

EXPLORING THE USE AND IMPLEMENTATION  
OF THE CATT INTERVENTION SYSTEM

by

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The aim of this thesis was to determine if the CATT Intervention System was effective in enhancing the skills of one student to prevent referral to special education and overcome learning barriers related to reading. A case study was compiled with data from three separate measures to determine if the CATT Intervention System was effective at improving the case study student's barriers to learning in the subject of reading. When results from the case study student were analyzed, it was difficult to find progress that would indicate he was reading at grade level. While the data collected in regards to him was inconclusive, his teacher and support staff at the school believed that he made enough progress to not require a referral to special education.

In addition, this thesis examines teacher perspectives as to the effectiveness and use of the system within a classroom, as well as if the documentation and training provided are believed to be comprehensive and efficient. The CATT Intervention System is a system for general education teacher use that helps teachers identify specific student barriers to learning, identify appropriate classroom and/or individual intervention strategies, provides equipment if appropriate, and incorporates a progress monitoring system to determine intervention effectiveness. It was implemented in both the 2010-2011 and 2012-2013 school years, and surveys to examine teacher perception were completed at the end of each year. The results from the survey indicate that the

teachers believed the intervention system was easy to use, yet teachers did not believe it reduced special education referrals or that the documentation provided by the CATT Intervention System was helpful or easy to use. This may have been related to the training provided prior to using the system, as teachers believed that it did not appropriately address how to use the system. Despite these results, teachers believed that the CATT Intervention System was effective at improving student success. Further research must be conducted in order to further support the research questions presented in this survey study and the ability of the CATT Intervention System to improve a student's ability to be a successful learner within a classroom.



Exploring the Use and Implementation of the CATT Intervention System

A Thesis

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by

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## CHAPTER 1: INTRODUCTION

With a rise in diagnoses of learning disorders, as well as increasing special education referrals, many educational professionals are looking for a way to enhance a student's learning process within the classroom rather than being self-contained in a special education classroom. Response to Intervention (RtI) is an approach that bridges the gap between general education teaching and special education intervention services, yet there are many students who are not achieving identified benchmarks within this model. This occurrence may be due to teaching methods that lack individualization, as well as teachers feeling ill prepared to teach students with learning barriers (National Center for Education Statistics, 1999). To increase the success of RtI in adapting a student's environment, the Classroom Accommodations Techniques & Tools (CATT) Intervention System was designed to allow a teacher, in conjunction with the school's intervention team, to select appropriate evidence-based intervention methods and track the student's progress. The support offered by the CATT Intervention System, if effective, should reduce inappropriate special education referrals and increase student success in the educational environment.

The original intent of this study was to explore the effectiveness of this new RtI compatible intervention system in increasing student performance within the classroom as indicated by performance data across an entire school utilizing the system; however, compliance with research methods was very limited. Unfortunately, teachers from the school participating in the study did not use the system as directed, as proper documentation was not performed while utilizing product interventions from the CATT Intervention System. The focus of this study changed to include a single case study that met the inclusion criteria and a survey component was added to determine the teacher perceptions of the system to help identify barriers to correct

implementation. The case study was included to explore changes in a student who received interventions through the CATT Intervention System that were documented by the teacher. The survey of teachers collected their opinions on the use of this system with the hope that the teachers found the system to be beneficial for their students and easy to use in their classrooms. This pilot study provided information on the use and implementation of the CATT Intervention System within a school using several approaches.

## **CHAPTER 2: LITERATURE REVIEW**

In 2004, changes to the Individuals with Disabilities Education Improvement Act (IDEA) called for a school reform that included increased evidence-based instruction, student evaluation, and improved learning disability identification (Harlacher, Walker, & Sanford, 2010). Response to Intervention (RtI) was developed as a system to establish components, procedures, and criteria of identifying students with learning disabilities within the classroom setting (Mellard, Byrd, Johnson, Tollefson, & Boesche, 2004). Specifically, RtI works to ensure that the teaching methods are of high quality to promote success with students instead of inaccurately labeling students as having a disability when the deficiency was with the instruction and not the student (Fuchs, Fuchs, Compton, Bouton, Caffrey, & Hill, 2007). Harlacher et al. (2010) stated, “Conceptually, RtI is an approach to providing services to students that matches the students’ level of academic need to a corresponding level of instruction” (p.30).

### **Response to Intervention**

Response to Intervention has become a large focus of educational reform within the United States. Since being coded into federal law as a method for learning disability identification within the 2004 revision of IDEA, RtI has been implemented into school policy in all 50 states (Fuchs & Vaughn, 2012; Bradley, Danielson, & Doolittle, 2005). Originally implemented for K-3 instruction and intervention in the area of reading, RtI has since been expanded to the full range of elementary grade levels and academic areas (Fuch et al., 2007). RtI is composed of four separate components: screening, progress monitoring, research-principled general education instruction, and supplemental intervention (Fuchs & Vaughn, 2012; Bradley et al., 2005).

Screening is intended to identify students at risk for learning barriers and is extremely important for correct implementation and success within the RtI model (Hughes & Dexter, 2011). Screening is typically performed at three points throughout the year and aims to discover a students target skills in the areas of reading, writing, math, and behavior (Hughes & Dexter, 2011). According to the American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs (2013), progress monitoring is used throughout implementation of the RtI model to "assess academic performance, to quantify a student rate of improvement or responsiveness to instruction, and to evaluate the effectiveness of instruction" (Progress Monitoring section, para. 1). Progress monitoring assists in helping the implementer of an intervention to maintain fidelity in the implementation and selection of evidence based interventions, and it is crucial for instructional decision-making in response to intervention implementation (American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs, 2013). This monitoring offers a comparison of the student's rate of learning to the local or national norm for learning expectations (Hughes & Dexter, 2011).

Both the research-principled general education instruction and the supplemental intervention are utilized in a tiered system in order to determine the appropriate level of intervention a student requires for satisfactory classroom performance and achievement. This model focuses on prevention of difficulties and endorses data-based decision making through progress monitoring, as well as a collaborative team effort (Clark, Brouwer, Schmidt, & Alexander, 2008). RtI tiers are most often introduced due to deficits with fine motor skills, handwriting, organization tasks, sensory tasks for attention and behavior, cognitive processing, and processing tools (Mellard et al., 2004). RtI can be implemented with 3-5 tiers, with most school systems choosing the three-tiered approach (Fuchs et al. 2007).

The initial tier, commonly called Tier 1, begins with changes to the environment and teaching methods that would be considered to be most valuable for improving the entire population's function (Mellard, et al., 2004). The hope of this core, classroom instruction tier is to improve total classroom performance by all students with the most efficacious environment and evidence-based teacher interventions (American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs, 2013; Fuchs & Vaughn, 2012). These interventions are not made in response to any one student; rather, the primary level is aimed to provide high quality core instruction within a school (American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs, 2013; Fuchs & Vaughn, 2012). This indicates that all students receive Tier 1 instruction and experience a universal screening approximately three times a year. At-risk students may also undergo monthly progress monitoring at this tier (Hughes & Dexter, 2011). Examples of such interventions are rearranging classroom furniture, decreasing classroom noise, playing relaxing music, dimming lights, or providing a classroom schedule. Part of this tier of RtI focuses on the screening of each student in a classroom as well; if a teacher notes that a particular student is not thriving within this enriched environment, that student should begin to receive interventions from Tier 2 (Clark, Brouwer, Schmidt, & Alexander, 2008).

Tier 2 is composed of an increase in the intensity of variables, such as the frequency with which instruction is provided, length of time an intervention is provided, and duration (Mellard et al., 2004). This moderate-intensity level includes evidence-based interventions geared to improving a student's success within the classroom when that student has not met grade-level expectations (American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs, 2013; Fuchs & Vaughn, 2012). Approximately 10-20% of students



receive some Tier 2 intervention with weekly monitoring of their progress (Hughes & Dexter, 2011). To be effective, interventions at Tier 2 are explicit and methodical. These interventions typically occur from 3 to 4 days a week for at least 20 minutes a day, in small group sizes with a focus on specific skills the students need (Fuchs & Vaughn, 2012). Second tier interventions may include having an individual schedule for easy access, a special number line on a student's desk, using noise-cancelling headphones in class, or providing extra time for transitions.

Tier 3 is implemented when neither the first nor the second tier increases a student's performance to a satisfactory level. Tier 3 includes targeted and intensive services by highly trained educators and may include smaller instructional groups (Harlacher et al., 2010). In some schools, this tier may begin to introduce some traditionally special education services (Bradley, Danielson, & Doolittle, 2005). Of all students, approximately 5-10% will receive interventions at this tier, while it is estimated that 2-7% of all students will receive a special education referral after not showing progress at Tier 3 (Hughes & Dexter, 2011).

When a teacher observes that a student is not being successful within the general education curriculum due to either behavioral or academic learning barriers, different interventions within the RTI framework are used according to protocol that is identified by the school or school district (Daly, Martens, Barnett, Witt, & Olson, 2007). In the standard protocol, the nature of instruction and length of instruction at each tier are fixed, often 8 to 10 weeks (Fuchs et al., 2007, Hughes & Dexter, 2011). The intervention components only change when a student does not respond to the initial interventions in a given amount of time and must advance to the next tier. In theory, this means that a student could potentially fail across three tiers for 30 weeks before the student is referred to special education (Fuchs et al. 2007). The problem with fixed tiers can be further complicated by a single screening process, in which the student is

progressed into the tiered system based on a brief, one-time universal screener (Fuchs & Vaughn, 2012; Hughes & Dexter, 2011). In effect, a student may be required to participate in lower tier interventions that prove to be inadequate for their level of need or a student could receive unnecessary and costly intervention services (Fuchs & Vaughn, 2012). When discussing students who continue to struggle with reading, Lipson, Chomsky-Higgins, and Kanfer (2011) state, “These students need more tailored instruction that is responsive to their specific strengths and areas of need” (p. 204). These authors continue to discuss how screening measures are often quite general and do not provide the information needed to determine the most appropriate intervention or instruction for a particular student’s needs (Lipson, Chomsky-Higgins, & Kanfer, 2011).

The implementation of interventions has also shown to be difficult for many schools, as implementers of RtI have had difficulty operationalizing responsiveness. This is primarily occurring because various systems of progress monitoring are being researched to find appropriate data-collection for each subject area (Fuchs & Vaughn, 2012). Appropriate progress monitoring would allow for teachers to recognize how to optimize the timing of instructional changes for their students with learning barriers, but because RtI is used across all subjects, a comprehensive progress monitoring system is not being utilized (Fuchs & Vaughn, 2012). Unfortunately, many teachers are also not relying on a definition of unresponsiveness; rather, they are basing their intervention implementation on informal judgments about student responses (Fuchs & Vaughn, 2012). This prevents teachers from making correctly informed decisions in order to begin the most efficacious, evidence-based intervention (Fuchs & Vaughn, 2012).

While the standard protocol contains the intervention strategies and implementation periods that are believed to be most efficacious, these strategies unfortunately do not help every

student that needs additional assistance within the classroom. The lack of success with a given standard protocol could be due to the lack of individualization of the protocol's interventions (Harlacher, Walker, & Sanford, 2010, Fuchs & Vaughn, 2012). This has been noted in particular in Tier 2, as school districts have begun to implement standardized approaches that are comprised of packaged interventions. These allow the school to document what content students have been taught with increased efficacy, as well as to better use school resources and monitor the fidelity of the intervention implementation (Fuchs & Vaughn, 2012). Unfortunately, by not catering interventions to an individual student, the student may begin to receive interventions that do not adequately address his/her specific needs. A new tool named the Classroom Accommodations Tools & Techniques (CATT) Intervention System (Schulken, 2010) has been developed to help to increase the individualization of interventions within the classroom with the intention of improving overall student success. It is believed that teachers will find that the CATT Intervention System is effective, easy to implement, and comprehensive in both providing interventions and teacher support.

### **The CATT Intervention System**

The CATT Intervention System, is a comprehensive system for general education teacher use that helps teachers identify specific student barriers to learning, identifies appropriate classroom and/or individual intervention strategies, provides equipment if appropriate, and incorporates a progress monitoring system to determine intervention effectiveness (Schulken, 2010). The CATT Intervention System was developed by an occupational therapist and can be used within a school using the RtI method. This center supplies a teacher with strategies and interventions that may be used within the RtI framework in order to increase a student's performance within the classroom. When a school purchases the CATT Intervention System, the developer provides training so that

teachers and staff are aware of how to use the system, especially in regards to how to choose and implement intervention strategies. These strategies may help students improve performance in 14 different areas: work habits/behavior, organization, test taking, note taking, handwriting, written expression, reading, math, science, social studies, physical education, art, music, and keyboarding/technology. The CATT Intervention System contains evidence-based interventions that can be organized into seven categories of tools. These seven areas are teaching strategies, handwriting tools, fine motor equipment, organization tasks, sensory tools for attention and behavior, cognitive solutions, and processing tools (Schulken, 2010).

The CATT Intervention System addresses these 14 areas by incorporating intervention tools and strategies that help to address both student academic and behavioral barriers, particularly through the identification of underlying sensory and praxis deficits. This thesis will focus on those barriers to learning related to oral language skills. The CATT Intervention System was created to work effectively within the RtI model in any tier. However, the purpose of this study is to examine its effectiveness at the Tier 2 level of teaching. Preliminary data from survey research during a pilot year of implementation indicated that both administrators and teachers have expressed important enhancements to teaching methods, improved documentation, faster implementation of interventions, and improved confidence with addressing student needs (Donica, 2012). It was hypothesized that the use of the CATT Intervention System is effective in increasing student academic and behavioral performance within the classroom as indicated by change in performance rating as compared to students who were in the school's existing intervention program. It was also suspected that the existing CATT Intervention System would be found to be beneficial by teachers to use in their classrooms for assistance with addressing learning barriers and making confident referrals for special education.

## **Use of CATT Intervention System**

Response to Intervention has been implemented within school systems to increase student outcomes, yet the intervention protocols are lacking in individualization. The CATT Intervention System's intervention techniques, tools, and strategies may help to bridge the gap between identifying a student's need and helping them to succeed within a classroom. If effective, the CATT Intervention System could be utilized within individual schools to identify and assist students before they progress to Tier 3 of RtI and are already experiencing failure. The original study was to explore the effectiveness of this system collecting cases in which it was implemented correctly within the pilot school. However, due to the challenges in collecting this data, the focus of the study changed to revolve around the questions below. This study collected data from a case study to explore the effectiveness of the intervention system, as well as a survey to further identify the perceptions of the teachers that received training to use it, and those who actually implemented the new system. The following questions were explored:

1. Is the CATT Intervention System effective in enhancing the skills of one student to prevent referral to special education and overcome learning barriers related to reading?
2. Do teachers believe that the CATT Intervention System is effective at improving student success within the classroom?
3. Do teachers believe that the CATT Intervention System decreased special education referrals and/or made the referral process easier for students who still required special education?
4. Do teachers believe the documentation utilized within the CATT Intervention System

is comprehensive and easy to use within the classroom?

5. Do teachers believe that the training they received on the CATT Intervention System enabled them to utilize the system, interventions, and documentation appropriately?

The first research question was explored through a case study, while questions 2-5 were answered based on survey data from a pilot study.

### CHAPTER 3: RESEARCH METHODS

Both a case study and a survey were implemented for this thesis. The case study was examining the use of the CATT Intervention System in enhancing the skills of one student and a survey was used to determine the teacher use and perceptions of the system.

#### **Study 1 – CATT Intervention System Effectiveness**

**Design.** The first research question addressed by this thesis was if the CATT Intervention System was effective in enhancing the skills of one student to prevent referral to special education and overcome learning barriers related to reading. The researcher compiled data for a case study from the 2012-2013 school year in which she examined a student's performance before and while receiving interventions to provide support for the efficacy of the CATT Intervention System in overcoming his reading difficulties.

**Subject.** During the 2012-2013 school year, the CATT Intervention System was implemented in a Title 1 elementary school in a town in rural eastern North Carolina that had approximately 700 PreK-5 students. This public elementary school used RtI practices only for special education referrals with the hopes of making a school-wide implementation of RtI in the near future. The school received the CATT Intervention System, as well as training, in exchange for participation in the study (valued at \$11,800).

To be included in the case study element of this study, a student must have received interventions from the CATT Intervention System and appropriate documentation of intervention implementation for at least 10 weeks. This amount of time was including the gathering of baseline data, or three observations for both a student with learning barriers and a typical peer, during the same time and activity to ensure that the observations were representative of the student's ability. The typical peer observation or an expected standard of achievement (for some

standards based on academic testing) is used as the goal for the student receiving interventions through the CATT Intervention System. After collecting this baseline data, progress was monitored 2-3 times a week until six observations total (in approximately two weeks) had been gathered. This ended the first trial period and the student's progress was graphed. These trial periods of six observations continued as long as the student was making progress towards the goal.

When selecting a case study, students who were already receiving special education services for a given learning barrier through an IEP or 504 Plan were excluded. Furthermore, to ensure that the student had been properly evaluated and received treatment under the CATT Intervention System, students who began the CATT Intervention System process less than 10 weeks prior to the end of the study were also excluded to ensure that there was adequate time for baseline data collection and intervention. While other students throughout the school received interventions to the full ability of the CATT Intervention System, the only student meeting the inclusion criteria was receiving interventions related to the oral language area only.

A teacher helped identify a student for CATT Intervention System services with the support of the CATT Intervention Team. The CATT Intervention Team was a specialized group who acted as a resource for any teacher who used the CATT Intervention System. At the participating school, this group was comprised of the school's principal, assistant principal, psychologist, and two counselors. These individuals provided support and assistance to any teacher utilizing the system within the elementary school and were considered the "experts" within the school.

Prior to the use of the CATT Intervention System, this school utilized an approach based on RtI to provide interventions and referrals to students with learning barriers. Teachers would



identify when a student needed additional assistance and go to an assigned school counselor to receive a “Tier 1 Packet.” This packet provided information and data tracking tools for the teacher to monitor a student’s progress with an intervention that the teacher selected. The teacher could access simple lists of interventions to utilize with a student with learning barriers from notebooks held by the counselor. These notebooks were not divided into individual learning barriers and the teacher was responsible for reviewing the entire notebook and selecting which intervention they believed would be best for a specific student without any assistance. Tier 2 was provided by the teacher and was comprised of increased intervention with collaboration with the student’s parent and the school counselor, while Tier 3 was the start of the special education process.

Student data collected for the case study was from a 2<sup>nd</sup> grade male student who was selected by the CATT Intervention Team. This student was from a convenience sample, as he was the only student who met the criteria for inclusion within the study. The student’s classmates were 8 male students and 12 females, for a total of 20 students (21 including the student). These students were used in the calculation of aggregate scores within some of the outcomes. In addition to the CATT Universal Screening and CATT Intervention System Progress Monitoring, data were collected from the student’s performance outcomes on a measurement system utilized by the school called *mCLASS:Reading 3D*.

### **Instrumentation.**

#### ***CATT Universal Screening***

To measure the efficacy of the CATT Intervention System with this student, data were collected from teacher report using the CATT Universal Screening (Schulken, 2010). The CATT Universal Screening was developed to determine a student’s learning barriers in four of the areas

that may be addressed by the CATT Intervention System: work habits/behavior, organization, oral language, and handwriting. This screening was provided to the student's elementary school during the 2012-2013 school year. All teachers at the participating elementary school were asked to complete this screen in an online format through Qualtrics for each student at three points throughout the school year: October 2012 (First Administration), January 2013 (Second Administration) and May 2013 (Third Administration). The screening tool identified if a student was struggling in an area by having the teacher indicate if the student was unable to perform a given task at least 50% of all tries throughout a day. This area would then be considered a learning barrier. To overcome a learning barrier and demonstrate improvement, the student would need to be able to successfully perform the task greater than 50% of the time. The student's performance as reported by the teacher was recorded for each CATT Universal Screening and compared over time. It also indicated if an IEP or 504 were currently in place and addressing this barrier and if the learning barrier was impacting academic performance or behavior. Lastly, the teacher selected three of the identified learning barriers as the top priorities to address with intervention.

All teachers attended a training seminar held on September 21, 2012 by the researcher on how to complete the CATT Universal Screening to increase compliance and understanding of using this tool. The same teacher completed this screen for the same student for the duration of the research period, thus reducing concerns over inter-rater reliability. The external validity of this measurement could be increased through many replications of this study, as well as a controlled, randomized trial once more resources and participating schools can be obtained. The screening results were intended to be a tool for use by school staff to determine students who have identified learning barriers so as to begin them in the CATT Intervention System process.

However, the school faculty never systematically accessed or reviewed these results for their own use.

The case study student was identified by the CATT Universal Screening as having learning barriers in the following areas: being distracted by noise, behavior/social skills, appropriate responses to social physical contact, lying/cheating/stealing/destroying property, self-confidence, appropriate responses to verbal information, oral expression, and reading aloud with grade-level fluency and expression. His teacher identified reading aloud with grade-level fluency and expression, appropriate responses to verbal information, and oral expression as this student's highest priority barriers to learning.

***mCLASS:Reading 3D.***

The school that this case study student attended was located in North Carolina, a state that recently implemented *The Read to Achieve* program. This program is part of the Excellent Public Schools Act, which became law in July of 2012 with the intention of all schools utilizing the components of the program by the 2013-2014 school year (Public Schools of North Carolina, 2013). The *Read to Achieve* program trained and paid for all schools within North Carolina to use *mCLASS:Reading 3D* in all K-3 classrooms while utilizing critical components of RtI (Public Schools of North Carolina, 2013; Wireless Generation, 2013).

The measure, *mCLASS:Reading 3D*, is an on-going, formative and diagnostic assessment system that assists with the tracking of a student's progress with reading at three benchmark periods (Public Schools of North Carolina, 2013; Wireless Generation, 2013). This assessment is completed on a wireless touch-screen device and integrates both the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next assessment and Reading Records, commonly called

Text Reading and Comprehension (TRC) (Public Schools of North Carolina, 2013; Wireless Generation, 2013).

Reading Records, or TRC, is an early reading assessment for grades K-2 that assists teachers in understanding a student's reading development. It is based upon a theory by Marie Clay that a teacher can better teach a student to read by understanding the types of errors the student makes and helping the student to acquire the missing skills (Wireless Generation, 2013). Data by the publisher suggests that benchmarks provided by TRC are both internally and externally valid and predictions made by these benchmarks are accurate (Wireless Generation, 2013).

DIBELS Next is an assessment composed of “six measures that function as indicators of the essential skills that every student must master to become a proficient reader” (Dynamic Measurement Group, 2013, DIBELS Next section, para. 2). This assessment was designed to be used within the RtI model as part of an initial universal screening and has demonstrated evidence of being reliable and valid (Dynamic Measurement Group, 2013). The basic six early literacy measures that encompass DIBELS Next include: First Sound Fluency (FSF), Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), Daze, and 6 levels of DIBELS Oral Reading Fluency (DORF).

The benchmark goals provided by DIBELS Next are used to determine where a student should perform to meet present and future reading outcome goals (Dynamic Measurement Group, 2013; Dynamic Measurement Group, 2010). These goals are empirically driven and criterion-referenced to ensure that the predictions made by each benchmark do indeed indicate that the student is likely to “achieve later reading outcomes if he/she receives research-based instruction core from a core classroom curriculum” (Dynamic Measurement Group, 2010, p.1).

Once a student's skill level has been identified, this predictive benchmark provides the level of support a student is likely to need in order to achieve subsequent benchmarks. A "cut point for risk" is also identified within this benchmark system as an indicator of the level of skill in which a student is unlikely to achieve subsequent reading goals without receiving a significant amount of targeted support (Dynamic Measurement Group, 2010). The benchmark goal is determined with the use of the DIBELS Composite Score, which is a combination of multiple DIBELS scores and is the best overall estimate of a student's skills.

If a student is at or above the benchmark goal, the student will only need to receive the same core instruction that is recommended for all students and is 80-90% likely to achieve the subsequent goal. If the student is below benchmark, but at or above the cut point for risk, he or she will likely require strategic support and has a 40-50% chance of meeting the next benchmark (Dynamic Measurement Group, 2010). Strategic support is identified as the teacher targeting additional support in the skill areas a student is having difficulty in, as well as regularly monitoring their progress and increasing the level of support based on the student's progress. The students who score below the cut point for risk only have 10-20% odds of meeting the subsequent early literacy goals and will require intensive support to meet the next benchmark (Dynamic Measurement Group, 2010). Intensive support includes interventions that incorporate additional targeted strategies into the existing core curriculum, as well as frequent progress monitoring and the adaptation of interventions based on the student's progress. Examples provided by Dynamic Measurement Group, Inc. include delivering instruction in a smaller group, providing additional practice or instruction, or providing greater scaffolding and practice of skills (2010).

The case study student was specifically identified by his teacher as having learning barriers to reading aloud with grade-level fluency and expression, so the DIBELS Oral Reading Fluency (DORF) subtests of the DIBELS were selected to measure this student's progress in regards to this research study. There are three separate DORF subtests: DORF Fluency, DORF Accuracy, and DORF Retell. DORF Fluency reports the ability of a student to read words correctly and perform the preskills of the task quickly and effortlessly (Dynamic Measurement Group, 2011). This subtest involved having the student read a passage for a minute and counting the number of words read and the errors made. Errors were then subtracted from the number of words read to determine the student's reading fluency. The DORF Accuracy score was also collected in this manner, but instead was the median number of words read correctly divided by the median number of total words read multiplied by 100 (Milwaukee Public Schools, 2013a). DORF Accuracy represents the student's ability to read with a high degree of accuracy, while DORF Retell indicates reading orally for meaning (Dynamic Measurement Group, 2011). DORF Retell was determined after a student has read a passage aloud. The student was then asked to recount the passage for no more than a minute. The number of words the student was able to retell was counted. The student received one point for every word that was read to determine the student's retell abilities (Milwaukee Public Schools, 2013b).

The DORF tests have very good validity evidence, with typical concurrent correlation in Grades 1 through 3 at about .60 to .85 with norm-referenced tests of achievement. The typical predictive correlation of DORF with end-of-year comprehensive tests of reading fluency is about .60 to .75 (Baker, Smolkowski, Katz, Fien, Seeley, Kame'enui, & Beck, 2008; Biancarosa Bryk, & Dexter, 2010; Roberts, Good, & Corcoran, 2005; Roehrig, Petscher, Nettles, Hudson, & Torgesen, 2008; Schilling, Carlisle, Scott, & Zeng, 2007; Stoolmiller, Biancarosa, & Fien,

2013;). Alternative form reliability is also very good, with the average correlation is between .90 and .95 among the three passage scores at a benchmark assessment (Baker et al., 2008; Biancarosa, Bryk, & Dexter, 2010; Dynamic Measurement Group, 2008; Roberts, Good, & Corcoran, 2005; Stoolmiller, Biancarosa, & Fien, 2013).

Benchmark testing for both of the DIBELS and TRC were conducted at three separate times of the year. Results from each of these benchmarks were compared to the results from a classroom to account for maturation in regards to the case study student's progress. This classroom aggregate was the average of all the other students of his class and their average scores for each DORF subtest for the three testing times. According to the school system of the participating school, the beginning of the year was August 27, 2012, the middle of the year was January 16, 2013, and the end of the year was June 7, 2013.

### ***CATT Intervention System Progress Monitoring***

The CATT Intervention System Progress Monitoring (Appendix C) was used to measure the student's progress throughout implementation of the teacher-selected intervention. This form is provided within the Student Intervention and Measurement Booklet (Appendix B). Initially, the researcher expected to utilize these measurements to track student progress to determine the efficacy of the CATT Intervention System. Upon visiting the school after the initial training, the researcher realized that teachers were not using this documentation to monitor student progress. Instead, teachers were using the intervention products provided by the system without tracking student use or progress in the SIMB.

For the case study student, his performance on a weekly reading aloud test was used to determine the words per minute (WPM) he read from a given passage. The student was asked to complete the same individual test as his peers and the teacher counted the number of words per

minute he read correctly. This test was given, on average, every 3.18 days. The information provided by the teacher did not indicate if the student read for one minute and his correct words were counted, or if the student read a passage for longer than one minute and the WPM was calculated. This was a test the teacher performed with each of her students, providing a convenient method of collecting quantitative data to measure progress. Once the measurement mechanism had been identified, the teacher collected a baseline measurement from the case study student. His progress with this test was measured over 25 weeks and seven trial periods. The shortest period was 3 days and the longest was 32.

In 2005, national performance norms for words per minute were released. The data used to collect these norms were taken from 23 states and up to 20,128 students (Hasbrouck & Tindal, 2006). These expectations outline the number of words per minute a student should be able to read at the beginning of the year (BOY), middle of the year (MOY), and end of the year (EOY). The same three dates utilized for the *mCLASS:Reading 3D* scores were also used for this study: BOY was August 27, 2012, the MOY was January 16, 2013, and the EOY was June 7, 2013. To determine if a student is having difficulties with reading, it is recommended that the teacher identifies if a student's score falls within 10 words above or below the 50<sup>th</sup> percentile should be interpreted as "within the normal, expected, and appropriate range for a student at that grade level at that time of year..." (Hasbrouck & Tindal, 2006, p.640). In 2009, North Carolina also released new state expectations for students in the area of reading. These expectations are only provided for the 75<sup>th</sup> and 50<sup>th</sup> percentile, but they are identical to the national expectations (North Carolina Department of Public Instruction, 2009). These expectations are listed in the Table 1.



Table 1			
<i>Words Per Minute (WPM) National Expectations for Students in 2<sup>nd</sup> Grade</i>			
Percentile	Beginning of Year	Middle of Year	End of Year
90	106	125	142
75	79	100	117
50	51	72	89
25	25	42	61
10	11	18	31

*Adapted from Hasbrouck & Tindal, 2006*

**Study Procedure.** Institutional Review Board approval for this thesis was obtained through East Carolina University’s University and Medical Center Institutional Review Board (UMCIRB). A letter of approval may be found in Appendix E. A waiver of consent was filed and accepted, as the researcher provided no intervention. Instead, the researcher collected non-identifying information that was already being collected as part of this new educational process. On September 21, 2012, the researcher went to the school to conduct training on how to properly complete the online CATT Universal Screening. This CATT Universal Screening was administered for the first time (First Administration) from September 21 to October 3, 2012. To ensure student anonymity, teachers coded the CATT Universal Screening each administration date as data were entered into the Qualtrics version of the CATT Universal Screening.

On October 8 and 9, 2013, teachers received a two-day training class by the creator of the system. This training was held at their school to teach all staff how to use the CATT Intervention System. The first day of training was for all teachers and included information on how to implement the system, track progress, identify underlying aspects of behavior, and determine what tools could be used for given scenarios. The second day consisted of training for the CATT

Intervention Team. The team was trained on observing students to determine a performance baseline for both that student and a typical peer. After this training, the creator expressed concern regarding the proper procedures to be followed to implement this system especially related to the baseline observations. Approximately 8 weeks after implementing the system, a follow-up visit was to be conducted via either phone call or visit by the creator; however, to the knowledge of the researcher, this did not occur. Due to the individualized nature of the CATT Intervention System, a method of progress measurement for each learning barrier is not identified by the system; rather, the teacher may select the progress measurement that is quantifiable. This allows for a weekly test or quiz, specified time of class, or a particularly challenging aspect of the day to be the student's progress measurement.

In order to better understand how to implement the CATT Intervention System, the CATT Intervention Team also used the second day of training to observe some students that had already been identified through the results of the CATT Universal Screening as having learning barriers. Trainers discussed each case with the CATT Intervention Team and collaborated on which tools from the intervention system would be most beneficial to try initially to enhance student performance. These tools were introduced to each student's teacher and the team gave support as to how to start the CATT Intervention System process with the student. The case study student was one of the students identified by both the training team and the CATT Intervention Team as a student with learning barriers.

Teachers began to utilize the CATT Intervention System after this training before and after completing the CATT Universal Screening (Second Administration) from December 13 to January 17, 2013. The Third Administration of the CATT Universal Screening was conducted from May 7 to May 31 2013. While teachers used the CATT Intervention System, data were collected on the

CATT Intervention System Progress Monitoring (See Appendix C) within the CATT Student Intervention and Measurement Booklet (SIMB) (See Appendix B). After the final administration of the CATT Universal Screening, the researcher collected all CATT Intervention System Progress Monitoring and selected students who met the criteria for entry into the case study. Only one student met these criteria.

The responses on the CATT Universal Screening for this student identified him as having learning barriers, and he began receiving an intervention through the CATT Intervention System on October 22, 2012. The teacher identified the Toobaloo as the first strategy to implement. This handheld, phone-like device is utilized by having the student read aloud into the mouthpiece with the intention of providing auditory feedback from their own voice without disrupting their peers. It is advertised as being beneficial with students with deficits in the following areas: grammar, punctuation, capitalization, listening skills, auditory memory, listening comprehension, oral expression, reading aloud, verbal direction following, reading comprehension, operation initiation, and word problems.

The student received the intervention from October 22, 2012 to April 10, 2013. This student likely received the intervention for the remainder of the school year; however, the teacher did not continue to track the student's progress in the CATT Intervention System SIMB. The full procedure for implementing a strategy is located in Appendix A.

**Data Analysis.** To determine if the case study student made progress, the teacher's report on the CATT Universal Screening was used. Changes between the first and second administrations in a given learning barrier were all visualized using line graphs. To account for maturation of the student, a classroom aggregate of the CATT Universal Screening scores for each learning barrier question was superimposed onto these graphs. The researcher visually

identified if the student had progressed to meet the classroom aggregate, as well as if the student had advanced to where the learning barrier was not inhibiting behavioral or academic performance more than 50% of the time.

Data collected from the DORF subtests on *mCLASS:Reading 3D* was first collected and visually analyzed utilizing graphs. The student's scores were compared with his classroom aggregate, as well as the benchmark goal and the cut line for risk provided by each subtest. These data points from each administration were graphed to better visualize the student's progress.

The student's CATT Intervention Progress Monitoring scores were analyzed in regards to his WPM reading progress, which was compared to the national expectations over the course of a school year. To determine the student's WPM, an average of each trial period on the CATT Intervention Progress Monitoring was taken to determine what percentage of the WPM presented that the student read. This average was then multiplied by the number of words the teacher presented to obtain the WPM the student actually read. These data were then graphed over time in order to be compared to the 25<sup>th</sup> and 50<sup>th</sup> percentile of the national expectations.

## **Study 2 – Teacher Perception of CATT Intervention System**

The second through fifth questions of this thesis examined how the teachers perceived the CATT Intervention System. Teachers and administrators from schools were asked to provide their opinions on the CATT Intervention System through the use of Qualtrics online survey software.

**Design.** To gather information on the use of the CATT Intervention System, a survey was administered to collect data from six elementary schools. A survey was utilized in order to better understand teacher perspectives in regards to the use of the system. This method was also

selected due to the convenience it provided the teachers, as the survey was placed online in order to allow the teachers to access it at any place or time.

**Subjects.** Teachers from six schools participated in the survey study, including one private school, two public schools, two alternative schools, and one charter school. Five of the schools participated in a pilot survey study during the 2010-2011 school year (Donica, 2012) and the sixth was completed during the 2012-2013 school year. The schools were located in North Carolina and Ohio and completed the 2010-2011 survey after utilizing the CATT Intervention System for the school year. The number of students ranged from 15-893 in these six schools, with the number of teachers ranging from 2-37 per school. All schools, with the exception of one, received training on the CATT Intervention System before implementing it. The training and CATT Intervention System were provided to these schools at a discounted rate in return for their participation in the study.

A total of 85 participants participated in the survey. In 2012-, 2013, 22 of the 34 teachers working at the school (response rate of 64.7%) participated in the study. A response rate from the 2010-2011 school year was also found and showed that 28.2%, or 63 of the 223 teachers that received the survey, participated. Teachers ranged in experience, with 3 working less than a year up to 2 teachers working more than 20 years. Females comprised the majority of the group ( $n=73$ ). Ages of the teachers also ranged from <25 years old to over 60 years old.

Table 2

*Demographics of Survey Participants*

	2010-2011 Survey N (%)	2012-2013 Survey N (%)	Total N (%)
Years worked in current position at this school			
>1 Year	7 (12%)	3 (14%)	10 (12%)
1-5 Years	28 (45%)	6 (27%)	34 (40%)
5-10 Years	16 (26%)	6 (27%)	22 (26%)
10-15 Years	4 (6%)	1 (5%)	5 (6%)
15-20 Years	3 (5%)	2 (9%)	5 (6%)
20+ Years	2 (3%)	2 (9%)	4 (5%)
No Response	2 (3%)	2 (9%)	4 (5%)
Years worked at current position in any school			
>1 Year	7 (12%)	0 (0%)	7 (8%)
1-5 Years	14 (22%)	2 (9%)	16 (19%)
5-10 Years	18 (29%)	10 (45%)	28 (33%)
10-15 Years	10 (16%)	1 (5%)	11 (13%)
15-20 Years	6 (9%)	5 (23%)	11 (13%)
20+ Years	6 (9%)	2 (9%)	8 (9%)
No response	2 (3%)	2 (9%)	4 (5%)
Gender			
Female	56 (89%)	19 (86%)	75 (88%)
Male	4 (6%)	1 (5%)	5 (6%)
No Response	3 (5%)	2 (9%)	5 (6%)
Age			
<25 years	3 (5%)	1 (5%)	4 (5%)
25-29 years	7 (12%)	3 (14%)	10 (12%)
30-34 years	4 (6%)	4 (17%)	8 (9%)
35-39 years	12 (19%)	3 (14%)	15 (17%)
40-44 years	15 (23%)	3 (14%)	18 (21%)
45-49 years	6 (9%)	1 (5%)	7 (8%)
50-54 years	8 (13%)	2 (9%)	10 (12%)
55-59 years	3 (5%)	0 (0%)	3 (4%)
60+	2 (3%)	1 (5%)	3 (4%)
No response	3 (5%)	4 (17%)	7 (8%)
Grade Taught			
PreK	0 (0%)	2 (9%)	2 (2%)
K	8 (13%)	4 (17%)	12 (14%)
1	6 (9%)	3 (14%)	9 (11%)
2	6 (9%)	1 (5%)	7 (8%)
3	8 (13%)	1 (5%)	9 (11%)
4	6 (9%)	5 (22%)	11 (13%)
5	4 (6%)	3 (14%)	7 (8%)
6	0 (0%)	0 (0%)	0 (0%)
Multigrade or Administrator	23 (36%)	1 (5%)	24 (28%)
No response	2 (5%)	2 (9%)	4 (5%)
Total Participants	63 (100%)	22 (100%)	85 (100%)

**Instrumentation.** The survey was administered through the use of the online survey program, Qualtrics. Both the survey for the 2010-2011 school year (n = 63) and the one from 2012-2013 school year (n = 22) asked the same questions, with the exception of seven additional questions on the most recent survey. These new questions were aimed at further discussing the training, as well as the CATT Universal Screening, which was a new tool utilized only during the 2012-2013 school year. A copy of the questions from both the 2010-2011 and 2012-2013 are located in Appendix G and Appendix H, respectively.

The survey was comprised of 54-58 questions on a 5-point Likert scale. Answers to the questions could be provided by selecting “Strongly Agree, Agree, Neither Agree or Disagree, Disagree, Strongly Disagree. On some questions, a “Not Applicable” answer was also provided. There were also four questions that were open ended to allow participants to provide their own comments. Questions included both negatively worded and positively worded phrases to ensure that teachers were reading the statements in full and providing answers that truly reflected their experience. Study participants were first asked if they used the system. Those who had were inquired as to their experience using the CATT Intervention System, including the ease of use of the documentation and the system, their perceptions on if it assisted students with learning barriers, and if they felt comfortable making referrals to special education. Those who did not use the intervention system skipped all questions regarding the use of the system and were instead asked to select a reason why they did not utilize it. All teachers and administrators were questioned about the training provided by the CATT Intervention System and basic questions regarding demographics and teaching experience.

**Study Procedure.** IRB approval was obtained through East Carolina University’s University and Medical Center Institutional Review Board (UMCIRB) and an approval letter for

this study may be found in Appendix F. The survey included a cover page indicating that continuing with the survey would be giving informed consent to participate in this study. The study involved human subjects, so all ethical and safety precautions were taken. Teachers utilized the CATT Intervention System for the 2010-2011 school year, which was in session from August 2010 to June 2011. In June 2011, teachers and administrators from five schools were provided with an online survey. Responses were tabulated to answer pilot study research question.

Teachers from one school used the CATT Intervention System was for the 2012-2013 school year from October, 2012 to May 7, 2013. These teachers had access to the CATT Intervention System survey from May 7 to May 31, 2013 before their results were collected and compiled from the previously existing data.

#### **Data Analysis.**

The data were treated as ordinal and each question's responses were summated to determine the amount of each response (Strongly Agree, Agree, Neither Agree or Disagree, Disagree, Strongly Disagree, or NA). Responses of "Strongly Agree" and "Agree", as well as "Strongly Disagree" and "Disagree", were combined together for visualization. As some of the questions were worded negatively, these questions were reverse-coded to represent the positive answer. All responses were then visually analyzed with the assistance of bar graphs to analyze the results of the survey.



## CHAPTER 4: RESULTS

### Study 1 – CATT Intervention System Effectiveness

**CATT Universal Screening.** The case study student's teacher had identified three areas that she believed were most concerning learning barriers to address for this student. These barriers included his ability to respond appropriately to verbal information, grade level oral expression, and reading aloud with grade-level oral expression. The case study student's results were interpreted by comparing his performance per teacher report on the CATT Universal Screening in October to his results in January. The case study student's teacher unfortunately did not complete the last administration of the CATT Universal Screening; therefore, the researcher only has information from this data source for beginning of the year and middle of the year.

In addition, the rest of the student's learning barriers results on the Universal Screening are reported. The case study student's progress was also visually compared to a classroom aggregate composed of the CATT Universal Screening scores of his 17 classmates in Table 3, Figure 9, Figure 10, and Figure 11.

Table 3

*Case Study Student's Results on CATT Universal Screening in October and January*

	Case Study Student-October (%)	Classroom Aggregate-October (%)	Case Study Student-January (%)	Classroom Aggregate-January (%)
Student is not distracted by noise ___% of the time.	50%	94.11%	100%	82.35%
Student has good behavior/social skills ___% of the time.	50%	97.06%	75%	91.18%
Student demonstrates appropriate responses to social physical contact ___% of the time.	50%	98.53%	50%	95.59%
Student refrains from lying, cheating, stealing, or destroying property ___% of the time.	50%	98.53%	75%	94.11%
Student demonstrates self-confidence ___% of the time.	50%	97.06%	50%	88.24%
Student responds appropriately to verbal information ___% of the time.	50%	94.12%	75%	85.29%
Student demonstrates grade-level oral expression ___% of the time.	50%	92.65%	50%	86.76%
Student accurately reads ALOUD with grade-level fluency and expression ___% of the time.	50%	92.65%	75%	79.41%

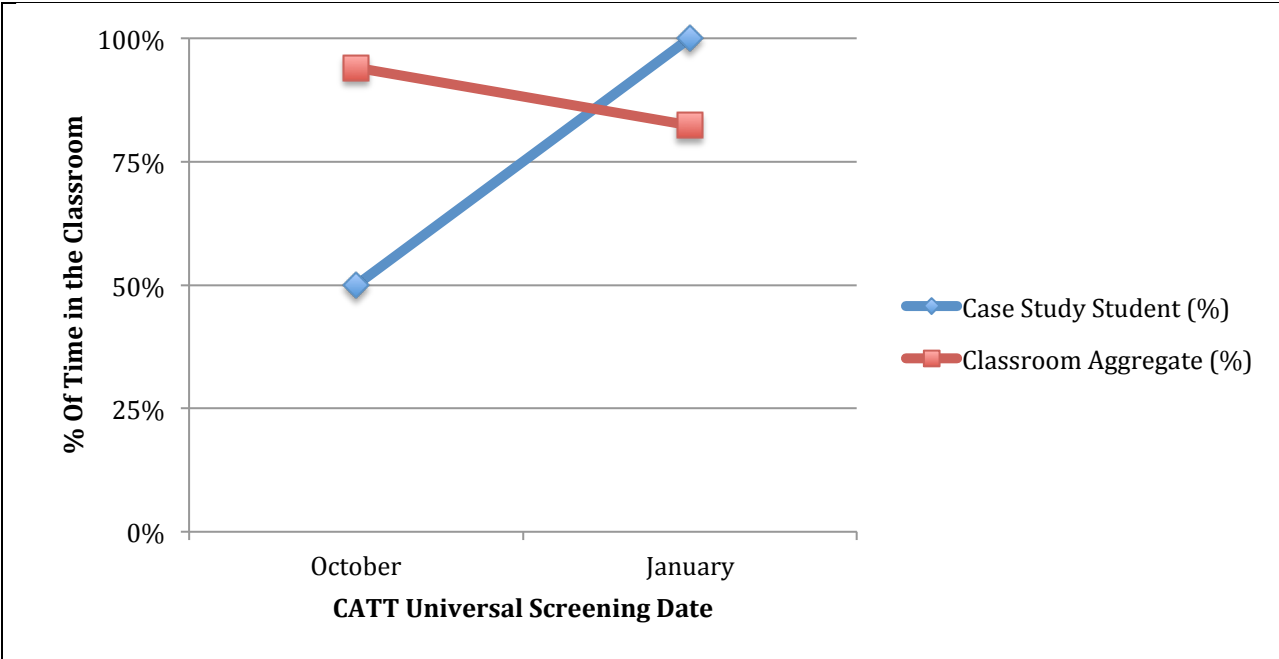


Figure 1. Student is Not Distracted By Noise \_\_\_% of the Time. This figure illustrates the ability of the case study student in comparison to the classroom aggregate.

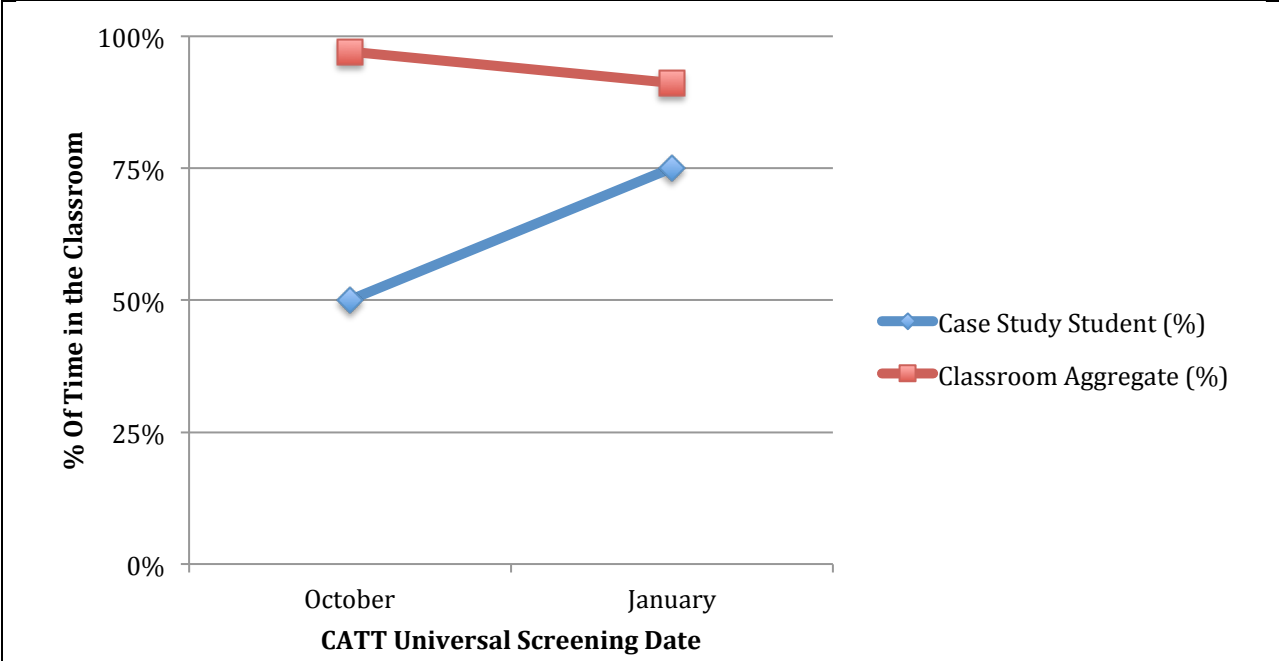
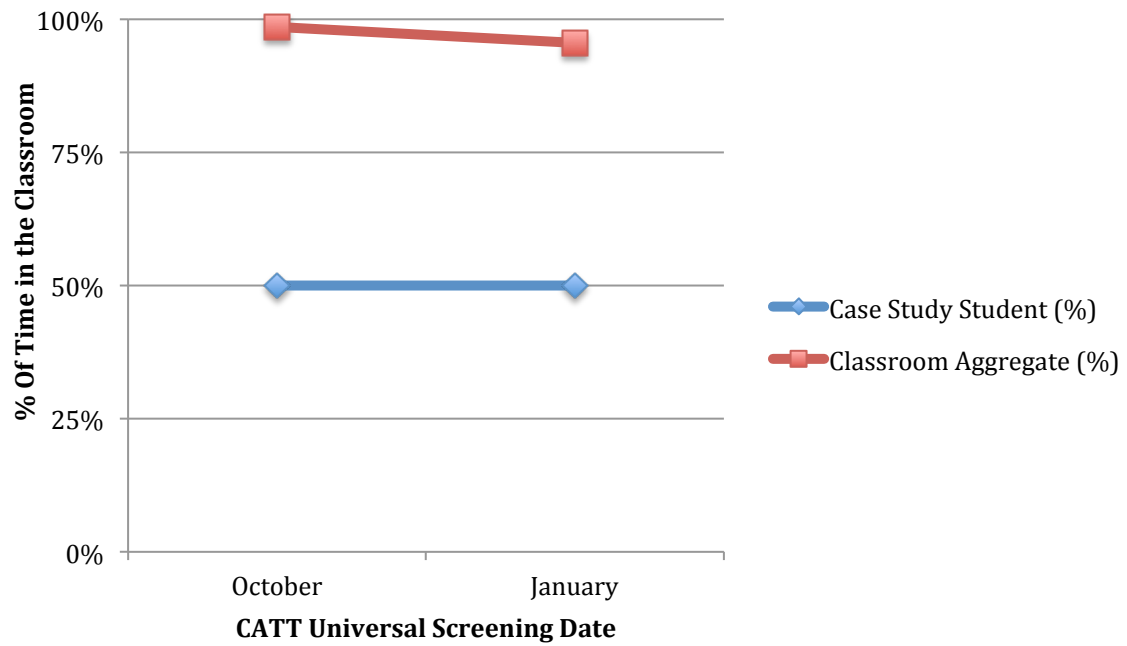
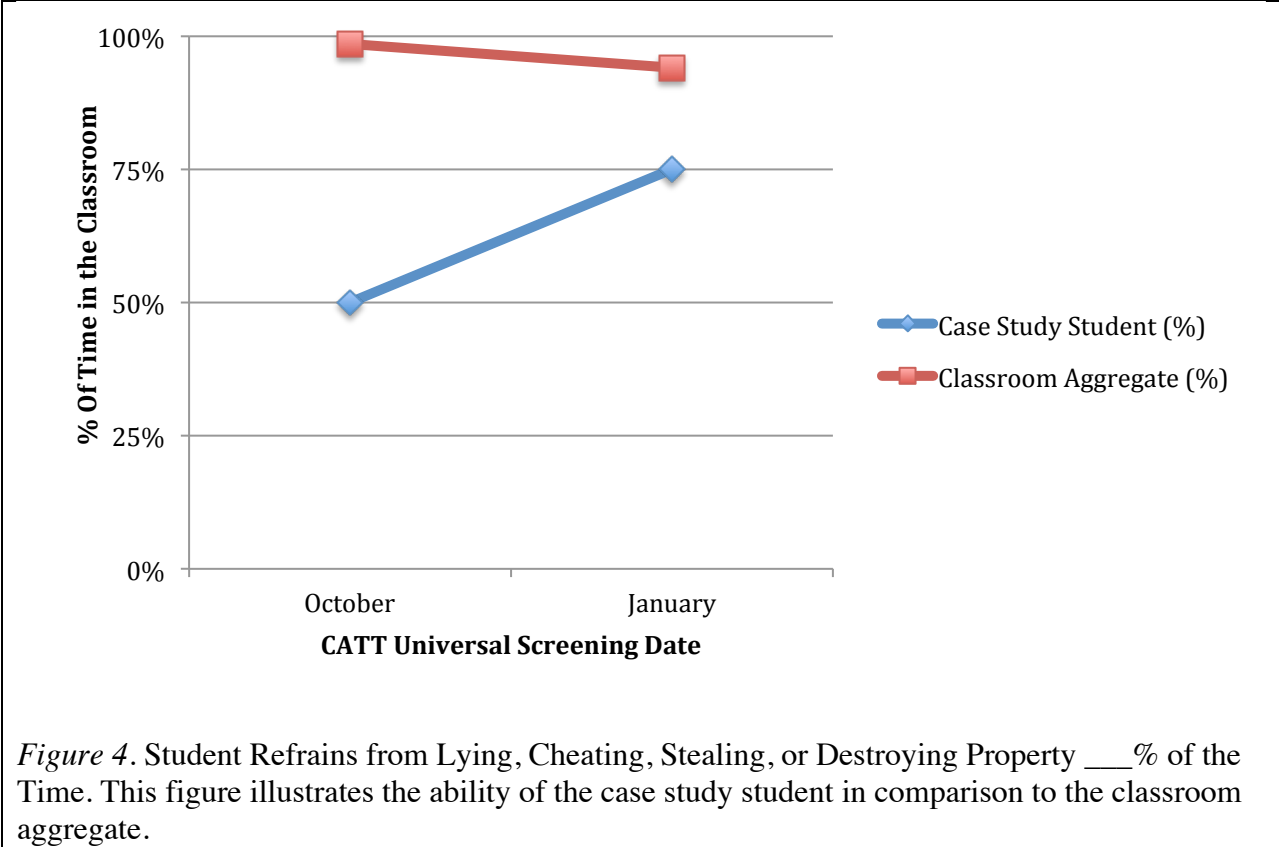
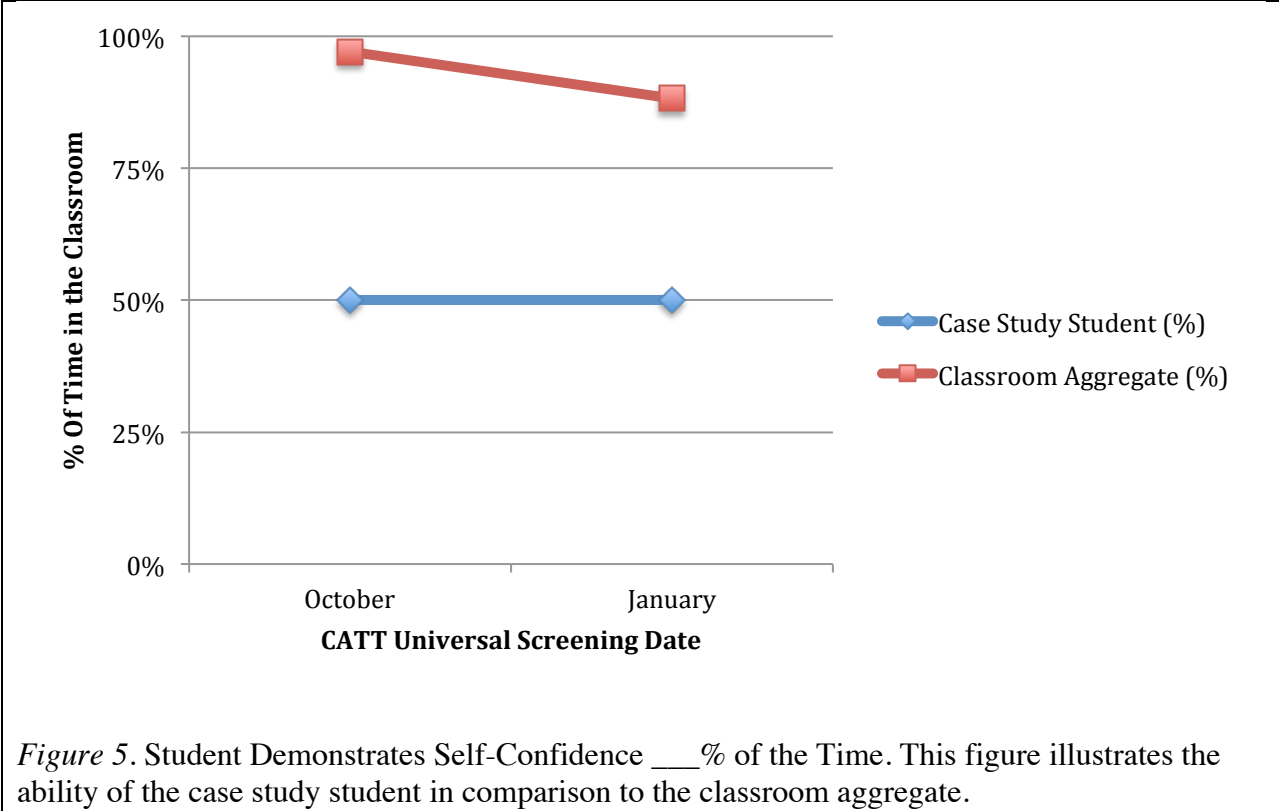


Figure 2. Student has Good Behavior/Social Skills \_\_\_% of the Time. This figure illustrates the ability of the case study student in comparison to the classroom aggregate.



*Figure 3. Student Demonstrates Appropriate Responses to Social Physical Contact \_\_\_% of the Time. This figure illustrates the ability of the case study student in comparison to the classroom aggregate.*





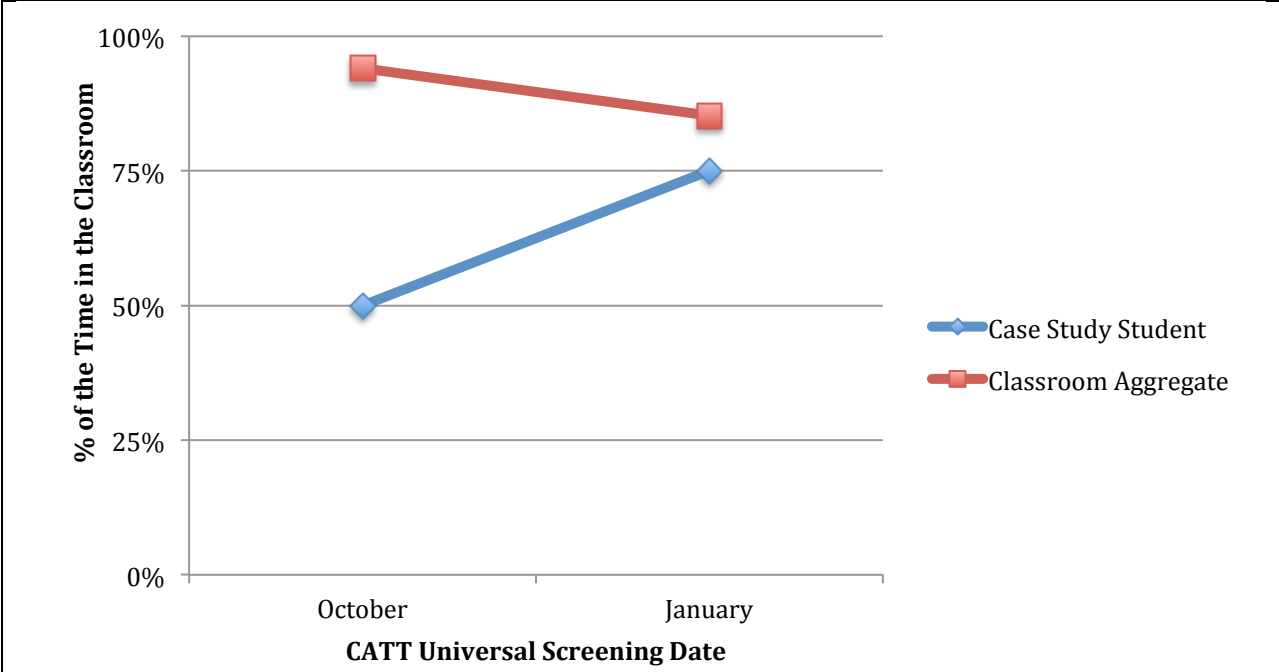


Figure 6. Student Responds Appropriately to Verbal Information \_\_\_% of the Time. This figure illustrates the ability of the case study student in comparison to the classroom aggregate.



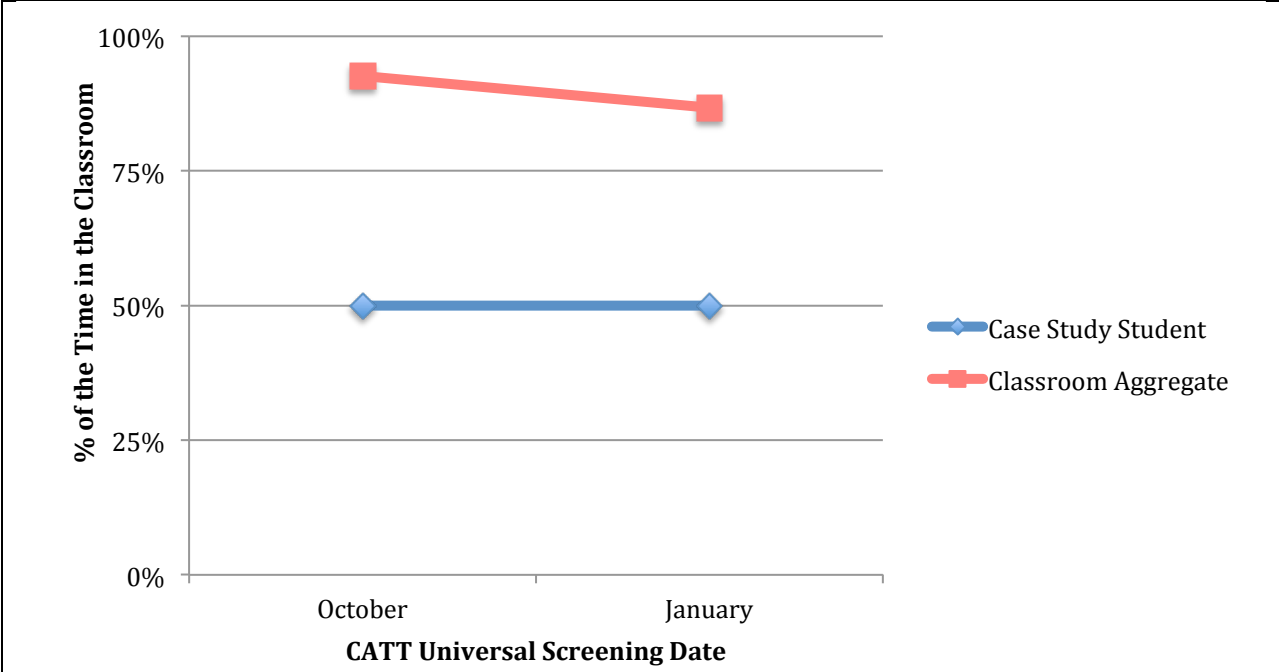
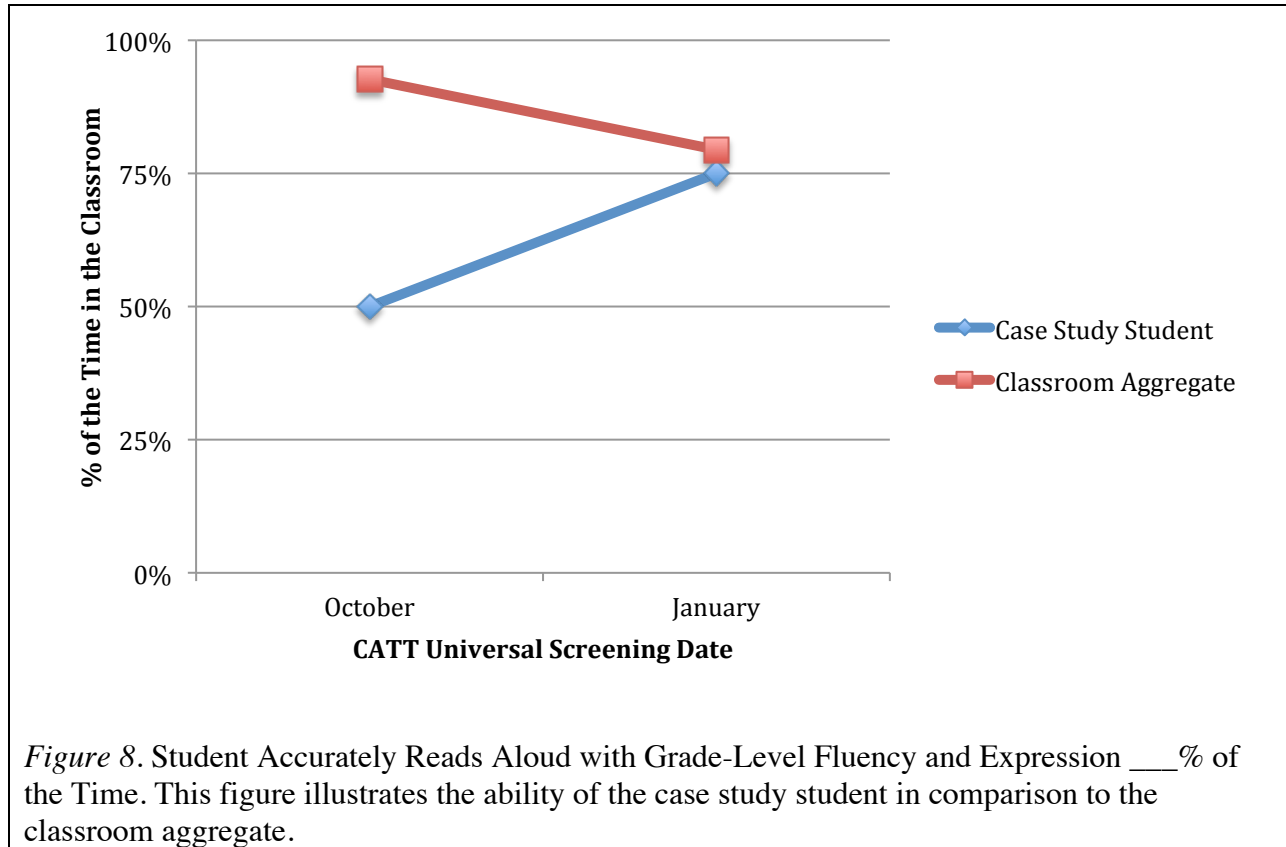
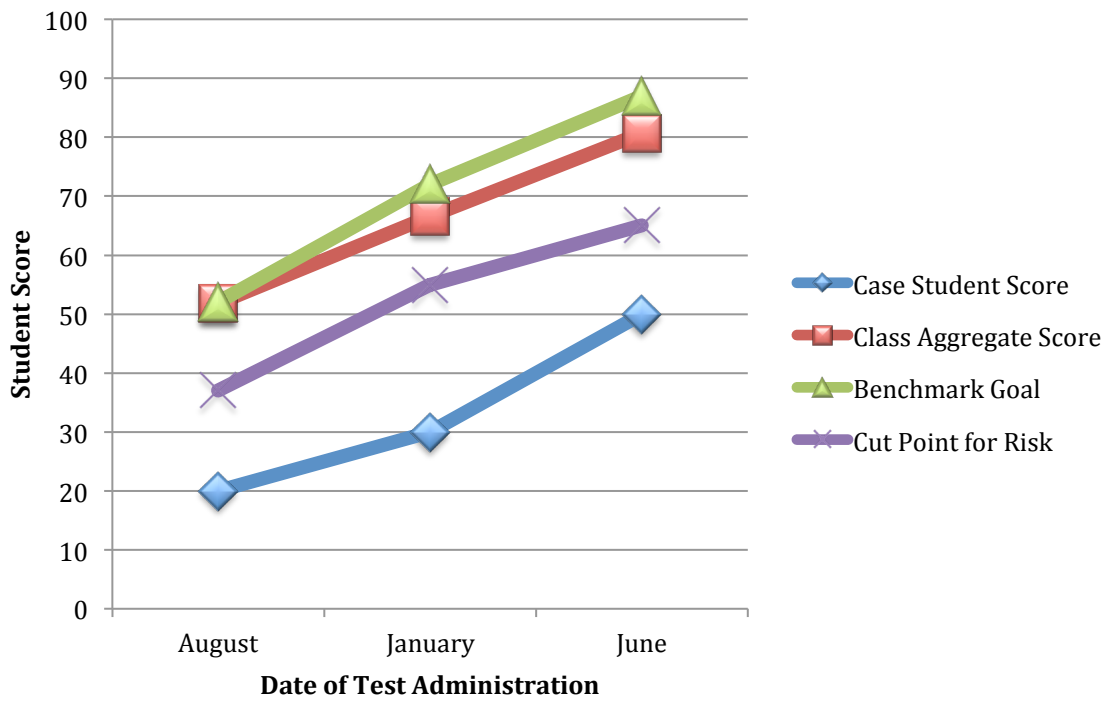


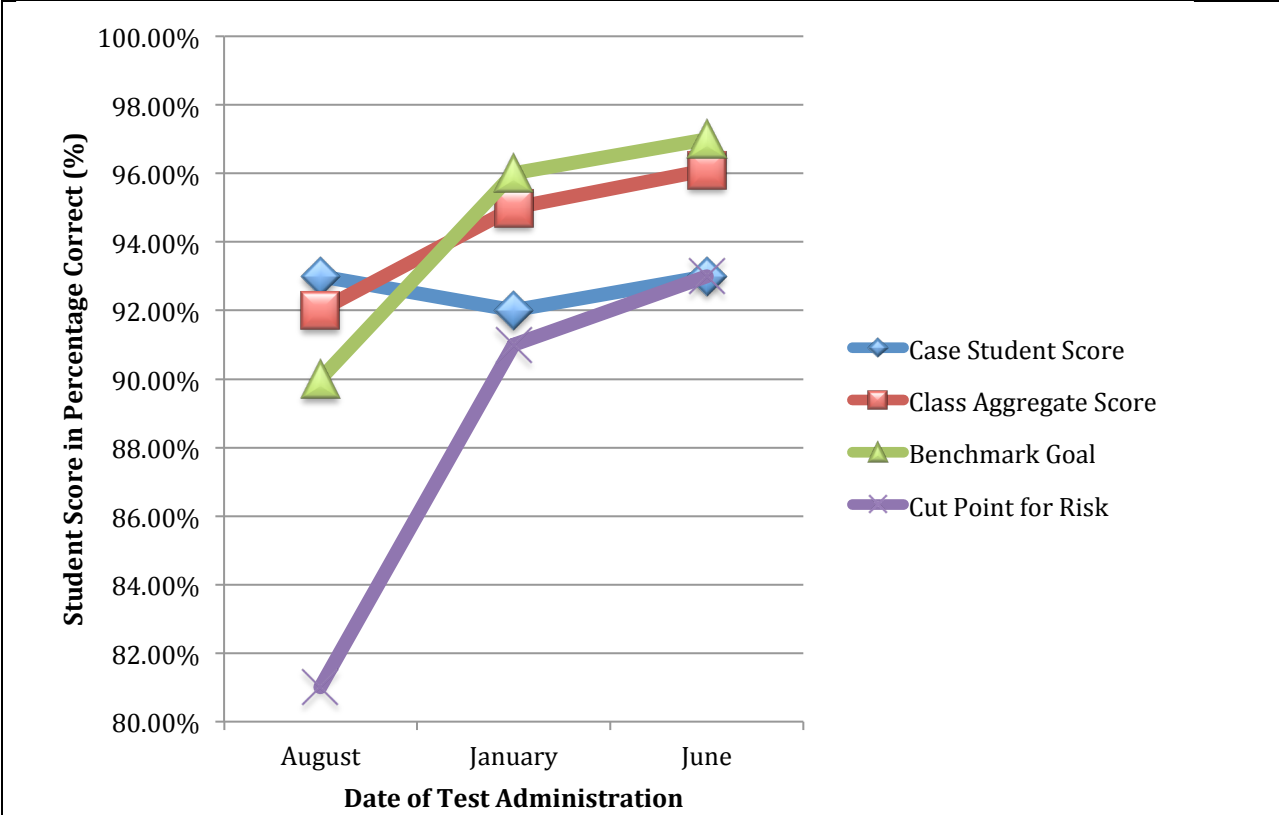
Figure 7. Student Demonstrates Grade-Level Oral Expression \_\_\_% of the Time. This figure illustrates the ability of the case study student in comparison to the classroom aggregate.



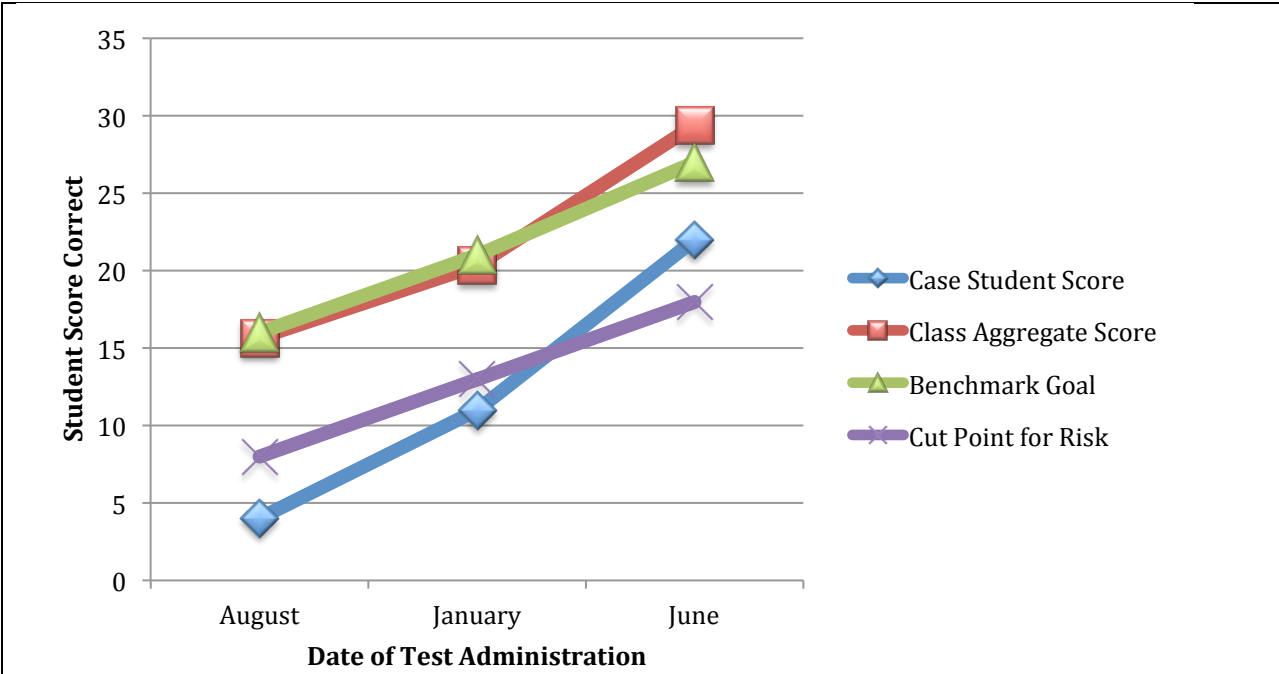
**mCLASS:Reading 3D.** The case study student’s score was acquired, as was a classroom aggregate score for each of the DORF subtests. These scores were visualized on the graphs below to determine the student’s reading fluency progress. The case study student’s scores are located in Appendix D.



*Figure 9. DORF Fluency Throughout the School Year. This figure illustrates the ability of the case study student in comparison to the classroom aggregate and to the benchmark goal provided by DIBELS: Next. The cut point for risk is also included to indicate the line at which a student would begin to receive intensive intervention, as the student only has 10-20% odds of meeting the subsequent early literacy goals (Dynamic Measurement Group, 2010). According this figure, the case study student is below the cut point for risk for the duration of the school year, while the classroom aggregate is close to the benchmark goal.*



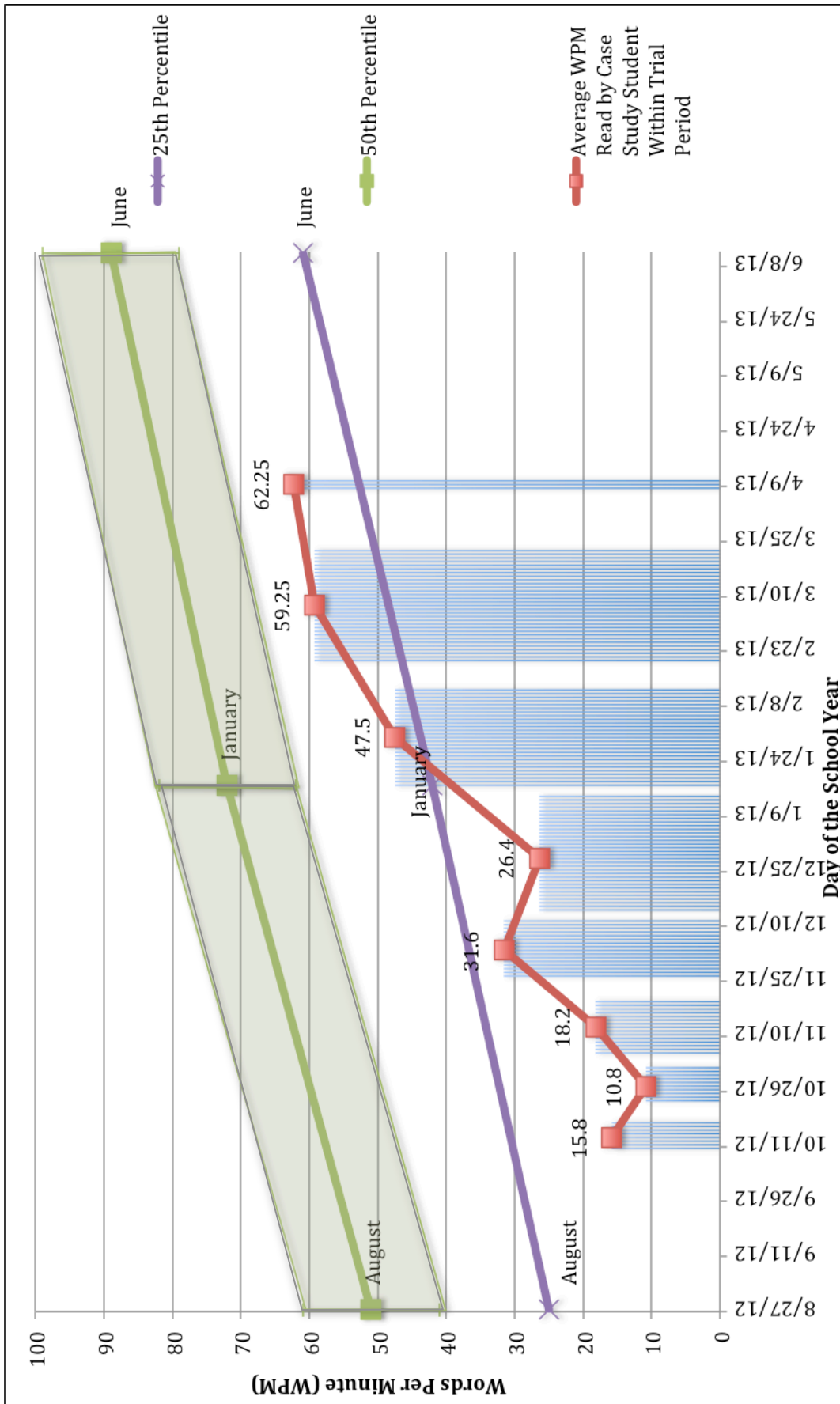
*Figure 10. DORF Accuracy Throughout the School Year.* This figure illustrates the ability of the case study student in comparison to the classroom aggregate and to the benchmark goal provided by DIBELS: Next. The cut point for risk is also included to indicate the line at which a student would begin to receive intervention, as the student only has 10-20% odds of meeting the subsequent early literacy goals (Dynamic Measurement Group, 2010). At the end of the year, the classroom aggregate achieved close to the benchmark goal, yet the case study student only met the cut point for risk. This indicates that the student would continue to require intensive interventions in the following school year or he would have a 40-50% chance of achieving the next benchmark goal (Dynamic Measurement Group, 2010).



*Figure 11. DORF Retell Throughout the School Year.* This figure illustrates the ability of the case study student in comparison to the classroom aggregate and to the benchmark goal provided by DIBELS: Next. The cut point for risk is also included to indicate the line at which a student would begin to receive intensive intervention, as the student only has 10-20% odds of meeting the subsequent early literacy goals (Dynamic Measurement Group, 2010). The class aggregate met then exceeded the benchmark goal for the school year, while the case study student progressed to above the cut point for risk. However, this student still did not meet the benchmark goal. This indicates that this student would require strategic support to improve his scores and would have a 40-50% chance of meeting the next benchmark goal (Dynamic Measurement Group, 2010).

**CATT Intervention System Progress Monitoring**

The case study student’s progress over the course of the school year is visualized in the figure below. The case study data is located in Appendix C. This progress is compared to the national norms, as detailed by Hasbrouck and Tindal (2006). The student demonstrated progress over the course of the year and eventually was above the 25<sup>th</sup> percentile in WPM read.



*Figure 12.* Student Progress for Words Per Minute (WPM) as Documented on the CATT Intervention System Progress Monitoring. This figure illustrates the case study student’s ability to read a certain number of words per minute as compared to the national norms for WPM. Error bars on the 50<sup>th</sup> percentile line indicate 10 words above or below the 50<sup>th</sup> percentile that should be interpreted as “within the normal, expected, and appropriate range for a student at that grade level at that time of year...” (Hasbrouck & Tindal, 2006, p.640). Over the course of the school year, the case study student demonstrated progress to above the 25<sup>th</sup> percentile norm, but unfortunately, did not reach the 50<sup>th</sup> percentile.

- B- Baseline- 10/10/12-10/17/12
- 1- Trial Period 1, 10/22/12- 11/1/12
- 2- Trial Period 2, 11/5/12- 11/19/12
- 3- Trial Period 3, 11/26/12- 12/11/12
- 4- Trial Period 4, 12/14/12-1/14/12
- 5- Trial Period 5, 1/17/13-2/12/13
- 6- Trial Period 6, 2/20/13-3/22/13
- 7-Trial Period 7, 4/8/13-4/10/13

**Study 2 – Teacher Perception of CATT Intervention System**

In total, participants provided 81 completed surveys and 4 incomplete surveys, as is seen in Table 4. Two response sets were excluded from the study, as each participant started the survey but did not complete any questions. Of the participants, 51% (n=43) used the CATT Intervention System during the school year (Table 5).

Table 4			
<i>Number of Surveys Received Per School Year</i>			
	2010-2011 Survey	2012-2013 Survey	Total Responses
Completed Surveys	61	20	81
Incomplete Surveys	2	2	4
Total Participants	63	22	85

Table 5			
<i>Participants who utilized the CATT Intervention System</i>			
	2010-2011	2012-2013	Total Responses
Participants who used the CATT Intervention System	37	6	43
Participants who did not use the CATT Intervention System	26	16	42
Total Participants	63	22	85

Responses of “Strongly Agree” or “Agree” were considered positive, while answers of “Disagree” or “Strongly Disagree” were considered negative. Teachers who used the system were asked questions on the survey aimed to discover a their perspective of four separate areas: the ease of use of the CATT Intervention System, the impact of the system on the special education referral process, documentation though use of the Student Intervention and Measurement Booklet, and student and related outcomes. In addition, teachers who did not use the system were only asked about the training they attended, why they did not use the system, and basic demographics.

**Use of the CATT Intervention System.** Teachers who used the system were not required to answer each question, so responses for each question ranged from 34-38 responses in 2010-2011 and 3-5 responses in 2012-2013. Teachers reported that they understand how to implement the techniques and tools provided by the system (23% Strongly Agree, 72% Agree) and did not need to ask for additional assistance for implementation (40% Disagree, 7% Strongly Disagree). The location of a product was also easy to find on the CATT Intervention System cart according to 86% of teachers (35% Strongly Agree, 51% Agree). In all, 45% of teachers agreed (10% Strongly Agree, 35% Agree) with the statement “I feel the CATT Intervention System is effective as a tool to identify barriers to learning and improve student success”.



When a teacher did not understand how to implement a strategy, 70% stated (35% Strongly Agree, 35% Agree) that they were able to find someone at their respective school who was able to assist them. If a teacher did need additional assistance, 67% of teachers said that they knew how to contact the manufacturer of the product to address their needs (16% Strongly Agreed and 51% Agreed). When a teacher had a question, 53% (12% Strongly Agree, 41% Agree) indicated that the support team from the manufacturer was able to answer the question effectively. Teachers also felt supported by their school's administration in the implementation of the intervention system (51% Strongly Agree, 41% Agree) and believed that one CATT Intervention System Cart was sufficient for their setting (7% Strongly Agree, 59% Agree).

**Impact on referral process.** Almost 90% of the CATT Intervention System users believed that it fits well into their school's current intervention and referral process (22% Strongly Agree, 66% Agree). When asked if their school uses Response to Intervention to guide student interventions, 76% of teachers stated they did, while 21% did not know. The results of the survey indicate that 53% of the teachers (18% Strongly Agree, 35% Agree) agreed that the CATT Intervention System increased their confidence when making a referral to special education, with an additional 30% of teachers stating that they neither agreed nor disagreed with that statement. Twenty-three percent of the teachers (23% Agree, 0% Strongly Agree) indicated that the information gathered using the CATT Intervention System made the referral process less cumbersome, while 47% of teachers neither agreed nor disagreed. Teachers also reported that they neither agreed nor disagreed (35%) that the referral process became more efficient or that they referred less students to special education number of referrals to special education (41% Neither Agree or Disagree). However, 40% of participants (14% Strongly Agree, 26% Agree) believed that their school's referral system was better organized with the use of the CATT

Intervention System. The results related to this study question are shown in Figure 13 and Table

6.

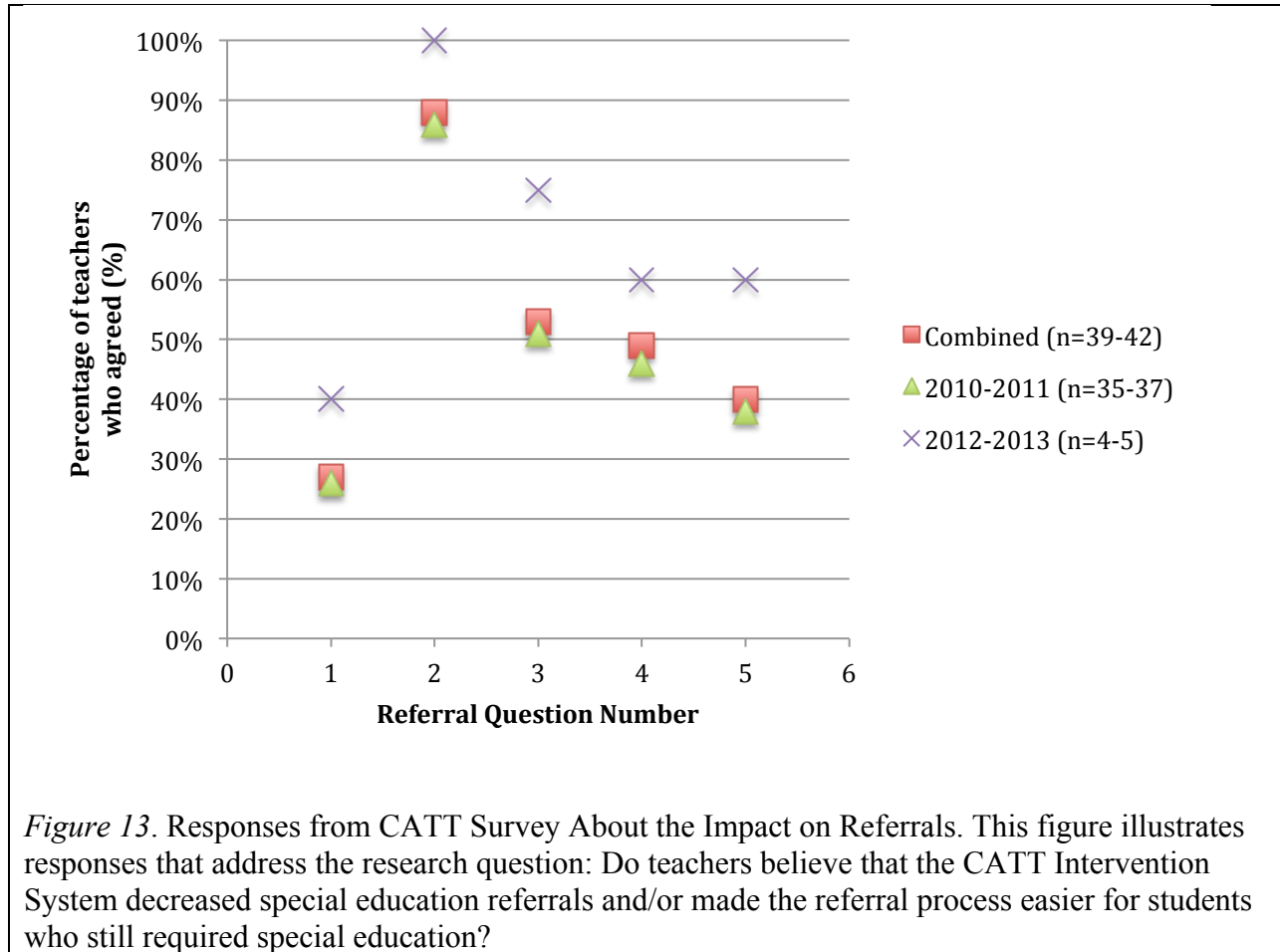


Figure 13. Responses from CATT Survey About the Impact on Referrals. This figure illustrates responses that address the research question: Do teachers believe that the CATT Intervention System decreased special education referrals and/or made the referral process easier for students who still required special education?

Table 6				
<i>Referral Question Numbers for Figure 13 (n=85)</i>				
Referral Question Number	CATT Survey Question	2010-2011 Teachers (n)	2012-2013 Teachers (n)	Did Not Respond (n)
1	I think the CATT System reduced the number of referrals I made to special education services.	35	5	45
2	I feel the CATT System fits well into and improves our current student intervention process.	35	5	45
3	Use of the CATT System increased my confidence in making a referral to special education.	37	4	44
4	I felt confident in my referral to OT, PT, SLP, Psych, Special Ed., etc. following implementation of the CATT System	35	5	45
5	The referral process to special education became more efficient with the CATT System.	37	5	43

**Student Intervention and Measurement Booklet.** Overall, teachers believed that the Student Intervention and Measurement Booklet (SIMB) was easy to use (7% Strongly Agree, 59% Agree). Teachers indicated that they understood the strategies that were recommended in the SIMB (5% Strongly Agree, 66% Agree). They also felt that locating the student’s barrier to learning in the SIMB was not difficult (5% Strongly Agree, 54% Agree). Of the answers provided, 63% of teachers believed that the SIMB is comprehensive in regards to the learning barriers it addresses (5% Strongly Agree, 58% Agree), and 56% felt as if the SIMB was also comprehensive in regards to the recommendations for interventions it provided (7% Strongly Agree, 49% Agree). Responders felt as if the SIMB helped them to successfully document students’ barriers to learning (5% Strongly Agree, 48% Agree); however, most teachers selected “Neither Agree or Disagree” (44%) when asked if it was easy to keep accurate documentation

with the SIMB. Responses were almost equal when asked if the documentation system was burdensome, which hindered the teacher's desire and ability to complete it accurately (26% Agree, 26% Neither Agree or Disagree, 24% Disagree). A majority of teachers did say that the documentation provided by SIMB allowed them to make informed decisions (55% Agree). Teachers also believed that it would be helpful to have the SIMB available electronically rather than as a paper booklet (26% Strongly Agree, 47% Agree).

When implementing an intervention within the classroom, teachers believed that use of the SIMB documentation increased the consistency in which intervention strategies were used (3% Strongly Agree, 60% Agree). They also felt as if the strategies within the SIMB improved their overall teaching practices in at least one way (5% Strongly Agree, 63% Agree). Figure 14 and Table 7 provide the survey results that answer the research question about the use of the CATT Intervention System documentation.

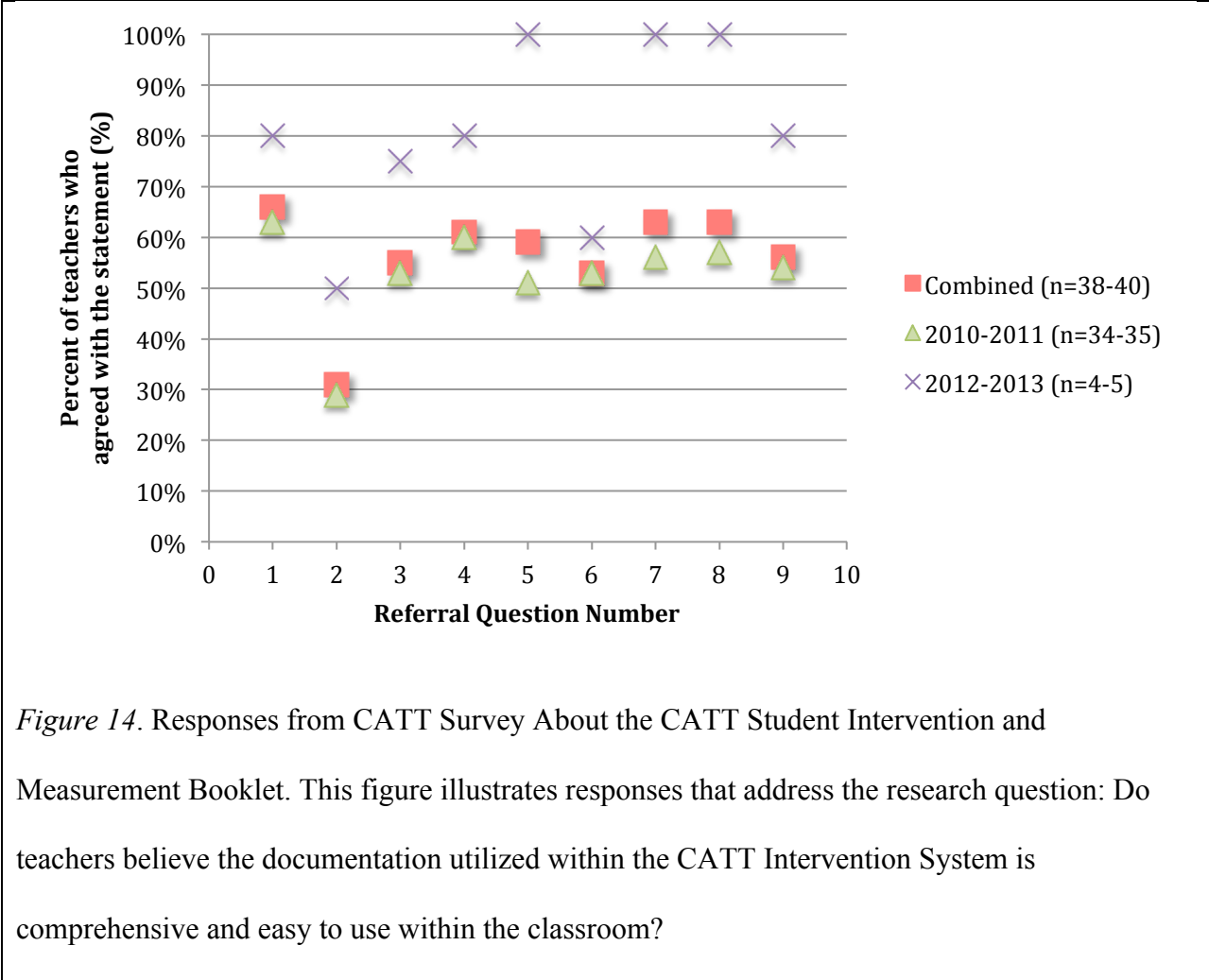


Figure 14. Responses from CATT Survey About the CATT Student Intervention and Measurement Booklet. This figure illustrates responses that address the research question: Do teachers believe the documentation utilized within the CATT Intervention System is comprehensive and easy to use within the classroom?

Table 7				
<i>Referral Question Numbers for Figure 14 (n=85)</i>				
Referral Question Number	CATT Survey Question	2010-2011 Teachers (n)	2012-2013 Teachers (n)	Did Not Respond (n)
1	I think the SIMB is easy to use overall.	35	5	45
2	I feel it is easy to keep accurate documentation in the SIMB.	34	4	46
3	The SIMB provided me with accurate documentation from which to make decisions.	34	4	46
4	I feel the intervention strategies I chose from the SIMB were easy to implement within my classroom.	35	5	45
5	I think it was easy to locate my student's barrier to learning in the SIMB.	35	5	45
6	I think the SIMB helped me successfully document students' barriers to learning.	34	5	46
7	I think the use of the SIMB documentation increased the consistency in which intervention strategies were used.	34	5	46
8	I feel the SIMB is comprehensive in regard to the learning barriers addressed	35	5	45
9	I feel the SIMB is comprehensive in regard to the recommendations provided.	35	5	45

**Student and related outcomes.** Figure 15 and Table 8 provide visual representation of the survey data related to answering the research question regarding student success. Almost 80% of teachers perceived (16% Strongly Agree, 63% Agree) that the use of the intervention

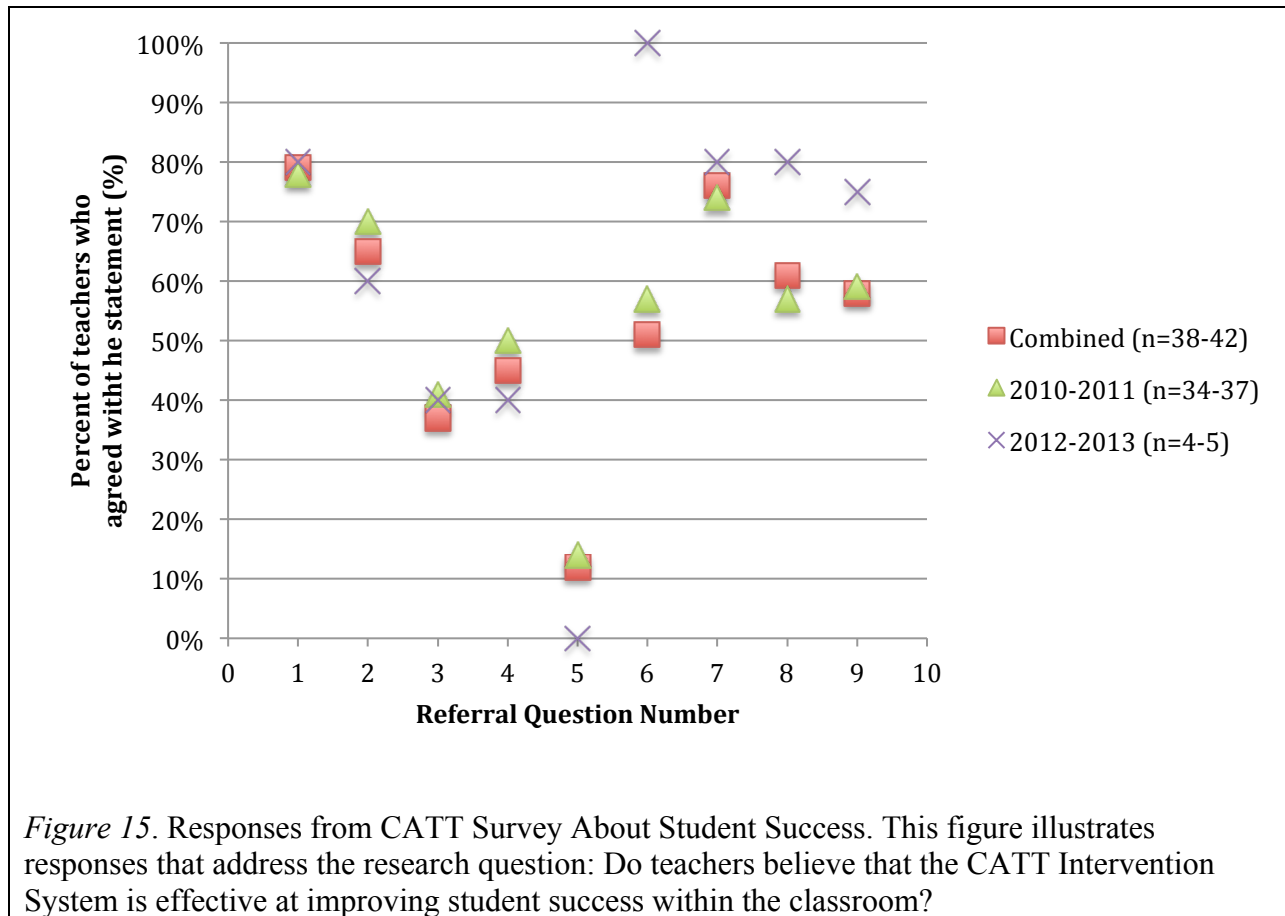
system had improved student success in the classroom. They also believed that the system decreased negative behaviors during class time (7% Strongly Agree, 58% Agree) and 62.5% felt as if the interventions the teacher chose were easy to implement within the classroom (7.5% Strongly Agree, 55% Agree). When implementing an intervention, teachers stated that they used at least one of the strategies for a specific student with the entire class (7% Strongly Agree, 47% Agree).

Academic concerns were decreased in the classrooms of 37% of teachers (0% Strongly Agree, 37% Agree) while another 37% of teachers did not agree or disagree that the intervention system aided in academic concerns. This trend continued, as when asked about specials, such as art, physical education, and music, a majority (48%) of teachers answered “Neither Agree or Disagree”. On that question, 11 teachers (26%) did not provide an answer. Teachers did agree that more students were able to reach their potential within the classroom using the intervention strategies (3% Strongly Agree, 55% Agree).

Teachers (14% Strongly Agree, 38% Agree) believed that use of the CATT Intervention System with students already receiving special education services was beneficial. When asked what percentage of the students the teachers utilized the CATT Intervention System with students who were already receiving special education services, a majority of teachers (27%) stated “0%”, with 29% reporting that 1-25%. Those who did use the CATT Intervention System believed that it improved their ability to design appropriate interventions for identified students (13% Strongly Agree, 38% Agree). They also believed that the system was effective problem solving tool for students with an IEP (10% Strongly Agree, 51% Agree).

Teachers indicated that the interventions they most commonly used were: color overlays, pencil grips, weighted vests, scent inhalers, specially lined paper, organization materials, pencil

top chewers, wiggle seat, earphones, wrist grip, ball chair, highlighted paper, slant board, metronome, timer, fidgets, Theraband, Velcro, Toobaloo, reading rulers, voice savers, sensory balls, and special scissors.





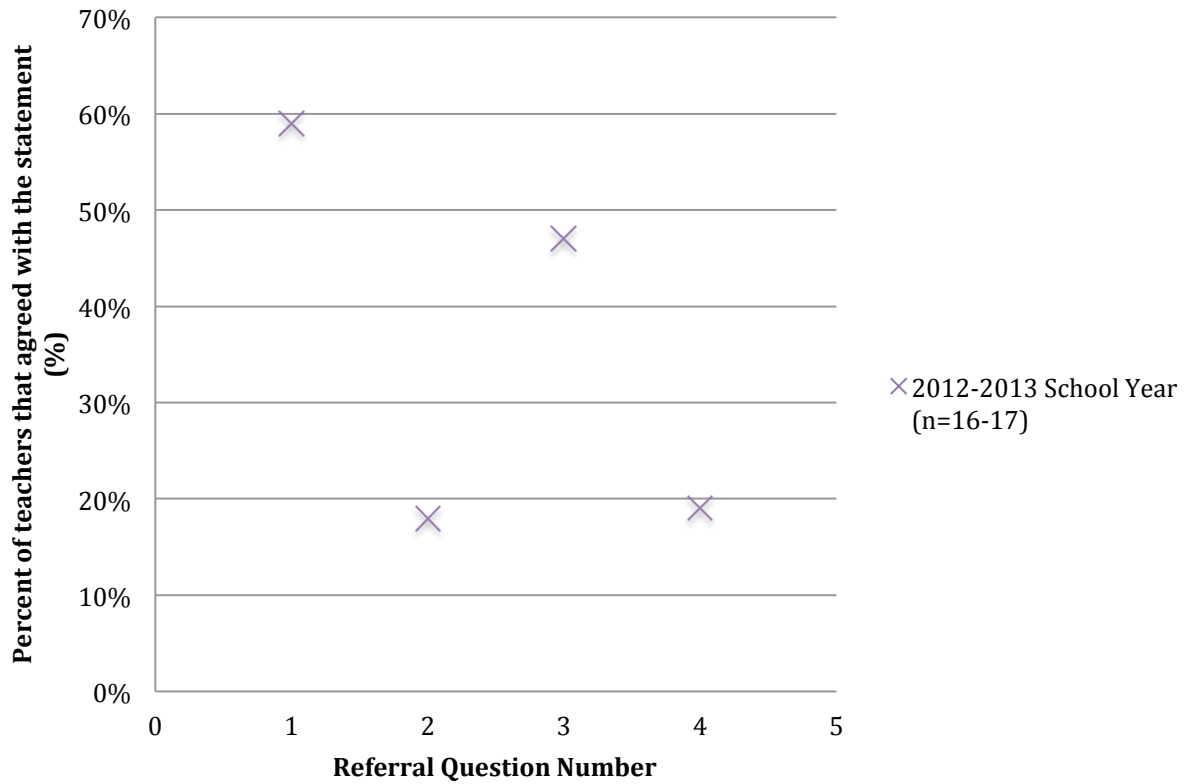
Referral Question Number	CATT Survey Question	2010-2011 Teachers (n)	2012-2013 Teachers (n)	Did Not Respond (n)
1	CATT strategies improved student success in my classroom.	37	5	43
2	CATT strategies have decreased negative behaviors in my classroom.	37	5	43
3	CATT strategies have decreased academic concerns within my classroom.	37	5	43
4	The CATT System is useful as a tool to identify barriers to learning and improve student success.	34	5	46
5	CATT strategies helped children be more successful in specials (art, PE, music, etc.).	36	5	44
6	CATT strategies benefitted children already receiving special education services.	35	4	46
7	I used the CATT System with children who needed special education/exceptional children services.	35	5	45
8	CATT strategies were an effective tool with problem solving learning barriers with children who already had an IEP.	34	5	46
9	I feel that more children were able to reach their potential within the classroom using the intervention strategies within the CATT Center's Student Intervention and Measurement Booklet.	34	4	47

**CATT Intervention System Training.** All teacher participants were surveyed in regards to the training that teachers received prior to using the CATT Intervention System, with

additional questions asked in 2012-2013. Of the 15 teachers surveyed in 2012-2013, 40% believed that the training prepared them for use of the CATT Intervention System, while 33% did not disagree nor agree and 27% disagreed. Of the teachers surveyed in this school year, only 20% of the 15 teachers had utilized the CATT Intervention System. Fifty-three percent of teachers also believed that the training did not appropriately address how to use the system (7% Strongly Agree, 47% Agree, 27% Neither Agree or Disagree) and did not state that an additional day of training would have been beneficial in making them comfortable to use the system (43% Disagree, 7% Strongly Disagree, 21% Neither Agree or Disagree). In addition, the teachers surveyed in the 2012-2013 school year did not believe that the CATT Universal Screening was helpful to indicate learning barriers of the students (60% Neither Agree or Disagree, 29% Disagree, 7% Strongly Disagree).

Survey data from 2012-2013 reported a majority of teachers had not received training related to sensory processing prior to the CATT Intervention System training, with 75% reporting they had not, as compared to responses of “Yes” (10%) and “I Don’t Know” (15%). This was much different than in 2010-2011, where 63% of teachers indicated that they had received training related to sensory processing, with 6% stating “I don’t know” and 31% stated “No”.

Survey data from 2012-213, as well as both 2010-2011 and 2012-2013 combined, with teacher perspectives in relation to the training is visualized below in Figure 16 and Table 9.



*Figure 16.* Responses from CATT Survey About CATT Intervention System Training in 2012. This figure illustrates responses that address the research question: Do teachers believe that the training they received on the CATT Intervention System enabled them to utilize the system, interventions, and documentation appropriately?

Table 9			
<i>Referral Question Numbers for Figure 16 (n=22)</i>			
Referral Question Number	CATT Survey Question	2012-2013 Teachers (n)	Did Not Respond (n)
1	The training prepared me to use the CATT System	17	5
2	The training did appropriately address how to use the CATT System Documentation	17	5
3	An additional day of training would have been beneficial for me and my comfort	16	6
4	I think the CATT screening that I completed online for each student was helpful.	16	6

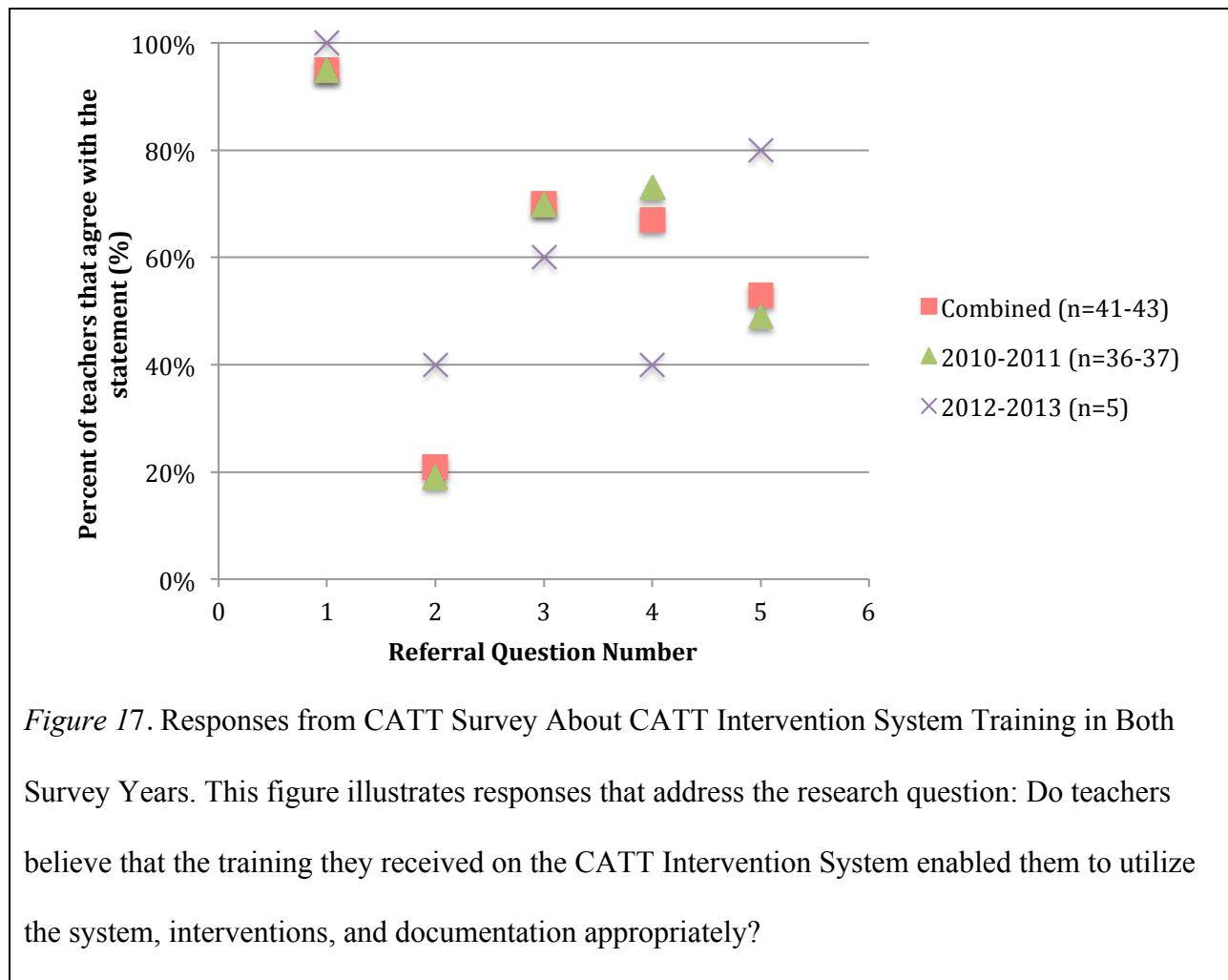


Table 10				
<i>Referral Question Numbers for Figure 17 (n=85)</i>				
Referral Question Number	CATT Survey Question	2010-2011 Teachers (n)	2012-2013 Teachers (n)	Did Not Respond (n)
1	I understand how to implement the techniques and tools recommended.	37	5	42
2	I have had to ask for outside assistance to understand how to implement the strategies.	36	5	43
3	If I did not understand how to implement an intervention strategy, I was able to find someone at my school who did.	37	5	42
4	I know how to contact the support team at School Specialty to answer questions I have.	37	5	42
5	I feel the information I gained from the support team at School Specialty answered my questions effectively.	37	5	42

**Did not use CATT Intervention System.** Teachers who did not use the CATT Intervention System were surveyed and the reasons for declining the use of the system are listed in the table below. Teachers were permitted to provide more than one answer.

Table 11			
<i>Reasons for not using the CATT Intervention System</i>			
	2010-2011 Survey (n)	2012-2013 Survey (n)	Total Responses (n)
I did not receive training on the CATT Intervention System.	7% (2)	15% (3)	10% (5)
I did not know my school had a CATT Intervention System.	3% (1)	15% (3)	8% (4)
I do not understand how to use the CATT Intervention System.	0% (0)	15% (3)	6% (3)
I do not have any students currently who may benefit from the CATT Intervention System.	38% (11)	35% (7)	37% (18)
The CATT Intervention System is inaccessible to me.	28% (8)	15% (3)	22% (11)
Other	24% (7)	5% (1)	16% (8)
Total	100 % (29)	100% (20)	100% (49)

Responses of “Other” were prompted to provide a response as to why they did not utilize the CATT Intervention System. Responses provided by teachers included that they had other interventions available to them, it was difficult to implement in a language immersion classroom, or that the participant was not a teacher.

## CHAPTER 5: DISCUSSION

### Study 1

#### **Is the CATT Intervention System effective in enhancing the skills of one student to prevent referral to special education and overcome learning barriers related to reading?**

The case study student made some gains in the area of reading after receiving an intervention provided by the CATT Intervention System. Results from the CATT Universal Screening indicate that by the middle of the school year, the student no longer had teacher-reported learning barriers in five of his eight teacher-identified areas of difficulty. This was noted by identifying that the student was able to be successful 75% or more of the time in the classroom with a particular skill. Of the three areas that were identified as most important by his teacher, the student no longer was having difficulty in responding appropriately to verbal information or reading aloud with grade-level fluency and expression. The student unfortunately did not show grade-level oral expression.

Of the remaining five learning barrier areas from the CATT Universal Screening, the student was able to demonstrate improvements in three additional barriers according to teacher-report. He was no longer distracted by noise within the classroom and demonstrated improved behavior and social skills. The student refrained from lying, cheating, stealing, or destroying property an increased amount of time, but was still demonstrating inappropriate responses to social physical contact and low self-confidence.

It could be argued, however, that the students' difficulties with oral expression, social physical contact, and self-confidence are all intertwined. These areas appear to be areas in which increased time would be beneficial in overcoming the deficits the student is showing. Decreased self-confidence and oral expression are closely linked, as the student is unlikely to engage in

social conversation and express himself verbally if he has decreased self-confidence. These two deficits can also have an impact on academic growth (Kennedy, Linwick, & Vercell, 2000). Increasing his ability to perform classroom and academic tasks could aid in increasing his self-confidence, allowing him to feel more comfortable with oral expression. It is also important to note that while these learning barriers would impact the student's social development, skills that affect his academic progress with the use of the CATT Intervention System were greatly improved with the use of the CATT Intervention System.

Per the CATT Universal Screener, the teacher of this case study student believed that he made noticeable gains in overcoming his learning barriers with the implementation of the Toobaloo. While the student may have indeed progressed past these learning barriers, a placebo effect must still be considered. As this screener is per teacher report, if the teacher had wanted to see the student progress, it is possible that the student did not make as many gains as the teacher indicated.

These improved academic skills were noted on the *mCLASS:Reading 3D* subtests; however, his improvement was not yet to grade level by the end of his 2<sup>nd</sup> grade year. The student demonstrated progress in all three DORF subtests, yet this progress did not place him within the 50<sup>th</sup> percentile, or the area that would indicate that the student was 80-90% likely to achieve the next literacy goal.

In DORF Fluency, the student was still below the cut point for risk by the end of year measurement. This indicates that he requires intensive intervention to improve his fluency, as he only has 10-20% odds of meeting the subsequent early literacy goals (Dynamic Measurement Group, 2010). The score indicates that the student is having difficulty with performing the preskills required to read and demonstrates a decreased ability to read words correctly.



The DORF Accuracy subtest scores demonstrated the student's ability to read accurately and, according to his results, the case study student continues to demonstrate deficits in this area. He made large gains from the beginning of the year to the end of the year; however, these gains only placed him at the cut point for risk by the end of the school year. The student will need to resume intensive interventions within the 2013-2014 school year to continue his progress, with the hope that he will be able to achieve the benchmark goal. His gains in this area, however, are not aligned with the class aggregate score. This indicates that maturation and teaching are both not factors that affected the student's score, as the class aggregate was able to obtain within 1 percent of the benchmark goal for DORF Accuracy.

The case study student did make progress above the cut point for risk on the DORF Retell test. He was able to achieve past this point after the middle of year administration and began to make gains towards the benchmark goal. This indicates that the student has a 40-50% chance of meeting the next benchmark goal and will not require as much support to continue his progression (Dynamic Measurement Group, 2010). The student still demonstrated a lag behind the class aggregate score, which showed the student's classmates as meeting and exceeding the benchmark goal for the duration of the school year. However, the student's progress was occurring at a faster rate than his class aggregate. If the student continues to progress at this rate, it is possible that he would eventually catch up to his classmates. The student's performance on the DORF Retell test, as well as the other two DORF Subtests of *mCLASS:Reading 3D*, indicate that he has been making progress but is not yet reading with grade level fluency.

These scores are congruent with the student's progress as monitored on the CATT Intervention System Progress Monitoring. The student's baseline score from the CATT Intervention System Progress Monitoring indicates that he was only reading an average of 15.8

WPM in October of his 2<sup>nd</sup> grade year. This is well below the beginning of year 50<sup>th</sup> percentile range, in which a student's ability to read with 2<sup>nd</sup> grade level WPM is 51±10. The student was also below the 25<sup>th</sup> percentile score. Upon receiving CATT Intervention System Interventions beginning October 22, 2012, the student began to show improvements in his WPM reading abilities. By the middle of the school year, the student exceeded the 25<sup>th</sup> percentile score and maintained that progress until the end of the school year. While he did make progress, this student unfortunately did not demonstrate the ability to read within 10 words of the 50<sup>th</sup> percentile score by the end of the year, indicating that he is still not reading at grade level for that time of the year (See Figure 12). However, according to the teacher-provided Universal Screening data, his learning barrier of "Struggles with Reading Aloud" was no longer identified as a learning barrier by the middle of the year according to the CATT Universal Screening (See Figure 8).

These results indicate that the CATT Intervention System aided this one student in overcoming some of his teacher-reported barriers to read at grade level; however, more objective performance measures suggested that he remained below grade level standards in reading. Studies have shown that students are able to make progress with interventions that last at least 20 weeks in the area of reading, although most students make the highest gains within that initial 20 weeks (Wanzek & Vaughn, 2008). This student received interventions for 25 weeks, indicating that the progress he has made thus far may be able to be continued with the use of intensive intervention. However, it has also estimated that 2-6% of students continue to struggle with reading, even after receiving generally effective reading interventions (Wanzek & Vaughn, 2008). This student demonstrated progress with all three measurements, yet this progress was not to grade level with data provided by the *mCLASS:Reading 3D*, nor the CATT Intervention

System Progress Monitoring. Despite this data, after receiving interventions, the case study student's teacher and the CATT Intervention Team determined that his progress was such that he no longer needed to be referred to special education for a learning barrier in reading. The student continues to participate in a regular education classroom with additional support in the area of reading.

The discrepancies between the results from each of the three measures suggest that the Universal Screening may not accurately measure student progress. When compared to the DORF Subtests, which have much psychometric support, these two measures did not provide the same results; rather, the Universal Screener indicated that the student no longer had a learning barrier, while the DORF Subtest showed that the student was still not reading with grade level ability. This suggests concerns that the CATT Universal Screener and Progress Monitoring tools do not reflect the reality of the validated measure. Additional research would be needed to verify the psychometric properties of the CATT Universal Screener and Progress Monitoring tools as they relate to currently established outcome measures. As the student was not referred to special education despite the results of the *mCLASS:Reading 3D* data, there is some concern as to how the teacher and administrators made this decision. If this team relied solely on the CATT Universal Screener and Progress Monitoring Forms, neither of which has been tested for reliability or validity, it is possible that the case study student should have been considered for special education services. However, since the CATT Universal Screener data were not accessed by the teachers and staff, it is unlikely that this was a factor in the referral decision.

## **Study 2**

Study 1 discussed the efficacy of the system in improving learning barriers in the area of reading, whereas Study 2 attempted to determine if teachers believed the entire system was

effective. The surveys from 2010-2011 and 2012-2013 varied slightly in regards to the wording of the questions. In 2010-2011, the CATT Intervention System was known as the CATT Center. This name was utilized on the survey for that year and changed to the CATT Intervention System for the 2012-2013 survey year. In addition to this wording change, seven additional questions were asked on the 2012-2013 survey. These questions aimed at assessing teacher opinions of the CATT Universal Screening and the training provided by the CATT Intervention System developer. These slight changes should not have affected the results of the survey.

Teachers generally believed that the CATT Intervention System was easy to use despite the fact that implementation of the system was not always done as intended. Teacher perceptions indicated that they understood how to use the CATT Intervention System and believed that interventions were easy to locate on the cart and easy to implement. Although the interventions were deemed helpful, teachers appeared to struggle with the progress monitoring element of the system. They were able to find assistance when they needed it, whether that assistance was from other schoolteachers, administrators, or the manufacturer of the system. This knowledge provides the base of support for the CATT Intervention System, as the intervention system will not be successful if teachers do not understand how to implement each step of the system.

**Do teachers believe that the CATT Intervention System decreased special education referrals and/or made the referral process easier for students who still required special education?**

Teachers believed that the CATT Intervention System was beneficial for the referral process. When a student did not meet their goal and was referred for special education, teachers believed that the CATT Intervention System was appropriate and successful in aiding in this process for their school, especially in regards to bettering the organization of the referral process.

With increased organization, a reasonable assumption would be that the process could become improved and quicker, providing students with the assistance level he/she requires in a more timely fashion. Given that one of the largest complaints about the RtI process is the amount of time each intervention tier is implemented, an expedited referral process could benefit students within this system. However, teachers did not strongly indicate that the use of this system increased their confidence in making a referral and or that the number of referrals was decreased due to use of the system. The hope was that the number of inappropriate referrals would be decreased, as students who needed a limited amount of intervention to overcome their learning barrier would receive this through the CATT Intervention System. Unfortunately, this was not true according to the participants.

**Do teachers believe the documentation utilized within the CATT Intervention System is comprehensive and easy to use within the classroom?**

Teachers indicated that the interventions provided by the Student Intervention and Measurement Booklet were helpful, but did not believe the SIMB was easy to use within the classroom. Teachers believed that the interventions recommended by the Student Intervention and Measurement Booklet (SIMB) were easy to understand and that locating the student's learning barrier was simple. The provided learning barriers and corresponding interventions were also found to be comprehensive and allowed teachers to make informed decisions about interventions. The use of the documentation provided by the system was also believed to increase the consistency in which intervention strategies were used, which is instrumental in measuring any student's progress over time.

These results about the CATT Intervention System's SIMB and the teacher-perceived ability to improve informed decision-making and comprehensive documentation is vital to

understanding how the CATT Intervention System could improve the RtI system. By being more informed about the student's learning barriers through proper documentation and being provided evidence-based interventions, a teacher is better able to address a student's needs within Tier 2 of the RtI model. The entire model focuses on the provision of evidence-based decision making and it appears that the CATT Intervention System could aid in that process.

However, the majority of teachers responded, "Neither agree or disagree" when asked if they felt it was easy to keep accurate documentation in the SIMB. This could decrease the validity of any results obtained by the SIMB, as if the teachers are not confident in their documentation, it is possible that they did not complete the documentation correctly. Teachers also provided neutral responses when asked if the documentation system was burdensome, with 60% of teachers responding with "Neither agree or disagree" and "Disagree". In a typical school setting, a teacher's day is extremely full with teaching, testing, and managing their students' behaviors. If a teacher views something as "burdensome", it is unlikely that he or she will devote precious time to complete the documentation that is essential to correctly utilizing the CATT Intervention System.

These responses may have arose from a belief that the CATT Intervention System and the corresponding documentation was not necessary or provided information that was not valuable in determining a student's need for special education. Some of these issues may be avoided in the future through the use of an electronic version of the SIMB, as almost 70% of teachers said that they would prefer this to the paper booklets currently provided by the CATT Intervention System.

Large differences between answers from 2012-2013 and 2010-2011 were also noted when analyzing data that related to the use of the SIMB. The participants from 2012-2013

indicated an increased rate of positive responses and believed that the SIMB was comprehensive and easy to use. However, the small sample size of n=4-5 is much smaller than the sample size from 2010-2011 (n=34-35). In 2010-2011, teachers were less likely to indicate that the SIMB was effective, as only 30%-65% of teachers “Strongly Agreed” or “Agreed” with the statements related to the SIMB.

**Do teachers believe that the training they received on the CATT Intervention System enabled them to utilize the system, interventions, and documentation appropriately?**

It was found that most teachers did not correctly complete the Student Intervention and Measurement Booklet while performing interventions. This is also an interesting finding, as it directly conflicts with the results stating that teachers felt that the SIMB was easy to use and that they understood how to implement interventions provided by the CATT Intervention System. Three of the four teachers who used the CATT Intervention System and completed the survey from the 2012-2013 school year agreed with those statements and indicated that they would like to use the system the following school year; however, only one teacher correctly completed the SIMB in order to be included into the case study portion of this thesis. The hesitation of teachers to complete the SIMB could be related to the findings discussing the CATT Intervention System training, in which teachers from this school year did not feel prepared or adequately trained to use the CATT Intervention System.

Teachers from the 2012-2013 year were also surveyed in regards to the CATT Intervention System Training and they believed that the training did not appropriately address how to use the system. These teachers also indicated that they did not believe an additional day of training would assist in making them comfortable enough to utilize the entire intervention system. Regardless the reason, the fact that teachers did not use the system may also indicate that

the training or the system is flawed. This includes the use of the CATT Universal Screening. The results from this screener were provided to the school for use by staff to help identify students who had learning barriers and would benefit from the CATT Intervention System. However, the CATT Intervention Team never accessed these results, indicating that the school did not use the screener to assist in the intervention process. The lack of initiative by the team may provide evidence that the teachers were not encouraged or felt supported enough to utilize the system. In addition, the results stating that the teachers did not feel as if an additional day of training would have been beneficial is also alarming, as this could imply that the teachers do not believe the training provided was effective at all or that they would not want to implement the CATT Intervention System despite any training they may receive. This result could also be rational on the part of the teachers, as an additional day of training would require additional time out of the classroom.

Teachers from the 2012-2013 school year were more likely to indicate that they had not received sensory processing training prior to the CATT Intervention System than teachers from the 2010-2011 school year, whom 63% reported that they had received training on sensory processing. Difficulties of students while learning within the classroom could be contributed to sensory processing challenges. Limited understanding of the sensory processing aspect of behavior in students could inhibit a teacher's ability to correctly aid and provide interventions to one of these students. This indicates that the teachers from 2012-2013 who did not utilize the system may have forgone use of the system based on lack of prior knowledge as compared to other teachers who were more successful at implementing the system during the other survey year.



Although not measured by the 2012-2013 survey, the researcher found it interesting that when she would discuss use of the system and progress monitoring with school personnel, these individuals often communicated that they did not feel adequately prepared to observe students in order to collect a baseline or progress measurement. The CATT Intervention Team also expressed concerns in regards as to how to appropriately observe students. It is likely that this was a large contributing factor to the noncompliance with research methods that was found during this school year, as a majority of teachers utilized interventions without completing the corresponding documentation. It is unclear if the methods used for observations were not communicated effectively during the CATT Intervention System training or if the CATT Intervention Team at this school did not encourage teachers to use the system appropriately. This may also be related to the teacher's lack of prior knowledge and that the training received by these teachers was too complex based on their baseline understanding. The developer of the system also expressed concern about these same issues after completing the two-day of training and questioned the integrity of the data that would be collected from the use of the system at this school.

When asked why the CATT Intervention System was not utilized in his/her classroom, the majority of teachers from both survey years stated that they did not have a student within their classroom that would benefit from the system. Teachers also indicated that the CATT Intervention System was not accessible to them. This could have implications as to the use of the CATT Intervention System throughout an entire school. While teachers stated that there was no need for more than one CATT Intervention Cart within the school, it would be beneficial to understand why teachers did not feel as if they had access to the system. This could be due to the physical location in which the cart was placed, or possibly a problem secondary to the CATT

Intervention System training in which these teachers did not feel adequately prepared to use the system.

It is interesting to note that when teachers were asked which intervention they most commonly used, teachers only listed products that could be found on the CATT Intervention System Cart, such as color overlays, pencil grips, and wiggle seats. The CATT Intervention System also provides many techniques that can be implemented by the teacher without the use of an intervention product, such as changing the student's location within the classroom or allowing the student short breaks throughout the day. As teachers did not identify any of these interventions on the survey, it is questionable as to whether they used these techniques versus just using the system as a resource cart to check out tools. The CATT Intervention System recommends utilizing techniques prior to using product interventions, as these techniques often allow students to succeed within the classroom without the need for something that they may not always have access to. For example, if a student is only able to maintain in-seat behavior in the classroom with the use of a wiggle seat, that student may continue to struggle in other areas of school and in the community.

It is possible that the teachers were already aware of these methods from prior knowledge or experience, but this may have some effect on the perceived efficacy of the CATT Intervention System. If teachers do not utilize these basic techniques prior to using product interventions or associate these techniques with the system, the results of the survey could be different in regards to how teachers believed the CATT Intervention System aided the referral process or assisted students. It may also indicate that teachers would not attempt to document their attempts at using these techniques, so student progress would not be tracked.

**Do teachers believe that the CATT Intervention System is effective at improving student**

### **success within the classroom?**

Perhaps the most important finding about the CATT Intervention System is that teachers did believe that the system was effective at improving student success within the classroom.

Teachers who had used the system noticed decreased negative behaviors from students while utilizing the CATT Intervention System and believed that students receiving interventions were more able to reach their potential within the classroom. As teacher perception is a large determining factor in elementary school grades due to subjective in-class testing, it is extremely important that teachers agreed that the use of this system improved student success.

Unfortunately, teachers were undecided when asked if academic-specific concerns from students decreased while in their primary classroom or during special programs such as art, physical education, and music. It is possible that the amount of “not applicable” and “neither agree or disagree” responses collected from the question in regards to special programs is due to the fact that teachers do not go to these programs with their students and did not have the opportunity to observe their academic or behavioral progress.

Teachers were able to notice progress with students who were receiving special education services, especially in 2012-2013. The four teachers that responded to the survey in this year all believed that the CATT Intervention System was effective in addressing the learning barriers of students who are already in special education. This is in comparison to the 55% from 2010-2011. This increased belief from 2012-2013 could indicate that the teachers from that year were more likely to utilize the CATT Intervention System with students who were already receiving special education services. This would also correspond with the noncompliance in documentation found during this year. If teachers were only using the system with students who were receiving special education services, it is possible that they would not consider using the appropriate

documentation, as these students would already have others within the school that were monitoring their progress.

### **Limitations**

One of the largest limitations to this study was the evidence regarding teacher noncompliance with the CATT Intervention System's documentation process. While this could be an isolated incident, it provides evidence that the teachers at that school did not complete the documentation correctly and implies that other teachers may not as well. It is difficult to determine the exact cause of the teacher noncompliance, but this knowledge could be beneficial in future research, as additional survey questions could allow the manufacturer of the CATT Intervention System to adjust the process to increase teacher cooperation.

Along with the noncompliance in completing the SIMB during the 2012-2013 school year, another limitation to this study is that data is from teacher report. While the reports may be very accurate, it is also possible that the data will not be representative of the student's actual performance. This may be due to a teacher's lack of time in completing an assessment, a teacher's misinterpretation of the CATT Universal Screening, or a misunderstanding of how to use the CATT Intervention System interventions or documentation. This case study is also partially based on a non-standardized or norm-referenced screener and will only be a reflection of the teacher's interpretation of the student's progress. However, simply because this information is not standardized or provided via teacher report should not mean that this data is irrelevant; rather, it should prove to be valuable, as teacher perception is used within a school system to monitor a student's progress through the subjective grading of assignments and semi-annual report card grades.

The case study discussed in this paper provides great insight into the ability of the CATT Intervention System to improve student success, yet these results are limited by the nature of the data being from a single student and a convenience sample. Outside factors, including student maturation, improved teaching, or increased communication between teacher and parent for better carryover at home, could all have affected the results provided by the case study sample. In addition to those factors, it is also difficult to determine if the student's progress was a result of the CATT Intervention System or simply the use of the intervention with the Toobaloo. This is a large limitation to studying the CATT Intervention System as a whole, as a majority of the interventions provided by the system have been shown by evidence to be efficacious.

### **Implications for OT**

With increasing case load sizes, increasing amounts of required documentation, and decreases in education budgets, occupational therapists within the school setting often have little time to devote to students who require their services, with almost no time for students who have not yet been identified as a student with a learning barrier. According to the Individuals with Disabilities Education, Act 3, parents do not need to give signed consent for their student to begin receiving occupational therapy services until special education is being considered (Clark, Brouwer, Schmidt, Alexander, 2008). Depending on the state in which an occupational therapist is practicing, it is possible for a student to begin receiving services while still in general education.

However, time and resources are frequently not utilized for general education students. These students are the students who often go overlooked. Their deficits are not profound enough for special education, yet do not allow these students to thrive within the educational setting. Further testing must be done to examine the efficacy of the CATT Intervention Center, but if it

proves to be a successful tool in providing interventions, this system could be very beneficial in providing earlier interventions to these students in particular. This could also help to prevent inappropriate referrals, as students who can have their learning barrier addressed within the classroom may not need additional skilled services. This would assist in decreasing the number of students on an occupational therapist's caseload, as well as lowering the number of IEP meetings an OT is required to attend. While this may be beneficial, further research would also help to ensure that teachers are still making appropriate referrals and not attempting to provide skilled services to students who do need to progress to Tier 3 of RtI.

The referral process for a student who has received CATT Intervention System services could also be different, as this student will have much more documentation or information than is typically provided for this process. An occupational therapist will have access to this data to be able to further understand their potential future client, as well as to prevent the use of time and effort on interventions that have already shown to be ineffective. It is also important to note that by having a CATT Intervention System cart within a school, the school occupational therapist may also have access to the research-based products provided. This would allow the OT to try a variety of interventions on students currently on their caseload without spending additional money to try interventions that may or may not work with a student.

## **Conclusion**

The case study presented in this thesis demonstrates that the CATT Intervention System may indeed be effective when implemented correctly. In regards to the measurements utilized with the case study student, further testing must be done to determine if both the CATT Universal Screening and the CATT Intervention System Progress Monitoring are accurate tools of measurement. The data obtained from the progress monitoring forms were congruent with the

well-studied *mCLASS:Reading 3D* data, providing evidence that the progress monitoring form may be able to correctly monitor the progress made by a student. The student made large gains in his reading abilities, yet he did not demonstrate the ability to read at grade level by the end of the study.

These primary results in regards to the CATT Intervention System indicate that teachers appeared to have differing opinions on the use of the system within a classroom while also improving student success. Teachers believed that the system was easy to use, yet teachers from 2012-2013 did not correctly utilize the documentation provided. Further research into the efficacy of the CATT Intervention System will likely be difficult secondary to the nature of the system and the evidence based interventions it provides. Repetitive research may be the only method for controlling this variable and determining if the system itself, rather than these interventions, is efficacious.

The researcher also believes that it would be beneficial for a school to have access to a CATT Intervention System for one school year prior to research in order for all teachers and administrators to become accustomed to the process and documentation. This would allow future researchers to better prepare teachers in order to minimize research method noncompliance. This preparation of teachers would also be advanced with the implementation of a more formal follow-up process by trainers, as it is unclear if this communication ever occurred in the 2012-2013 school year. A formal process would emphasize the importance of understanding the CATT Intervention System, as well as provide teachers with additional support in the implementation and documentation of interventions.

However, additional studies must be conducted in order to further support both the research questions presented in this survey study and the ability of the CATT Intervention System to improve a student's ability to overcome learning barriers.



## REFERENCES

- Abadzi, H. (2008). Efficient Learning for the Poor: New Insights into Literacy Acquisition for Children. *International Review Of Education / Internationale Zeitschrift Für Erziehungswissenschaft*, 54(5/6), 581-604. doi:10.1007/s11159-008-9102-3.
- American Institutes for Research & The U.S. Department of Education's Office of Special Education Programs. (2013) *National Center on Response to Intervention*. Retrieved from <http://www.rti4success.org/>.
- Baker, S. K., Smolkowski, K., Katz, R., Fien, H., Seeley, J., Kame'enui, E. J., & Thomas Beck, C. (2008). Reading fluency as a predictor of reading proficiency in low-performing high poverty schools. *School Psychology Review*, 37, 18–37.
- Biancarosa, G., Bryk, A. S., & Dexter, E. R. (2010). Assessing the value-added effects of literacy collaborative professional development on student learning. *Elementary School Journal*, 111, 7–34.
- Bouldoukian, J., Wilkins, A.J., & Evans, B.J.W. (2002) Randomised controlled trial of the effect of coloured overlays on the rate of reading of people with specific learning disabilities. *Ophthalmic and Physiologic Optics*, 22, 56-60.
- Bradley, R., Danielson, L., & Doolittle, J. (2005). Response to intervention. *Journal of Learning Disabilities*, 38(6), 485-6. Retrieved from <http://search.proquest.com.jproxy.lib.ecu.edu/docview/194223245?accountid=10639>
- Clark, G. F., Brouwer, A., Schmidt, C., & Alexander, M. (2008). Response to intervention (RtI) model. *OT Practice*, 13(14), 9-13. Retrieved from <http://search.proquest.com.jproxy.lib.ecu.edu/docview/232422952?accountid=10639>
- Daly III, E.J., Martens, B.K., Barnett, D., Witt, J.C., & Olson, S.C. (2007) Varying intervention delivery in response to intervention: Confronting and resolving challenges with measurement, instruction, and intensity. *School Psychology Review*, 36(4), 562-581.
- Donica, D. (2012) CATT intervention center survey summary: administrators input. White Paper.
- DuPaul, G. (2007). School-based interventions for students with attention deficit hyperactivity disorder: Current status and future directions. *School Psychology Review*, 36(2), 183-194.
- Dynamic Measurement Group, Inc. (2010). DIBELS Next Benchmark Goals. Retrieved from: <https://dibels.org/papers/DIBELSNextBenchmarkGoals.pdf> .
- Dynamic Measurement Group, Inc. (2011). Why is Retell a Required Part of DORF in DIBELS Next?. Retrieved from: [http://dibels.org/papers/WhyRetell\\_DIBELSNext.pdf](http://dibels.org/papers/WhyRetell_DIBELSNext.pdf)

- Dynamic Measurement Group, Inc. (2013). DIBELS Next. Retrieved from:  
<https://dibels.org/next/>
- Fuchs, D., Fuchs, L.S., Compton, D.L., Bouton, B., Caffrey, E., & Hill, L. (2007). Dynamic assessment as responsiveness to intervention. *Teaching Exceptional Children, 39*(5), 58-63.
- Fuchs, L.S., & Vaughn, S. (2012) Responsiveness-to-Intervention: A decade later. *Journal of Learning Disabilities, 45*(3), 195-203.
- Harlacher, J.E., Nelson Walker, N. J., & Sanford, A.K. (2010). The “I” in RTI: Research-based factors for intensifying instruction. *TEACHING Exceptional Children, 42* (6), 30-38.
- Hasbrouck, J. & Tindal, G. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher, 59*(7), 636-644, oi:10.1598/RT.59.73
- Hopp, P.J., Smith, C.A.P., Clegg, B.A., & Heggestad, E. D. (2005). Interruption management: The use of attention-directing tactile cues. *Human Factors, 47* (1), 1-11.
- Hughes, C., & Dexter, D. (2011). Response to Intervention: A research-based summary. *Theory Into Practice 50*(1), 4-11.
- Kennedy, P. L., Linwick, M. A., & Vercell, J. A. (2000, May 1). Improving Social and Emotional Skills through Cooperative Learning.
- Lipson, M. Y., Chomsky-Higgins, P. and Kanfer, J. (2011), Diagnosis: The Missing Ingredient in RTI Assessment. *The Reading Teacher, 65*: 204–208. doi: 10.1002/TRTR.01031.
- McMurray, S., Drysdale, J., & Jordan, G. (2009) Motor processing difficulties: guidance for teachers in mainstream classrooms. *Support for Learning, 24* (3), 119-125.
- McSporran, E., & Butterworth, Y. (1997) Sound field amplification and listening behaviour in the classroom. *British Educational Research Journal, 21* (1), 81-97.
- Mellard, D.F., Byrd, S.E., Johnson, E., Tollefson, J.M., & Boesche, L. (2004). Foundations and research on identifying model responsiveness-to-intervention sites. *Learning Disability Quarterly, 27* (Fall), 243-256.
- Milwaukee Public Schools. (2013). DIBELS Next: QUICK SHEET. DIBELS Oral Reading Fluency (DORF). Retrieved from  
[http://www5.milwaukee.k12.wi.us/dept/DORF\\_Quick\\_Sheet.pdf](http://www5.milwaukee.k12.wi.us/dept/DORF_Quick_Sheet.pdf).
- Milwaukee Public Schools. (2013). DIBELS Next: QUICK SHEET. DORF RETELL. Retrieved from  
[http://www5.milwaukee.k12.wi.us/dept/DORF\\_RETELL\\_Quick\\_Sheet.pdf](http://www5.milwaukee.k12.wi.us/dept/DORF_RETELL_Quick_Sheet.pdf).

- Miranda, A., Presentacion, M.J., & Soriano, M. (2002). Effectiveness of a School-Based Multicomponent Program for the Treatment of Children with ADHD. *Journal of Learning Disabilities*, 35(6), 546-563.
- National Center for Education Statistics (ED), W. C. (ED), Washington, DC. (1999). Teachers' Feelings of Preparedness. Indicator of the Month.
- National Institute of Mental Health (2012). Any disorder among children. Retrieved from [http://www.nimh.nih.gov/statistics/1anydis\\_child.shtml](http://www.nimh.nih.gov/statistics/1anydis_child.shtml).
- North Carolina Department of Public Instruction. (2009). The North Carolina K-2 literacy assessment. Raleigh, NC.
- Pfeiffer, B., Henry, A., Miller, S., & Witherell, S. (2008). Effectiveness of Disc 'O' Sit cushions on attention to task in second-grade students with attention difficulties. *American Journal Of Occupational Therapy*, 62(3), 274-281.
- Public Schools of North Carolina. (2013). North Carolina Read to Achieve: A guide to implementing House Bill 950/S.L. 2012-142 Section 7A. Raleigh, NC. NC Department of Public Instruction. Retrieved from: [https://eboard.eboardsolutions.com/meetings/TempFolder/Meetings/GCS%201%20-%20Attach%20%20-%20Guidebook\\_122671jtzpo55ejtdut55aoh21e55.pdf](https://eboard.eboardsolutions.com/meetings/TempFolder/Meetings/GCS%201%20-%20Attach%20%20-%20Guidebook_122671jtzpo55ejtdut55aoh21e55.pdf).
- Reid, D., Chiu, T., Sinclair, G., Wehrmann, S., & Naseer, Z. (2006) Outcomes of an occupational therapy school-based consultation service for students with fine motor difficulties. *The Canadian Journal of Occupational Therapy*, 73 (4), 215-225.
- Roberts, G., Good, R., & Corcoran, S. (2005). Story retell: A fluency-based indicator of reading comprehension. *School Psychology Quarterly*, 20, 304-317.
- Roehrig, A. D., Petscher, Y., Nettles, S. M., Hudson, R. F., & Torgesen, J. K. (2008). Accuracy of the DIBELS oral reading fluency measure for predicting third grade reading comprehension outcomes. *Journal of School Psychology*, 46, 343-366.
- Ross, J. & Kostuch, L. (2011) Consistency of report card grades and external assessments in a Canadian province. *Educational Assessment, Evaluation, & Accountability*, 2011(23), 159-180.
- Saeki, E., Jimerson, S., Earhart, J., Hart, S., Renshaw, T., Singh, R., & Stewart, K. (2011). Response to intervention (RtI) in the social, emotional, and behavioral domains: Current challenges and emerging possibilities. *Contemporary School Psychology*, 15, 43-52.
- Schilling, S., Carlisle, J., Scott, S. E., & Zeng, J. (2007). Are fluency measures accurate predictors of reading achievement? *Elementary School Journal*, 107, 429-448.
- Schulken, T. (2010) Student intervention and measurement booklet. Owned by School Specialty.

- Sciutto, M., Richwine, S., Mentrikoski, J., Niedzwiecki, K. (2012) A qualitative analysis of the school experiences of students with Asperger Syndrome. *Developmental Disabilities*, 27(3), 177-188.
- Stoolmiller, M., Biancarosa, G., & Fien, H. (2013). Measurement Properties of DIBELS Oral Reading Fluency in Grade 2: Implications for Equating Studies. *Assessment For Effective Intervention*, 38(2), 76-90.
- Wanzek, J., & Vaughn, S. (2008). Response to varying amounts of time in reading intervention for students with low response to intervention. *Journal of Learning Disabilities* 41(2), 126-142.
- Wireless Generation. (2013). Brochure. mCLASS Reading 3D. Brooklyn, NY. Dynamic Measurement Group, Inc.

**APPENDIX A: TRACKING A STUDENT'S PROGRESS**  
**WITH THE CATT INTERVENTION SYSTEM**

To implement a strategy and fill out the Student Intervention and Measurement Booklet (SIMB), teachers are given the following directions.

1. Complete identifying information: The teacher is asked to complete the identifying information, date initiated, and status of parent notification on the cover of the Student Intervention & Measurement Booklet.
2. Consult the Quick Reference Areas: to determine the school performance area in which the student requires intervention. This shows the page where each deficit area is located.
3. Identify the learning barrier and select strategy: Identify the affected learning barrier and select an intervention strategy. (See Appendix B for example). Retrieve the intervention item from the CATT Intervention System's cart.
4. Begin progress monitoring
  - a. Go to a Progress Monitoring page of the SIMB
  - b. Fill in the learning barrier at the top of the Progress Monitoring.
  - c. Fill in the intervention strategy that will be used and the RtI tier that the intervention will address.
  - d. Complete three baseline and typical peer observations during the same time and activity. Plot each observation on the respective graphs and calculate the average.
  - e. Plot the student's baseline average on the progress graph
  - f. Draw an aim line on the progress graph. The aim line is the line drawn from the baseline measurement to the goal. This represents the path by which the student's

performance optimally progresses toward the desired goal within a designated time period.

- g. Write a measureable goal at the top of the Progress Monitoring. This goal must be quantifiable and is described in a way in which the end result cannot be disputed.
  - h. Implement strategy with consistency.
  - i. Monitor progress 2-3 times per week, or for 6 data points. Use the observation chart to record the date of each observation and circle a number 0-4 representing the student's response to strategy.
    - Key:
      - 0. Intervention strategy is not effective in addressing the specific learning barrier, or is less than 25% effective
      - 1. Intervention strategy resolves barrier to learning 1 out of 4 times, or 25% of the time.
      - 2. Intervention strategy resolves barrier to learning 2 out of 4 times, or 50% of the time.
      - 3. Intervention strategy resolves barrier to learning 3 out of 4 times, or 75% of the time.
      - 4. Intervention strategy resolves barrier to learning, or 100% effective
    - j. After 6 observations, calculate the average score by adding the numbers from the 6 observations and dividing by 6.
5. Plot data: Plot the trial period average on the progress graph on the line labeled trial period A.

6. Data analysis:

- a. If the trial period average is on or above the aim line, continue the intervention and progress monitor for 6 more data points. Continue to progress monitor for at least four more trial periods to ensure continued efficacy.
- b. Should the progress plateau prior to meeting the goal, it may be necessary to add an additional strategy. Record the additional strategy on the observation chart in a different color. Continue plotting on next trial period line on progress graph.
- c. If the trial period is below the aim line, choose another intervention strategy and change the color of writing instrument you are using to plot information on the graph. If the initial strategy is discarded, begin plotting at trial period A.

**APPENDIX B: STUDENT INTERVENTION AND MEASUREMENT BOOKLET**

**ELEMENTARY  
SCHOOL EDITION**



**CATT INTERVENTIVE  
SYSTEM & BOOKLET**  
Developed by:  
Toni M. Schulken, MS, OTR/L

**STUDENT INTERVENTION & MEASUREMENT BOOKLET**

Student Name: \_\_\_\_\_ School: \_\_\_\_\_  
 Student Date of Birth: \_\_\_\_\_ Teacher/Grade: \_\_\_\_\_  
 Student ID: \_\_\_\_\_ Date Initiated: \_\_\_\_\_ Parent Notified: Y/N Date \_\_\_\_\_

Date reviewed	Reviewed by	Parent notified y/n date

Date reviewed	Reviewed by	Parent notified y/n date

Page 1-2..... Documentation Instructions    Page 3-6..... Progress Monitoring Forms    **Explore Cultural Differences**

**QUICK REFERENCE TO SCHOOL PERFORMANCE AREAS:**

Page 7..... Work Habits/Behavior    Page 25..... Written Expression  
 Page 17..... Organization    Page 27..... Oral Language  
 Page 18..... Test Taking    Page 32..... Reading  
 Page 20..... Note Taking    Page 35..... Math  
 Page 22..... Handwriting    Page 38..... Science

Page 39..... Social Studies  
 Page 41..... Physical Education  
 Page 43..... Art  
 Page 44..... Music  
 Page 46..... Keyboarding/Technology

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# WORK HABITS/BEHAVIOR



Learning Barriers	Intervention Strategies	Comments
<p><b>Difficulty following routines</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Assign a buddy (peer helper) to child to complete routine together</li> <li><input type="checkbox"/> Practice routine before or after school until it is more automatic</li> <li><input type="checkbox"/> Materials checklist (bilingual if applicable)</li> <li><input type="checkbox"/> Visual/pictorial schedules (on board/desk) – bilingual if applicable</li> <li><input type="checkbox"/> <b>Sensory Stories (43)</b></li> <li><input type="checkbox"/> Success Stories (customized printable e-books) – yearly subscriptions required (<a href="http://www.integrationcatalog.com">www.integrationcatalog.com</a>)</li> <li><input type="checkbox"/> <b>Talking Pen/Student Labels (48)</b> – provide separate auditory labels for each part of a visual schedule in English and/or native language</li> <li><input type="checkbox"/> <b>Talking Pen/Student Labels (48)</b> – record and place labels in specific areas for classroom procedures, routines and/or rules schedule in English and/or native language</li> <li><input type="checkbox"/> Have child verbally repeat sequence of routine prior to execution (both in English and native language)</li> <li><input type="checkbox"/> Ensure understanding of direction words (i.e., before, after, then, next, etc.)</li> </ul>	
<p><b>Struggles with transitions</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Teach transitions as a lesson plan, practicing often with feedback (with or without timing)</li> <li><input type="checkbox"/> 5 minute and 1 minute warnings before transition</li> <li><input type="checkbox"/> Arrange for a peer helper</li> <li><input type="checkbox"/> Visual cues (lights off/on)</li> <li><input type="checkbox"/> Use 1, 3, and/or 5-minute sand timers on student's desk to give a visual cue of time remaining before transition</li> <li><input type="checkbox"/> Transition Objects (carry a ball to P.E., carry a book to the media center, etc.)</li> <li><input type="checkbox"/> Give child a specific purpose during unstructured times (line leader, etc.)</li> <li><input type="checkbox"/> Implement a transition song or chant</li> <li><input type="checkbox"/> <b>Positive Behavioral Strategies (15)</b></li> <li><input type="checkbox"/> <b>Weighted Hail Pass (37)</b></li> <li><input type="checkbox"/> <b>Line Leader (19)</b></li> <li><input type="checkbox"/> Visual schedules (on board, on desk)</li> <li><input type="checkbox"/> <b>3" Time Timer (44) or Time Timer CD (44)</b></li> <li><input type="checkbox"/> <b>Sensory Stories (43)</b></li> <li><input type="checkbox"/> Success Stories (customized printable e-books) – yearly subscriptions required (<a href="http://www.integrationcatalog.com">www.integrationcatalog.com</a>)</li> <li><input type="checkbox"/> <b>Talking Pen/Student Labels (48)</b> – provide separate auditory labels for each part of a visual schedule in English and/or native language</li> </ul>	

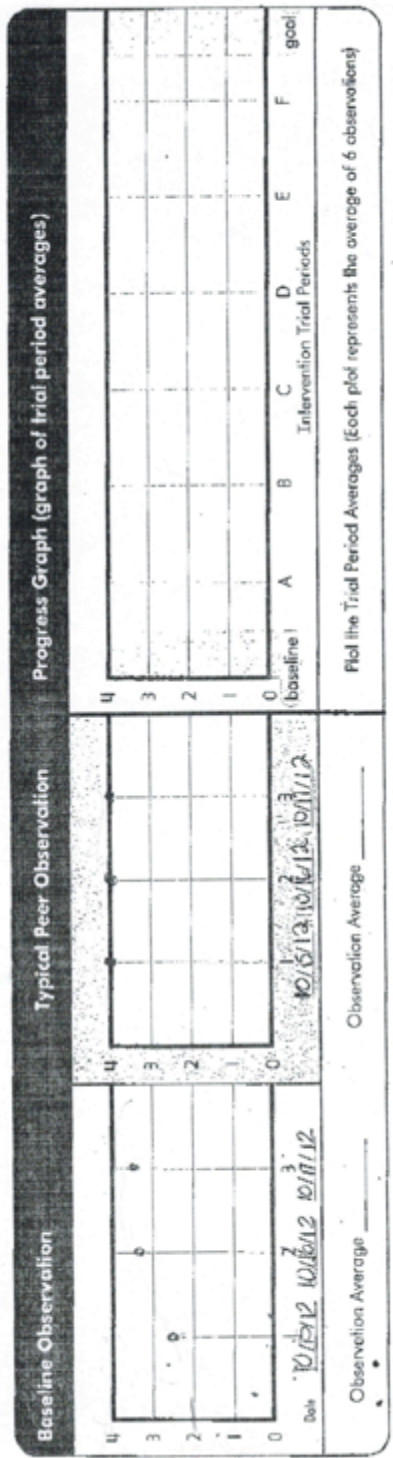
**APPENDIX C: CATT INTERVENTION SYSTEM PROGRESS MONITORING  
FOR CASE STUDY STUDENT**

*CATT Student*

**PROGRESS MONITORING: BASELINE, AIMLINE & PROGRESS**

Learning Barrier: *Struggles with reading aloud*

Measurable Goal: \_\_\_\_\_



**OBSERVATION CHART**

RII Tier	Observation 1	Observation 2	Observation 3	Observation 4	Observation 5	Observation 6	Trial Period Average
1	Date: 10/22/12 0 1 2 3 4	Date: 10/24/12 0 1 2 3 4	Date: 10/26/12 0 1 2 3 4	Date: 10/30/12 0 1 2 3 4	Date: 11/3/12 0 1 2 3 4	Date: 11/19/12 0 1 2 3 4	13/24 (58%)
	Date: 11/5/12 0 1 2 3 (4)	Date: 11/6/12 0 1 2 3 (4)	Date: 11/29/12 0 1 2 3 (4)	Date: 12/3/12 0 1 2 3 (4)	Date: 12/7/12 0 1 2 3 (4)	Date: 12/11/12 0 1 2 3 (4)	22/24 (91%)
	Date: 11/26/12 0 1 2 3 4	Date: 11/28/12 0 1 2 3 4	Date: 11/29/12 0 1 2 3 4	Date: 12/3/12 0 1 2 3 4	Date: 12/7/12 0 1 2 3 4	Date: 12/11/12 0 1 2 3 4	19/24 (79%)
	Date: 12/14/12 0 1 2 3 4	Date: 12/18/12 0 1 2 3 4	Date: 12/18/12 0 1 2 3 4	Date: 12/23/12 0 1 2 3 4	Date: 1/11/13 0 1 2 3 4	Date: 1/14/13 0 1 2 3 4	16/24 (67%)
	Date: 1/11/13 0 1 2 3 4	Date: 1/26/13 0 1 2 3 4	Date: 3/1/13 0 1 2 3 4	Date: 3/15/13 0 1 2 3 4	Date: 3/15/13 0 1 2 3 4	Date: 3/22/13 0 1 2 3 4	23/24
	Date: 2/20/13 0 1 2 3 4	Date: 2/26/13 0 1 2 3 4	Date: 3/1/13 0 1 2 3 4	Date: 3/15/13 0 1 2 3 4	Date: 3/15/13 0 1 2 3 4	Date: 3/22/13 0 1 2 3 4	19/24

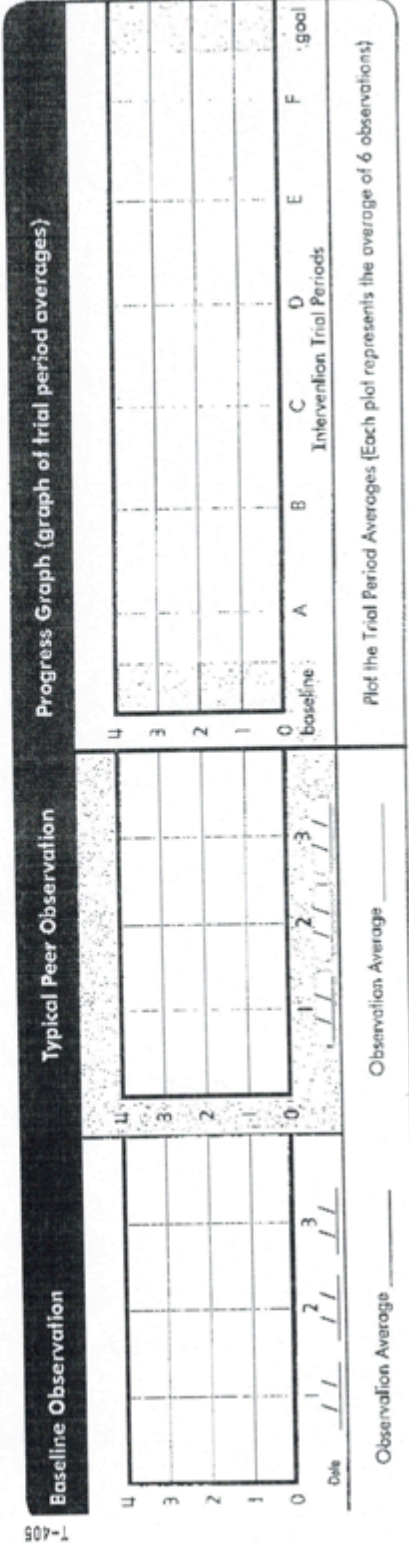


# PROGRESS MONITORING: BASELINE, AIMLINE & PROGRESS

CATT  
INTERVENTION SYSTEM

Learning Barrier: \_\_\_\_\_

Measurable Goal: \_\_\_\_\_



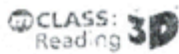
## OBSERVATION CHART

Intervention Strategy	RII Tier	Observation 1	Observation 2	Observation 3	Observation 4	Observation 5	Observation 6	Trial Period Average
Tobacco Cont. Swords	3	Date: 4/18 0 1 2 3 4	Date: 4/19 0 1 2 3 4	Date: 4/20 0 1 2 3 4	Date: 4/21 0 1 2 3 4	Date: 4/22 0 1 2 3 4	Date: 4/23 0 1 2 3 4	
		Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	
		Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	
		Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	
		Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	
		Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	Date: _____ 0 1 2 3 4	

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**APPENDIX D: CASE STUDY STUDENT DATA FROM mCLASS :READING 3D**

Student	Grade 1			Grade 2			Grade 3				
	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY		
DIBELS Next Composite Score	Dora	Strategic	Strategic	Strategic	Intensive	Intensive	Intensive				
TRC	RB <sup>N</sup> Far Bel.	D <sup>F</sup> Far Bel.	F <sup>F</sup> Far Bel.	F <sup>F</sup> Far Bel.	I <sup>F</sup> Far Bel.	K <sup>F</sup> Far Bel.	F <sup>F</sup> Far Bel.				
FSF	Score	Assessed with mCLASS:DIBELS									
	Goal										
LNF	Score										
	Goal										
PSF	Score										
	Goal										
NWF	Score						19				
CLS	Goal						54				
NWF	Score						1				
WWR	Goal						13				
DORF	Score			25	33	37	22				
Fluency	Goal			52	72	87	70	86	100		
DORF	Score			93	92	93	76				
Accuracy	Goal			90	96	97	95	96	97		
DORF	Score			N/A	N/A	8	0				
Retell	Goal			16	21	27	20	26	30		
Daze	Score						3				
	Goal						8	11	19		
TRC	Book Level	RB	D	F	F	I	K	F			
	Goal	D	G	J	J	L	M	M	O		
WR	List A (Max 24)		22	20		23	22				
	List B (Max 24)		16			23	24				
	List C (Max 24)										



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## APPENDIX E: INSTITUTIONAL REVIEW BOARD APPROVAL FOR CASE STUDY



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board Office**  
4N-70 Brody Medical Sciences Building · Mail Stop 682  
600 Moye Boulevard · Greenville, NC 27834  
Office **252-744-2914** · Fax **252-744-2284** · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Amendment Approval

From: Social/Behavioral IRB

To: [Brittany Robertson](#)

CC: [Denise Donica](#)

Date: 11/22/2013

Re: [Ame3 UMCIRB 12-001050](#)

[UMCIRB 12-001050](#)

Efficacy of Classroom Accommodations Techniques & Tools Intervention System (CATT) improving student performance at Tier 1 and Tier 2

Your Amendment has been reviewed and approved using expedited review on 11/22/2013. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document

Description

The title of this research has changed to better reflect its purpose. The new title will be "Exploring the Use and Implementation of the CATT Intervention System". In addition, this study will no longer focus solely on handwriting. Instead, the existing data sets will allow the researcher to examine the effects of the CATT Intervention System on a wide variety of school subjects.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418  
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

## APPENDIX F: INSTITUTIONAL REVIEW BOARD APPROVAL FOR SURVEY



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board Office**  
4N-70 Brody Medical Sciences Building · Mail Stop 682  
600 Moye Boulevard · Greenville, NC 27834  
Office **252-744-2914** · Fax **252-744-2284** · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Amendment Approval

From: Social/Behavioral IRB

To: [Brittany Robertson](#)

CC: [Denise Donica](#)

Date: 11/22/2013

Re: [Ame2 UMCIRB 13-001021](#)

[UMCIRB 13-001021](#)

The Effectiveness of the Classroom Accommodations Techniques and Tools Center in a School Setting: A Survey

Your Amendment has been reviewed and approved using expedited review on 11/22/2013. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
	The title for this research project will be changed to better reflect the data collected.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418  
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

## APPENDIX G: 2010-2011 SURVEY

2010-2011 Survey  
Total questions: 54

1. Have you used the Classroom Accommodations Techniques Tools Center during the (2010-2011 OR 2012-2013) school year?
  - a. Yes
  - b. No

### **If response was YES:**

1. I feel the use of the CATT Center increased my confidence in the need to make a referral to special education.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
2. I feel that use of the CATT strategies has improved student success in my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
3. I feel that the use of the CATT Center has decreased negative behaviors in my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
4. I think the information gathered using CATT Center makes the referral process more cumbersome.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
5. I feel that the use of the CATT Center has decreased academic concerns within my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable



6. I think the use of the CATT Center has helped children be more successful in specials (art, PE, music, etc.)
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
7. I understand how to implement the techniques and tools recommended.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
8. The referral process to special education became more efficient with the implementation of the CATT Center.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
9. If I did not understand how to implement an intervention strategy, I was able to find someone at my school who did.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
10. I know how to contact the support team at School Specialty to answer questions I have about the CATT Center.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
11. I feel the information I gained from the support team at School Specialty answered my questions effectively.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
12. I think it is easy to locate product interventions in the CATT Center cart.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree

- d. Agree
  - e. Strongly Agree
  - f. Not Applicable
13. I have had to ask for outside assistance to understand how to implement the strategies suggested through the use of the CATT Center.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
14. Please write your most commonly used strategies from the CATT Center below.
- a. Answer box provided.
15. Our school currently uses a Response to Intervention system to guide student intervention.
- a. Yes
  - b. I don't know
  - c. No
16. What percentage of the children with whom you have used the CATT Center were identified through Tier 3 or Tier 4 (already receiving special education services)?
- a. 0%
  - b. 1%-25%
  - c. 26%-50%
  - d. 51%-75%
  - e. 76%-100%
17. I feel the use of the CATT Center and its problem-solving strategies with children in Tier 3 or Tier 4 (already receiving special education services) improved my ability to design appropriate interventions.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
18. I feel the CATT Center is lacking as a tool to identify barriers to learning and improve student success.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
19. I feel the CATT Center fits well into and improves our current student intervention process.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
20. I have used the CATT Center with children who were already identified as needing special education/exceptional children services
- a. Strongly Disagree

- b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
21. The CATT Center was an effective tool with problem solving learning barriers with children who already had an IEP.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
22. I felt confident in my referral to OT, PT, SLP, Psych, Special Ed., etc. following implementation of CATT Center strategies implemented before referral (RtI Tier I and II).
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
23. I think the CATT Center reduced the number of referrals I made to special education services.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
24. I think one CATT Center is sufficient for our setting.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
25. I think more than one CATT Center would be appropriate for our setting.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
26. If agree or strongly agree to the question above, please indicate strategies used for whole class.
- a. Comment box provided.
27. I feel that I have the support of my administrators in the use of the CATT Center.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable

28. In regards to the Student Intervention and Measurement Booklet, indicate ALL of the following for which YOU are responsible within your school's protocol.
- Choosing the learning barriers.
  - Selecting appropriate intervention
  - Progress monitoring
  - Completing progress graph
  - Making decisions based on data collected
29. I understand the strategies that were recommended in the Student Intervention and Measurement Booklet to problem solve my students' barriers to learning.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
30. I think it was easy to locate my student's barrier to learning in the Student Intervention and Measurement Booklet.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
31. I feel the Student Intervention and Measurement Booklet is comprehensive in regard to the learning barriers addressed
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
32. I think the CATT Center Student Intervention and Measurement Booklet helped me successfully document students' barriers to learning.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
33. I feel the intervention strategies I chose from the Student Intervention and Measurement Booklet were easy to implement within my classroom.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
34. I feel the Student Intervention and Measurement Booklet is comprehensive in regard to the recommendations provided.
- Strongly Disagree
  - Disagree

- c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
35. I think the Student Intervention and Measurement Booklet is easy to use overall.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
36. I feel it is easy to keep accurate documentation in the Student Intervention and Measurement Booklet (SIMB).
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
37. I think the use of the Student Intervention and Measurement Booklet documentation increased the consistency in which intervention strategies were used within the classroom.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
38. I think the documentation required in the Student Intervention and Measurement Booklet is burdensome which hindered my desire and ability to complete it accurately.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
39. I feel that using the strategies within the Student Intervention and Measurement Booklet of the CATT Center has improved my overall teaching practices in at least one way.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
40. Although chosen for a specific child, I successfully used at least one of the strategies in the Student Intervention and Measurement Booklet for the whole class.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable

41. I think the Student Intervention and Measurement Booklet provided me with accurate documentation from which to make decisions.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
42. I feel that more children were able to reach their potential within the classroom using the intervention strategies within the CATT Center's Student Intervention and Measurement Booklet.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
43. I think it would be helpful to have the Student Intervention and Measurement Booklet available electronically.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
44. Prior to the CATT center training, had you received any other training related to sensory processing?
  - a. Yes
  - b. I don't know
  - c. No

**If response was NO:**

1. Indicate the response(s) below that best describe why you have not used the CATT Center.
  - a. I did not receive training on the CATT Center.
  - b. I did not know my school had a CATT Center.
  - c. I do not understand how to use the CATT Center
  - d. I have not had time to use the CATT Center yet.
  - e. I do not have any students currently who may benefit from the CATT Center.
  - f. The CATT Center is inaccessible to me.
  - g. Other:

**All subjects were asked the following questions:**

1. Please indicate your role at the school.
  - a. Principal
  - b. Assistant principal
  - c. Teacher
  - d. Assistant teacher
  - e. Special education teacher
  - f. School psychologies
  - g. Learning support
  - h. Occupational therapist
  - i. Speech therapist

- j. Other
2. If you are a teacher, what is the PRIMARY grade you teach?
    - a. Pre-school
    - b. Kindergarten
    - c. 1<sup>st</sup> Grade
    - d. 2<sup>nd</sup> Grade
    - e. 3<sup>rd</sup> Grade
    - f. 4<sup>th</sup> Grade
    - g. 5<sup>th</sup> Grade
    - h. 6<sup>th</sup> Grade
    - i. Multigrade class. Please type in the grade levels below.
  3. Which of the following BEST describes the school at which you work?
    - a. Private
    - b. Public
    - c. Alternative
    - d. Private Montessori
    - e. Public Montessori
    - f. Charter
    - g. Other
  4. How many years have you worked within your current position at THIS school?
    - a. <1 year
    - b. 1-5 years
    - c. 5-10 years
    - d. 10-15 years
    - e. 15-20 years
    - f. 20+ years
  5. How many years have you worked within your current position in any school?
    - a. <1 year
    - b. 1-5 years
    - c. 5-10 years
    - d. 10-15 years
    - e. 15-20 years
    - f. 20+ years
  6. What is your gender?
    - a. Male
    - b. Female
  7. What is your age?
    - a. <25 years
    - b. 25-29 years
    - c. 30-34 years
    - d. 35-39 years
    - e. 40-44 years
    - f. 45-49 years
    - g. 50-54 years
    - h. 55-59 years
    - i. 60+ years
  8. Please list any additional comments regarding your experience with the CATT Center.
    - a. Comments box provided

## APPENDIX H: 2012-2013 SURVEY

2012-2013 Survey  
Total questions: 58

1. Have you used the Classroom Accommodations Techniques Tools Center during the (2010-2011 OR 2012-2013) school year?
  - a. Yes
  - b. No

### If response was YES:

1. I feel the use of the CATT Center increased my confidence in the need to make a referral to special education.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
2. I feel that use of the CATT strategies has improved student success in my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
3. I feel that the use of the CATT Center has decreased negative behaviors in my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
4. I think the information gathered using CATT Center makes the referral process more cumbersome.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
5. I feel that the use of the CATT Center has decreased academic concerns within my classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
6. I think the use of the CATT Center has helped children be more successful in specials (art, PE, music, etc.)
  - a. Strongly Disagree



- b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
7. I understand how to implement the techniques and tools recommended.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
8. The referral process to special education became more efficient with the implementation of the CATT System.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
9. If I did not understand how to implement an intervention strategy, I was able to find someone at my school who did.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
10. I know how to contact the support team at School Specialty to answer questions I have about the CATT System.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
11. I feel the information I gained from the support team at School Specialty answered my questions effectively.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
12. I think it is easy to locate product interventions in the CATT System cart.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable

13. I have had to ask for outside assistance to understand how to implement the strategies suggested through the use of the CATT System.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
14. Please write your most commonly used strategies from the CATT Center below.
  - a. Answer box provided.
15. Our school currently uses a Response to Intervention system to guide student intervention.
  - a. Yes
  - b. I don't know
  - c. No
16. What percentage of the children with whom you have used the CATT Center were identified through Tier 3 or Tier 4 (already receiving special education services)?
  - a. 0%
  - b. 1%-25%
  - c. 26%-50%
  - d. 51%-75%
  - e. 76%-100%
17. I feel the use of the CATT System and its problem-solving strategies with children already receiving special education services improved my ability to design appropriate interventions.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
18. I feel the CATT System is lacking as a tool to identify barriers to learning and improve student success.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
19. I feel the CATT System fits well into and improves our current student intervention process.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
20. I have used the CATT System with children who were already identified as needing special education/exceptional children services
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree

- f. Not Applicable
21. The CATT System was an effective tool with problem solving learning barriers with children who already had an IEP.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
22. I felt confident in my referral to OT, PT, SLP, Psych, Special Ed., etc. following implementation of CATT System strategies implemented before referral (RtI Tier I and II).
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
23. I think the CATT System reduced the number of referrals I made to special education services.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
24. I think one CATT System is sufficient for our setting.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
25. I think more than one CATT Intervention System would be appropriate for our setting.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
26. I would be interested in using the CATT Intervention System next year.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
27. If agree or strongly agree to the question above, please indicate strategies used for whole class.
- a. Comment box provided.
28. I feel that I have the support of my administrators in the use of the CATT Center.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree

- d. Agree
  - e. Strongly Agree
  - f. Not Applicable
29. In regards to the Student Intervention and Measurement Booklet, indicate ALL of the following for which YOU are responsible within your school's protocol.
- a. Choosing the learning barriers.
  - b. Selecting appropriate intervention
  - c. Progress monitoring
  - d. Completing progress graph
  - e. Making decisions based on data collected
30. I understand the strategies that were recommended in the Student Intervention and Measurement Booklet to problem solve my students' barriers to learning.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
31. I think it was easy to locate my student's barrier to learning in the Student Intervention and Measurement Booklet.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
32. I feel the Student Intervention and Measurement Booklet is comprehensive in regard to the learning barriers addressed
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
33. I think the CATT Center Student Intervention and Measurement Booklet helped me successfully document students' barriers to learning.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
34. I feel the intervention strategies I chose from the Student Intervention and Measurement Booklet were easy to implement within my classroom.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable

35. I feel the Student Intervention and Measurement Booklet is comprehensive in regard to the recommendations provided.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
36. I think the Student Intervention and Measurement Booklet is easy to use overall.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
37. I feel it is easy to keep accurate documentation in the Student Intervention and Measurement Booklet (SIMB).
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
38. I think the use of the Student Intervention and Measurement Booklet documentation increased the consistency in which intervention strategies were used within the classroom.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
39. I think the documentation required in the Student Intervention and Measurement Booklet is burdensome which hindered my desire and ability to complete it accurately.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
40. I feel that using the strategies within the Student Intervention and Measurement Booklet of the CATT Center has improved my overall teaching practices in at least one way.
- Strongly Disagree
  - Disagree
  - Neither Agree nor Disagree
  - Agree
  - Strongly Agree
  - Not Applicable
41. Although chosen for a specific child, I successfully used at least one of the strategies in the Student Intervention and Measurement Booklet for the whole class.
- Strongly Disagree
  - Disagree

- c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
42. I think the Student Intervention and Measurement Booklet provided me with accurate documentation from which to make decisions.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
43. I feel that more children were able to reach their potential within the classroom using the intervention strategies within the CATT Center's Student Intervention and Measurement Booklet.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
44. I think it would be helpful to have the Student Intervention and Measurement Booklet available electronically.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable

**If response was NO:**

1. Indicate the response(s) below that best describe why you have not used the CATT Center.
  - a. I did not receive training on the CATT Center.
  - b. I did not know my school had a CATT Center.
  - c. I do not understand how to use the CATT Center
  - d. I have not had time to use the CATT Center yet.
  - e. I do not have any students currently who may benefit from the CATT Center.
  - f. The CATT Center is inaccessible to me.
  - g. Other:
2. The training provided in October prepared me to use the CATT Intervention System as a whole.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree
  - e. Strongly Agree
  - f. Not Applicable
3. I felt as if the training in October did not appropriately address how to use the CATT Intervention System documentation.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Agree nor Disagree
  - d. Agree

- e. Strongly Agree
  - f. Not Applicable
4. An additional day of training would have been beneficial for me and my comfort in using the CATT Intervention System.
    - a. Strongly Disagree
    - b. Disagree
    - c. Neither Agree nor Disagree
    - d. Agree
    - e. Strongly Agree
    - f. Not Applicable
  5. I think the CATT screening that I completed online for each student was helpful to indicate learning barriers of the students.
    - a. Strongly Disagree
    - b. Disagree
    - c. Neither Agree nor Disagree
    - d. Agree
    - e. Strongly Agree
    - f. Not Applicable
  6. Prior to the CATT center training, had you received any other training related to sensory processing?
    - g. Yes
    - h. I don't know
    - i. No

**All subjects were asked the following questions:**

1. Please indicate your role at the school.
  - a. Principal
  - b. Assistant principal
  - c. Teacher
  - d. Assistant teacher
  - e. Special education teacher
  - f. School psychologies
  - g. Learning support
  - h. Occupational therapist
  - i. Speech therapist
  - j. Other
2. If you are a teacher, what is the PRIMARY grade you teach?
  - a. Pre-school
  - b. Kindergarten
  - c. 1<sup>st</sup> Grade
  - d. 2<sup>nd</sup> Grade
  - e. 3<sup>rd</sup> Grade
  - f. 4<sup>th</sup> Grade
  - g. 5<sup>th</sup> Grade
  - h. 6<sup>th</sup> Grade
  - i. Multigrade class. Please type in the grade levels below.
3. How many years have you worked within your current position at THIS school?
  - a. <1 year
  - b. 1-5 years
  - c. 5-10 years
  - d. 10-15 years

- e. 15-20 years
  - f. 20+ years
4. How many years have you worked within your current position in any school?
- a. <1 year
  - b. 1-5 years
  - c. 5-10 years
  - d. 10-15 years
  - e. 15-20 years
  - f. 20+ years
5. What is your gender?
- a. Male
  - b. Female
6. What is your age?
- a. <25 years
  - b. 25-29 years
  - c. 30-34 years
  - d. 35-39 years
  - e. 40-44 years
  - f. 45-49 years
  - g. 50-54 years
  - h. 55-59 years
  - i. 60+ years
7. Please list any additional comments regarding your experience with the CATT Center.
- a. Comments box provided