLPs, occupational therapists) that support the unique and varied learning and behavioral needs for the student. These plans could further the development of more appropriate testing accommodations and modifications that follow the testing developer’s
guidelines. By addressing the individual needs of each student through these accommodations and modifications, there is the possibility for higher levels of inclusion for students with more severe disabilities on these universal screening measures.

**Future Directions for Research**

Continued and more rigorous observation studies are needed to describe the reading instruction provided to students with ID and ASD. These studies would continue to aggregate school level data on universal screeners, with the addition of classroom progress monitoring and more systematic and sensitive observations of general education and special education classroom instruction. With this information, researchers and pre- and in-service teachers can better examine how students with more severe learning needs are participating and growing within their school-wide systems of intervention and supports.

Additionally, with access to observed target student IEP information, a follow-up to the participation component of this study could explore if students were exempt from screening or if the district provided an alternative assessment or progress monitoring tool. Continued observation of this population across grades, settings, and districts will also help to analyze factors of high-quality instruction for this population and any additional barriers and/or areas of in need of review. These observations should be more in-depth to see how instruction varied at different time points (beginning, middle, and end of school year), how their instruction aligned to their IEP goals, and their literacy growth on any continual assessments.

In addition to the observational studies, more studies of multi-component reading instruction and intervention for students within this population may explore a deeper role of functional activities, text applications, and positive behavior and intervention supports that build
not just independence as a reader, but overall independence in their communities. Further interviews with staff (teachers, paraprofessionals, and service providers) about their knowledge of reading research for students with severe disabilities will build the knowledge of teacher’s current strengths as well as insight into the barriers that may be hindering instruction and student progress.
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with disabilities (doctoral dissertation). Keiser University, Fort Lauderdale, FL.

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Table 2
*Istation Growth Scores (Mean)*

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*Note:* 1 *Istation Tier 1* grouping (above 40[^th] percentile to the national norm); 2 *Istation Tier 2* grouping (21[^st]-39[^th] percentile to the national norm); 3 *Istation Tier 3* grouping (below 20[^th] percentile to the nation norm).
Table 3

*DIBELS Growth Scores (Mean)*

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*Note:* <sup>a</sup> “Above Benchmark” score above the national norm benchmark goal; <sup>b</sup> “Benchmark Goal” score at or above the national norm benchmark goal; <sup>c</sup> “Cut Point for Risk” score below the cut point for risk to the national norm benchmark goal.


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</tr>
<tr>
<td>Sharon</td>
<td>F</td>
<td>AU, SI</td>
<td>5</td>
<td>TX</td>
<td>Avenger Schools</td>
<td>Erksine Elementary</td>
<td>Istation</td>
</tr>
</tbody>
</table>

*Note: ID= Intellectual Disability, AU= Autism, SI= Speech Impairment, OHI= Other Health Impairment.*
<table>
<thead>
<tr>
<th>ICE-R Code</th>
<th>Tier 1 &amp; Grade 1</th>
<th>Tier 1 &amp; Grade 2</th>
<th>Tier 1 &amp; Grade 3</th>
<th>Tier 1 &amp; Grade 5</th>
<th>Tier 2 &amp; Grade 1</th>
<th>Tier 2 &amp; Grade 2</th>
<th>Tier 2 &amp; Grade 3</th>
<th>Tier 2 &amp; Grade 5</th>
<th>Tier 3 &amp; Grade 1</th>
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<tbody>
<tr>
<td>Phonological Awareness</td>
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<td>Phonics/ Word Study</td>
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<tr>
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<td>Text Reading</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
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<td>0</td>
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<td>Tier 1</td>
<td>Tier 1</td>
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<td>Tier 3</td>
<td>Tier 3</td>
<td>Tier 3</td>
<td>Tier 1</td>
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<td>Time (Behavior Management)</td>
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<td>9</td>
<td>0</td>
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</tr>
</tbody>
</table>

ICE-R Code

Tier 1 & 3 Grade 1

Tier 1 & 3 Grade 2

Tier 1 & 3 Grade 3

Tier 1 & 3 Grade 5

Tier 1

Tier 3

Tier 3

Tier 3

Tier 1
Figure 1. Adapted Model of Literacy for Students with Severe Developmental Disabilities (Browder et al., 2009)
Note: Number of participants on the screeners is based on having a valid fall and spring assessment score to qualify for inclusion.

Figure 2. Participant Selection
Figure 3. Case Study Analysis Procedure

**Case Selection:**
- Student in grades 1-5
- Diagnosed with ID and/or Autism
- Observed reading instruction in Tier 1 (core curriculum) and Intensive Intervention/Special Education
- N=8 cases
- Grades 1, 2, 3, 5
- MI & TX
- 5 school districts
- 7 elementary schools
- 6 students with ID
- 2 students with AU

**Data Collection:**
- Trained observers collected data with the ICE-R
- Observations occurred during designated reading instruction period
- Core curriculum and intensive intervention/special education observed

**Percentage of Instruction:**
- Instructional time of each reading dimension coded by minutes observed
- Calculate the percentage of time each instructional domain was coded during reading instruction
- Create a visual representation of reading instruction by each district for Tier 1 & Tier 3/Special Education

**Frequency of Instructional Coding:**
- NVivo 12
- Define case attributes: disability, grade, school, state
- Define nodes to mimic ICE-R coding form
- Add additional nodes for instruction that was discussed but did not meet ICE-R coding criteria
- Matrix coding to compare across schools, states, and districts

Through this analysis I will be able to answer and discuss RQs 3 & 4:
- How does observed instruction and intervention compare across general education and special education settings?
- How does observed instruction align with recommendations from research on evidence-based practices for this population?

Address any additional implications of the Browder model on what was observed in reading instruction

Discuss further directions for research
Figure 4. *NWEA MAP*- R Means and Standard Deviations

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fall Mean</th>
<th>Fall SD</th>
<th>To Winter Mean</th>
<th>To Winter SD</th>
<th>To Spring Mean</th>
<th>To Spring SD</th>
<th>To Next Fall Mean</th>
<th>To Next Fall SD</th>
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<tbody>
<tr>
<td>K</td>
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<td>14.02</td>
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<td>174.72</td>
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</table>
### Figure 4. *I*Station *ISIP* Early Reading Assessment Benchmark Scores

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<tr>
<th>Assessment Month</th>
<th>Pre-K</th>
<th>Kindergarten</th>
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<th>2nd Grade</th>
<th>3rd Grade</th>
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<tbody>
<tr>
<td></td>
<td>Tier 3</td>
<td>Tier 2</td>
<td>Tier 1</td>
<td>Tier 3</td>
<td>Tier 2</td>
</tr>
<tr>
<td>August</td>
<td>&lt; 153</td>
<td>153-159</td>
<td>&gt; 159</td>
<td>&lt; 176</td>
<td>176-184</td>
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<tr>
<td>September</td>
<td>&lt; 156</td>
<td>156-161</td>
<td>&gt; 161</td>
<td>&lt; 176</td>
<td>176-184</td>
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<td>October</td>
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<td>157-164</td>
<td>&gt; 164</td>
<td>&lt; 179</td>
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<td>&lt; 158</td>
<td>158-166</td>
<td>&gt; 166</td>
<td>&lt; 182</td>
<td>182-190</td>
</tr>
<tr>
<td>December</td>
<td>&lt; 162</td>
<td>162-170</td>
<td>&gt; 170</td>
<td>&lt; 185</td>
<td>185-193</td>
</tr>
<tr>
<td>February</td>
<td>&lt; 166</td>
<td>166-176</td>
<td>&gt; 176</td>
<td>&lt; 189</td>
<td>189-197</td>
</tr>
<tr>
<td>March</td>
<td>&lt; 167</td>
<td>167-178</td>
<td>&gt; 178</td>
<td>&lt; 191</td>
<td>191-198</td>
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<tr>
<td>April</td>
<td>&lt; 169</td>
<td>169-180</td>
<td>&gt; 180</td>
<td>&lt; 193</td>
<td>193-200</td>
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</table>
Figure 5. iStation ISIP Advanced Reading Assessment Benchmark
Figure 6. DIBELS Benchmark Scores
Figure 7. Lower Elementary Tier 1 Instruction - Percentage of Observed Reading Dimension
Figure 8. Lower Elementary Tier 3 Instruction- Percentage of Observed Reading Dimension
Figure 9. Upper Elementary Tier 1 Instruction - Percentage of Observed Reading Dimension
Figure 10. Upper Elementary Tier 3 Instruction- Percentage of Observed Reading Dimension
APPENDIX A
ICE-R CODING MANUAL

Documentation of Teaching Practices

Background: One Tier 1 observation will be made of each 4th-grade teacher in the Fall and one in the Spring. Observers will stay for the entire reading session and take a running narrative of what takes place including time, activities, materials, and grouping format.

Focus: While observing the class, observers will always keep in mind the struggling reader and how the activities, materials, teacher language and behavior assist the struggling reader. Therefore, a rating of ‘excellent’ will only be given when the item being scored is being performed in a way that promotes learning for the struggling reader.

Definition of an instructional event

An instructional event is defined as a distinct or unique activity where the content, grouping, and materials are coordinated around a certain instructional component. The primary intent of the activity determines the focus of the event (i.e., the main objective of the lesson rather than the method or strategy).
Documentation of Teaching Practices

Adapted I.C.E.-R.

**How to code simultaneous, small group instruction (centers)**

If students are in small groups working on different activities at each “station” (i.e. centers), then code each “center” as an instructional event. If the students rotate through the stations, but the activities and materials stay the same, code the station only once (e.g. there is no need to code the station as a new instructional event each time a new group rotates through). Content emphasis is coded as the average amount of time any one group spends at that station.

**Example:** Ms. Smith has three centers; one for spelling, one for sorting words, and one for independent reading. Students (in groups of 4) rotate through the stations every 15 minutes for the entire class period. CODING: There would be three activity entries in I.C.E.-R. (one for each center) and each would have a different Content Category (6. Spelling, 1. Phonics, and 7. Text Reading), but the same Instructional Grouping (2. Small group) and the same time (15 minutes out of the 90 minute class).

**Coding Categories**

Dimension A: Main Instructional Category

Dimension B: Grouping

Overall Instructional Quality Rating – This is completed following the observation. Ratings are based on entire observation period, not individual events.
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Adapted I.C.E.-R.

Overall Student Engagement Rating – This is completed following the observation. Ratings are based on entire observation period, not individual events.
Dimensions or activities should last at least 1 min in order to be coded as a separate instructional event.

<table>
<thead>
<tr>
<th><strong>Dimension A</strong></th>
<th><strong>Descriptors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phonological awareness</td>
<td>The ability to recognize the sounds in spoken language and how they can be segmented (pulled apart), blended (put back together), and manipulated (added, deleted and substituted).</td>
</tr>
</tbody>
</table>

Characterized by:

- Absence of print; based on spoken language
- Rhyming
- Blending or segmenting sentences/
- Syllables
- Onset rime
- Blending or segmenting phonemes
- Isolation tasks
- Comparison tasks such as matching sounds in similar positions, identifying words that contain a particular letter or sound (EX: baby and banana start with the same sound)
- Any other manipulation of sounds, such as alliteration activities, deletion or substitution of phonemes.
# Documentation of Teaching Practices

**Adapted I.C.E.-R.**

<table>
<thead>
<tr>
<th>Dimension A</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2. Phonics/Word Recognition</strong></td>
<td>The alphabetic principle (AP) is the idea that letters represent sounds of spoken words and letters can represent sounds in a sequence. Examples include:</td>
</tr>
<tr>
<td></td>
<td>• Teaching letter/sound relationships</td>
</tr>
<tr>
<td></td>
<td>• Providing opportunities for application of letter/sound knowledge to reading/writing/spelling</td>
</tr>
<tr>
<td></td>
<td>• Teaching irregular words</td>
</tr>
<tr>
<td></td>
<td>• Word reading</td>
</tr>
<tr>
<td></td>
<td>• Other instruction aimed at strategies for reading words, such as telling students words while reading texts.</td>
</tr>
</tbody>
</table>
### Documentation of Teaching Practices

**Adapted I.C.E.-R.**

<table>
<thead>
<tr>
<th>Dimension A</th>
<th>Descriptors</th>
</tr>
</thead>
</table>
| **3. Fluency** | Students read aloud to develop speed, accuracy, or intonation.  
NOTE: The INTENT is on improving how quickly and accurately students read words. The intent is not necessarily understanding what is read. Reading aloud is not necessarily fluency.  
Examples include:  
- Letter or sound naming fluency  
- Word fluency  
- Repeated reading of text  
- Other activities include instruction aimed at developing speed and accuracy, such as students listening to books read aloud with the intent of modeling speed, accuracy and intonation (could be teacher, computer, or books on tape), silent reading with the stated purpose of developing speed or accuracy, or incidental comments made by teacher during reading about reading with more speed. |
### Dimension A

<table>
<thead>
<tr>
<th>4. Vocabulary/Oral language development</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students have the opportunity to develop their print or oral language in the context of reading or discussion. Focus is on meaning of words or concepts or speaking to communicate meaning.</td>
<td></td>
</tr>
</tbody>
</table>

For example:

- Children are taught vocabulary words directly
- Development of students’ understanding of words or concepts
- Vocabulary acquisition is embedded in other instructional events
- Categorizing words such as naming the items or activities associated with a special place (e.g., beach)
- Students use context knowledge to confirm meaning
- Vocabulary consists of word lists, story words
- Teacher and students engage in discussion about words, books, songs, or relevant topics focused on meaning of words or concepts
### 5. Comprehension

Instruction focused on understanding the meaning of written or oral text. This includes instruction and practice in using comprehension strategies and demonstration of comprehension abilities.

Examples include:

- **Prior knowledge/predicting**
- **Reading comprehension monitoring**, including:
  - during or after reading, students answer questions generated by teacher or student
  - teacher and students discuss or respond to reading
  - students discuss elements not explicitly found in the text
  - students retell a story
  - students summarize a story’s main events
  - students identify the main idea
  - students put story events into a sequence
- **Listening comprehension monitoring** (the focus is comprehension of text read aloud by someone else when students do not have text copy).
- **Comprehension strategy instruction/use**
  - Students are taught specific comprehension strategies (e.g., being taught to reread passages that don’t make sense, highlight important ideas, use structural cues, self-monitoring of comprehension, questioning strategies, metacognitive strategies)
  - Students practice using comprehension strategies such as searching for clues, asking for help, rereading passages
  - Students use graphic or semantic organizers to make representations of material and assist in comprehension
  - Students learn to use story structure to facilitate comprehension and recall
  - Students categorize text (i.e., fiction/non-fiction, genre, purpose)
  - Students involved in the identification and understanding of story elements such as plot, character, and setting
  - Students instructed in text features such as cause/effect, fact/opinion
<table>
<thead>
<tr>
<th>Dimension A</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Students are taught to integrate ideas and make generalizations from text o Other instruction involving getting meaning from the text</td>
<td></td>
</tr>
</tbody>
</table>

6. Spelling
Students are learning to remember and reproduce conventional spelling, (e.g., spelling lists & lessons; if the intent is letter/sound correspondence, it should be coded 2. Phonics/Word Recognition).

- Differs from phonics in that the task of the student is writing or orally spelling words in response to dictated words
- Study and/or practice of a particular spelling pattern (EX: patterns like “ll” as in “doll”) *differs from phonics instruction in its intent, to remember and reproduce conventional spelling

7. Text Reading
Students engage in silent or oral reading, either with class, small group, one-on-one, or individually, with no other category of instruction occurring.

Examples include;

- Supported oral reading or choral reading
- Independent silent reading or independent oral reading
- Teacher reads aloud, and students listen or read along
- Students listen to books read aloud on computer or tape with minimal emphasis on instruction.
- Singing or chanting a known pattern or song with text (it is difficult to know if students are really “reading” the text or just singing the memorized words to the song)
### Dimension A

<table>
<thead>
<tr>
<th><strong>8. Grammar</strong></th>
<th>Students are learning to understand how sentences are constructed. They are learning morphology and syntax.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Teaching nouns verbs etc</td>
</tr>
<tr>
<td></td>
<td>• Diagraming sentences</td>
</tr>
<tr>
<td></td>
<td>• Teaching punctuation</td>
</tr>
<tr>
<td></td>
<td>• Subject verb agreement</td>
</tr>
<tr>
<td><strong>9. Writing</strong></td>
<td>Students are engaging in activities to plan or write text. This can be in any genre but is distinct from writing within other activities (e.g. answering an essay question on a test)</td>
</tr>
<tr>
<td></td>
<td>Examples Include:</td>
</tr>
<tr>
<td></td>
<td>• Hand writing</td>
</tr>
<tr>
<td></td>
<td>• Planning and brainstorming writing</td>
</tr>
<tr>
<td></td>
<td>• Discussing writing genres</td>
</tr>
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<td>• Writing text</td>
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<tr>
<td><strong>10. Other Academic Instruction</strong></td>
<td>• Non-literacy, academic activities</td>
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<td>• Calendar</td>
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<tr>
<td><strong>11. Non-instructional Time</strong></td>
<td>• Non-academic activities</td>
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<td>• Transitions</td>
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</table>
### Dimension A

<table>
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<tr>
<th>Descriptors</th>
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</thead>
<tbody>
<tr>
<td>Redirecting student</td>
</tr>
<tr>
<td>Discussing behavior with student</td>
</tr>
<tr>
<td>Reviewing rules and expectations</td>
</tr>
<tr>
<td>Praising students for positive behavior</td>
</tr>
</tbody>
</table>
**Documentation of Teaching Practices**

**Adapted I.C.E.-R.**

**Dimension B: INSTRUCTIONAL GROUPING**

* code only formal structures arranged by the teacher, not informal or incidental grouping

1. Whole class (not to be used for intervention)  
   - the entire class is involved in the same activity or assignment.

2. Small group  
   - class is working in 2 or more groups, with 3 or more students per group  
   - could be teacher working with a group of 2 or more students  
   - although the seating arrangement of the classroom may be affected by group activities, this item relates to student interaction in a group, not seating arrangement

3. Pairing  
   - class is working in groups of 2  
   - one child acts as a peer tutor to another student  
   - most of the students are working in pairs  
   - students are in groups of two to share notes, tutor, or work on an assignment/activity

4. Independent  
   - students are engaged individually in an activity/assignment like others in the class (help-seeking behaviors may be observed between students but they are not working in a group)
5. Individualized (differentiated)  
   - students work on differentiated assignments  
   - students are not involved in pairing or group activities and are working individually on differentiated assignments  
   - teacher works individually with a student for 5 minutes or more

6. Tutoring  
   - Teacher or tutor only has one student in their instructional group for the entire instructional period.
ICE-R Quality Indicators and Descriptions

<table>
<thead>
<tr>
<th>4</th>
<th>Excellent</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Average</td>
<td>Low Average</td>
<td>Weak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher uses language that is direct and explicit.</td>
<td>Teacher inconsistently uses language that is direct and explicit.</td>
<td>Teacher uses language that is indirect and implicit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Models many examples</td>
<td>Provides some examples.</td>
<td>Provides no models or demonstrations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides sufficient and varied opportunities for practice.</td>
<td>Provides many opportunities for practice with little variation. Practice opportunities do not seem to be based on student need.</td>
<td>Provides insufficient opportunities for practice with no variation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Documentation of Teaching Practices

### Adapted I.C.E.-R.

<table>
<thead>
<tr>
<th>Provides immediate and corrective and descriptive feedback.</th>
<th>Provides inconsistent feedback.</th>
<th>Provides little feedback that is nonspecific or no feedback.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusts time to meet student needs.</td>
<td>Uses time appropriately, but use does not seem based on student need, yet still seems adequate for given activity.</td>
<td>Demonstrates poor use of time that is not differentiated and unrelated to student need or task difficulty.</td>
</tr>
<tr>
<td>Constantly monitors student performance.</td>
<td>Monitors some students or monitors all students for some activities.</td>
<td>Demonstrates lack of monitoring or monitoring very few students.</td>
</tr>
<tr>
<td>Encourages high student engagement and time on task.</td>
<td>Encouragement of student engagement and time on task varies.</td>
<td>Does not encourage student engagement and time on task.</td>
</tr>
<tr>
<td>Scaffolds tasks and materials to meet student needs.</td>
<td>Uses scaffolding inconsistently and does not always tailor it to student needs.</td>
<td>Scaffolds inappropriately or insufficiently.</td>
</tr>
<tr>
<td>Uses appropriate pacing, including wait time.</td>
<td>Uses inconsistent pacing that varies between appropriate at times to “too fast”</td>
<td>Demonstrates poor pacing, either too slow or</td>
</tr>
</tbody>
</table>

-12-
<table>
<thead>
<tr>
<th>Documentation of Teaching Practices</th>
<th>Adapted I.C.E.-R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher differentiates instruction to meet the varied needs of his/her students</td>
<td>or “too slow” and provides insufficient wait time.</td>
</tr>
<tr>
<td>Teacher provides one or two differentiated options for students but most instruction is whole group.</td>
<td>too fast with no wait time provided.</td>
</tr>
<tr>
<td>Teacher provides support and accommodations when necessary to student/s</td>
<td>All of the instruction is to the whole class with no attention to individual students needs</td>
</tr>
<tr>
<td>Teacher gives some positive feedback and has some rapport with some of her students</td>
<td>Teacher exhibits a rapport with students by focusing on positive student behavior and giving a lot of positive students feedback with minimal attention to negative behavior.</td>
</tr>
<tr>
<td>The teacher focuses more on negative behavior and gives little positive feedback.</td>
<td>Classroom management system is applied inconsistently; some students are unclear of behavioral expectations</td>
</tr>
<tr>
<td>Classroom management system is unclear to students or is not applied by teacher.</td>
<td></td>
</tr>
</tbody>
</table>
Note: Teachers must meet most of the observable indicators to be coded in a particular category (i.e. If a teacher is rated as excellent in 3 categories, and high average in 1, the overall rating would be excellent. However, if the behavior that is rated as average is the most salient or frequently observed behavior for a particular lesson or activity, the overall rating for that category should be adjusted.) Remember to base ratings only on observable behaviors relative to lessons and activities.
Documentation of Teaching Practices

Adapted I.C.E.-R.

Field Notes

Qualitative descriptions of the reading and behavior instruction and intervention for the targeted observed students.

Name and describe the reading language arts curriculum provided to the target child (materials and tier).

Name and describe the reading language arts intervention used for the target child (materials and tier).

Describe the targeted students’ behavior management system. (e.g., Is the classroom management system obvious to you as an observer? For example, are the rules and expectations posted? Is there a classroom schedule?, Are there individual points sheets or behavior management supports?)

Other: If you observe a social emotional support program in place (for example “Mindset”), or if you observe a teacher doing something unusual- ask her what it is and if it is a program, what it is and its purpose? The purpose of this is to help us get a sense of some practices that might be associated with oral reading fluency related to other practices.
Rules for Determining Quality Indicators

Use the following guidelines for assigning quality indicators for each instructional event or activity.

1. The majority determines the quality rating

   - Rating should be based on observable behavior using professional judgment, not inferences.
   - The framework for thinking about teacher quality is based on the assumption that a teacher who falls into the “Excellent” category is one who addresses the needs of a struggling reader.
   - A rating of high average, low average or weak represents the degree to which a teacher deviates from this standard. For example, a teacher who is rated low average may be an effective teacher for most students, but is not addressing the needs of struggling readers.

2. Assignment of “Low Average” or “High Average”

   - Low average: Some indicators under “weak” are present, but the majority fall under “average.”
   - High average: Some indicators under “excellent” are present, but the majority fall under “average.”
   - Special consideration: If a teacher meets a majority (5) of indicators under “weak” and all others under “excellent,” the teacher’s rating would be “low average” for that event.

3. Assignment of “Weak” or “Excellent”
To clearly assign either of these extreme ratings, almost all (or super majority) of indicators must fall within the excellent or weak range.

Considering how closely the teacher meets the needs of a struggling reader makes the distinction between excellent and high average.

4. Situation: All indicators fall within “average” column

- Professional judgment should be used to determine whether to rate as low or high average.
- Remember to keep the struggling reader in mind.
- If the teacher has farther to go to meet the needs of the struggling reader, rate as low average.
Indicators of Engagement (not coded for intervention)

*count students as engaged if they are following along or focused on activity, but not necessarily vocally participating.

3 **High engagement** = almost all students are actively engaged throughout the lesson (reading, writing, listening, talking about a relevant topic)

2 **Medium engagement** = most students are actively engaged throughout the lesson (reading, writing, listening, talking about a relevant topic)

1 **Low engagement** = More than half staring out the window, engaging in idle chatter, fiddling with materials, inappropriately moving about the classroom throughout the lesson