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Adaptations aligned to academic standards for students with significant disabilities in general education contexts

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ADAPTATIONS ALIGNED TO ACADEMIC STANDARDS FOR STUDENTS WITH SIGNIFICANT DISABILITIES IN GENERAL EDUCATION CONTEXTS

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ABSTRACT

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The purpose of this study was to examine how educator teams' described the access and progress assessment functions of adaptations aligned to academic standards for students with significant disabilities and how they accounted for sustained use across the curriculum and school days. This study used a qualitative multicase research design combined with the photo elicited interview technique. It was conducted in three elementary school classrooms in a western state. The participants in the study consisted of three educator teams and two District special education coaches. Multiple sources of data were collected including (a) classroom observation field notes, (b) transcripts from photo elicited interviews, follow-up interviews, and confirmation interviews, and (c) artifacts (e.g. photographed adaptation examples).

Formal within-case and cross-case analysis was employed along with confirmatory analysis. The findings resulted in descriptive case vignettes and major themes that addressed each research question. The three major themes that emerged to answer the first research question pertaining to access functions were *tangible and doable, student-centered,* and *blend with classroom materials and instruction.* The three major themes answering the second research question related to progress assessment functions were *show what students know, blend with what peers are learning,* and

ownership of learning. Four major themes addressed the third research question associated with sustained use across the general education curriculum and schools days: *team collaboration, resources available, rhythm and routine,* and *build momentum.*

Additional analysis was completed to take into consideration the relationships between themes, and these reconfigured findings were discussed as components within a holistic visual model. Five essential components were delineated (a) student-centeredness, (b) classroom instruction, (c) people support, (d) resources, and (e) familiar formats. These components could serve as reference points for practitioners who are responsible for developing and implementing adaptations aligned to academic standards for students with significant disabilities during language arts, social studies, and science lessons in elementary general education classrooms.

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CHAPTER I

INTRODUCTION

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA) is the major legislative act guiding education services for students with disabilities in the United States. State and local education agencies are expected by IDEA to ensure that all students with disabilities have access to the general education curriculum. As asserted by Lee, Wehmeyer, Soukup, and Palmer (2010), IDEA requires that special education services and supplementary aides and services be provided such that student participation and progress in the general education curriculum is assured. This means that students with disabilities not only must have access to the same curriculum as their peers without disabilities, but that they also must make progress. Moreover, to the maximum extent appropriate, the mandate demands students with exceptionalities be educated in schools with peers without disabilities, and that removal from regular education environments only occurs when the nature or severity of the disability of a student is such that learning in general education contexts with the implementation of supplementary aids and services cannot be achieved satisfactorily (IDEA 2004, Sec.612 [a] [5]).

Students with Significant Disabilities

This research study specifically addresses students with significant disabilities. *Significant disabilities* entail the low-incidence disabilities such as intellectual and multiple disabilities. The term *low-incidence disability* refers to those disabilities that

rarely exceed 1% of the national school-age population at any given time (Center for Applied Special Technology [CAST], 2010). Kurth, Gross, Lovinger, and Catalano (2012) considered low-incidence disabilities to be those that occur in less than 2% of a school population. IDEA defines significant cognitive impairment as a low incidence disability for which a small number of personnel with highly specialized skills and knowledge are needed in order for children with that impairment to receive early intervention services or a free appropriate public education (IDEA 2004, Sec 662 [c] [3]).

Students with significant disabilities require extensive supports to meet their diverse educational needs. In addition to intellectual challenges, Schwarz (2014) summarized common characteristics of children with significant disabilities as having (a) communication and or behavioral challenges, (b) supervision needs, (c) required assistance with self-care, (d) accompanying health, motor, and/or sensory impairments (e) need for differentiation and adaptations in classrooms, and (f) need to be within sight, sound, and proximity of peers without disabilities. Schwarz explained that students with significant disabilities typically learn fewer skills over a longer time periods and benefit from structured practice embedded into daily learning opportunities. Ideally, practitioners need to differentiate instruction and provide individualized adaptations in the way students learn best within the general education context.

The low prevalence of these students in public school classrooms poses challenges for school districts. These challenges exist for several reasons, including practitioners have minimal experience instructing them, school-wide supports tend to be less available, and there is the likelihood that school personnel view children with significant disabilities as being very different from other children. School districts

respond to these challenges in various ways. IDEA, for example stipulates that students with exceptionalities be educated in the least restrictive environment (LRE) to the maximum extent appropriate (IDEA 2004, Sec.612 [a] [5]). However, it is the very language of the law, for instance the term *maximum extent appropriate,* that leads to very difficult interpretation and consequently very different practices for students with significant disabilities (Schwarz, 2014). Nevertheless, there are public schools across the United States that educate students with significant disabilities in general education classes using evidence-based practices and adequate resources, even as others do not (McCart, 2014; McLeskey, Waldron, & Redd, 2014).

Access to Schooling

IDEA requires that all school-aged children who are eligible for special education services have an individualized education program (IEP) to structure their school experiences (IDEA 2004, Sec 300.324 [a]). Students' educational teams, consisting of administrators, educators, related service providers, and family members, design the IEP. It is intended to facilitate students' active participation and learning at school in preparation for a productive adult life in the community by determining (a) individual students' strengths, weaknesses, and interests, (b) goals and objectives, and (c) the necessary supports and services to assure adequate implementation.

In addition to IDEA mandates, the No Child Left Behind Act of 2001(NCLB), a leading federal education initiative, targets all children with and without disabilities in school accountability and reform efforts, impacting practices such as assessment procedures (Kurz, Talapatra & Roach, 2012; NCLB, 2001). Together, IDEA and NCLB place significant emphasis on providing children with disabilities, including children with

significant disabilities, access to general education curricula and measuring annual student growth. In order for students with significant disabilities to partake in both general and special education processes, they require adaptations to access classroom instruction and assessment procedures (Kurth et al., 2012). Hence, universal design for learning and the use of adaptations are absolutely essential for students with significant disabilities to progress in the general curriculum (Coyne, Pisha, Dalton, Zeph, & Smith, 2012; Downing, 2008, 2010; Kurth, 2013; Lieber, Horn, & Palmer, 2008; Lee et al., 2010). These processes are defined in the following section.

Universal Design for Learning and Adaptations

Historically in the field of special education, creating adaptations for students with disabilities to access learning activities and materials is not new. Baumgart and colleagues (1982) promoted the concept of *partial participation*, a method of using adaptations to enable students with significant disabilities to "participate, at least partially in a particular chronological age-appropriate and functional activity" (p. 20). However, what has shifted is the focus on accessibility of general education classroom instruction and curriculum. Presently, research literature supports a universal design for learning approach along with adaptations to support students with significant disabilities with their engagement in grade-appropriate general education curricula (Kurth, 2013; Lieber et al., 2008; Spooner, Baker, Harris, Delzell, & Bowder, 2007).

The universal design for learning (UDL) approach is based originally on an architectural stance, known as universal design. Universal design practices seek to ensure that individuals have access to and within buildings. It is a process of planning for a range of personal needs prior to construction, rather than renovating after the fact for

necessary accommodations. Likewise, UDL is an educational planning and implementation process that considers the students' diverse needs and ability levels in classrooms.

More specifically, UDL requires systematically designing and concurrently providing multiple formats of curricular content; a range of instructional strategies; and a variety of assessment methods, so that students who vary in their learning needs and abilities can potentially benefit (Courney, Tappe, Siker & LePage, 2013; Pisha & Coyne, 2001; Spooner et al., 2007). The key features of UDL are defined by multiple means of representation, expression, and engagement (Meyer & Rose, 2000). This means that the aim for practitioners is to present lesson content in different ways, differentiate ways students can show what they know, and stimulate interest and motivation for engagement in learning activities. Embedded within UDL practices are the implementation of adaptations (Horn & Banerjee, 2009).

Adaptations is a broad term that includes both accommodations and modifications (Jackson, McCaleb & Helwick, 2003; Kurth, 2013). Jackson and colleagues differentiate between accommodations and modifications in the following way. *Accommodations* alter instructional means without changing content or criteria, for example use of assistive technology with a student who has physical or sensory impairments. In contrast, *modifications* alter the instructional means, content, and criteria based on a student's learning level and needs. For example, modifications may emphasize main ideas in lessons with the use of reduced grade level text, visual or concrete representations to augment text or content, and adjusted criteria levels.

Janney and Snell (2004) describe adaptations as being curricular, instructional, or alternative in nature. With this framework, *curricular adaptations* are defined as changes in the content taught. *Instructional adaptations* are described as altering how content is taught or how students demonstrate what is learned. And lastly, *alternative adaptations* shift the goal, the instruction, and the activity and consist of parallel activities/skills. For example drawing from a 3rd grade language arts lesson; a curricular adaptation would target a main idea for a student with significant disabilities to learn such as identifying three characters and events in a storybook read by the class; an instructional adaptation is using pictures to represent and augment text; and an alternative adaptation is emphasizing a communication skill when working with peers in a cooperative learning group.

For this study, I blended the term adaptation as defined by Jackson and colleagues (2003) with the framework described by Janney and Snell (2004). *Adaptations* encompass both accommodations and modifications and are curricular, instructional, or alternative in nature. Such adaptations are critical for students with significant disabilities to matriculate and progress in general education classrooms (Cross, Traub, Hutter-Pishgahi, & Shelton, 2004; Downing, 2008, 2010; Downing & Peckham-Hardin, 2007; Janney & Snell, 2004, 2006; Kurth & Keegan, 2012).

Current Issues Implementing Adaptations

Providing effective adaptations in a timely manner across the curriculum for students to engage in learning activities in general education contexts is an ongoing requirement. Recently, Kurth and Keegan (2012) found among a range of students with disabilities, spanning grades K-12, that most adaptations examined in the study (89%) were designed for core general education classes (e.g. language arts, math, science, and

social studies) as compared to art, music, and recess. However, the findings in this study were aggregated based on disability. Therefore, it is not known specifically to what extent adaptations designed for students with significant disabilities in elementary grades were associated with academic core classes. Nor does the study address how adaptations were implemented across these content areas consistently throughout the school day.

Interestingly, Kurth and Keegan (2012) found that experience in classrooms, as opposed to professional background, had a greater impact on the reported quality of adaptations implemented. In other words, general educators, special educators, and paraeducators with greater experience developed higher quality adaptations, than novice practitioners. These findings highlighted the value of experience with creating adaptations and perhaps a blending of professional roles in the delivery of adaptations for students with significant disabilities. Within the literature base, it is known that special educators typically take a stronger role in developing adaptations (Kurth et al., 2012; Lee et al., 2010). Even so, collaboration between team members is essential when implementing adaptations for students with disabilities in general education contexts (Downing & Peckham-Hardin, 2007; Fisher & Frey, 2001; Heeden & Aryes, 2002; Hunt, Soto, Maier, & Doering, 2003; Hunt, Soto, Maier, Muller, & Goetz, 2002; Spooner, Dymond, Smith, & Kennedy, 2006).

Collaborative teamwork is necessary for general and special educators to exchange information about individual students' learning needs, classroom routines, and lesson content so adaptations can be implemented during learning activities. Heeden and Aryes (2002) followed a student (Luke) with multiple disabilities through second, third, and fourth grades and found as adaptations were implemented, "Luke's participation and

acquisition of new information increased" (p. 181). The collaborative efforts of the education team facilitated the ongoing development of relevant and meaningful adaptations for reading and spelling that enabled this student to learn with his peers. Janney and Snell (2004, 2006) describe a framework to assist practitioners with exchanging relevant information and using common terminology needed for planning and constructing adaptations efficiently. The framework includes an adaptation plan that incorporates specific and general adaptations, as described below.

Specific adaptations are those adaptations that are designed and created for a particular academic lesson or learning activity for an identified student. For example the use of pictorial representations paired with text for designated weekly vocabulary words in a third grade language arts lesson. This requires general and special educators to collaboratively select vocabulary words from original classroom lists that are most relevant for the student with significant disabilities to master. Another example of a specific adaptation is modifying a chapter book using pictorial representations and lower readability level. Typically, specific adaptations are created and implemented with a small percentage of students (Kurth, 2013).

In contrast, *general adaptations* are adaptations that can be used on a routine basis determined by the classroom schedule and overall students' needs. General adaptations can be made available class-wide or used repeatedly for a single student. Janney and Snell (2004) provided several examples such as, audio books, graphic organizers, slot notes, peer tutors, examples embedded in assignments, color coding and highlighting, word banks, and assistive technology. General adaptations are robust enough to use consistently within a content area and across the curriculum.

It seems that a parallel can be drawn between general adaptations and the concept integrated curricula, promoted in general education classrooms (Wasta, Scott, Marchand-Martella, & Harris, 1999). An integrated curriculum reinforces broad thematic concepts across content areas. Thus providing students multiple opportunities for engagement and practice in learning concepts, while accounting for a wide range of students' interests and abilities. Such a parallel makes it interesting to look at how adaptations can be implemented so that students with significant disabilities and support personnel or peers, who assist with usage, become fluent with the adaptation processes needed for daily engagement and practice during learning activities within and across content areas during the school day(s).

Statement of Problem

In spite of the fact that we know adaptations are needed for students with significant disabilities in general education contexts, inadequacies exist in schools. Studies have shown that the practice of providing adaptations for students with significant disabilities varies and is disproportionately implemented in general education classrooms (Dymond & Russell, 2004; Kurth et al., 2012; Lee et al., 2010; Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003). Even though general and special education teachers are responsible for adaptation processes, many experience uncertainty with how to deliver the necessary supports for students with significant disabilities to participate and progress in general education contexts (Carter & Hughes, 2006; Kurth et al., 2012). Finally, little is known about what makes an adaptation useful across time; i.e., what factors contribute to the sustainability of an adaptation for continued use in the general education classroom.

Not uncommon in the field of special education, there appears to be a gap between evidence-based research and practice (Odom, 2009). Kurth and colleagues (2012) found that general and special education teachers reported believing that they could teach all students, including students with low incidence disabilities, and believed that modified instruction, assignments, and grading was acceptable; however, there appeared to be a disconnect between their reported beliefs and actual practice. In this study teachers reported that they lacked time and resources for effective inclusive practices, yet they expressed the desire to do so.

Besides challenges in implementing adaptations, the overall quality of adaptations is a concern. Kurth et al. (2012) found teachers reported predominantly using shortened or reduced quantity of assignment, alluding to concerns that such adaptations are inadequate in providing learning materials at the instructional level for students with significant disabilities. Furthermore, Kurth and Keegan (2012) found practitioners rarely considered IEP goals or state content standards when creating adaptations for students with disabilities. The practitioners reported that it was 'not appropriate' or that they 'did not know' if an adaptation was aligned to an IEP goal or aligned to a state standard, 88% and 64% of the time, respectively.

Ruppar and Gaffney (2012) referred to the lack of variety of adaptations recorded in a literature review on literacy with students with severe disabilities. Downing and Peckham-Hardin (2007) illuminated instances of inappropriate adaptations and emphasized a need to know more about what constitutes a meaningful adaptation. Without appropriate adaptations during instruction, students with significant disabilities miss learning opportunities and a means to demonstrate what they have learned. Coyne

and colleagues (2012) recommended further research on what features of adaptations (e.g. assistive technology) are most effective for student use.

Further research to address the impact of IDEA and NCLB mandates on students with significant disabilities with regard to participation and progress in general curricula and the design of their education programs is needed (Hunt, McDonnell, & Crockett, 2012). Hunt and colleagues asserted a need for understanding the range of adaptations used by IEP teams to support students' access to academic content standards. Kurth et al. (2012) recommended further research in determining the quality of adaptations used specifically by students with significant disabilities in inclusive classrooms. Furthermore, Kurth and colleagues called for more research to examine how practices are incorporated into daily school routines and what kinds of collaboration teachers prefer and find feasible.

In sum, there is a dearth of research that has examined the perceptions and experiences of educators who collectively implement adaptations in general education classrooms for students with significant disabilities. Currently, schools are intent on aligning instruction to academic standards and grade level curricula. However, special education researchers have just started documenting descriptions of adaptations for students with significant disabilities and consequently little is known about the functions of adaptations aligned to academic standards and how adaptations can be consistently integrated into the school day for students who depend on them for learning.

Purpose of study

The purpose of this research study was to examine how general and special educators, who worked as a team implementing adaptations, described the access and

progress assessment functions of adaptations and how they accounted for sustained use across the general education curriculum and school days. The study combined traditional oral interview methods with photo elicited interviews with three educator teams at the elementary school level. The *educator teams* consisted of a general education and special education teacher who worked together to develop and implement adaptations for students with significant disabilities in general education contexts. These educators were key informants for better understanding the access and progress assessment functions of adaptations and how they were implemented across the curriculum in general education classrooms. The findings from this qualitative inquiry expanded the literature base from the viewpoint of educator teams. Their combined perspectives contributed to what is currently known and further informs practitioners, families, teacher preparation institutions, and policymakers. The following research questions guided this inquiry:

Q1 How do educator teams describe the access functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q2 How do educator teams describe the progress assessment functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q3 How do educator teams account for sustaining adaptations aligned to academic standards (e.g. language arts, social studies, and science) across the curriculum and school day(s)?

Definition of Terms

Adaptations. In this study adaptations include material accommodations and modifications and can be curricular (changes made in the content taught), instructional (changes made to how content is taught or how students demonstrate learning), or alternative (changes made to what is taught) in nature. Typically an adaptation represents

a change in the educational material that is being used by a particular student or students and not so for others. Adaptations are described in this study as serving two functions. First, adaptations can serve an *access function*, referring to the ways adaptations enable students with significant disabilities to participate and understand content in general education classroom lessons. Second, adaptations can serve a p*rogress assessment function*, referring to the ways adaptations inform general and special educators in what students with significant disabilities are learning in general education contexts.

Significant disabilities. In this study significant disabilities entail the low-incidence disabilities such as severe intellectual and multiple disabilities. These are disabilities that rarely exceed 1% of the national school-age population at any given time (CAST, 2010).

Academic standards. In this study academic standards include both the grade-level state academic standards and the alternate standards. *Alternate standards* are modified grade-level state academic standards that were developed for students with significant disabilities who qualify for state alternate assessments.

Educator team. In this study educator teams consist of a general educator and a special educator who work together to develop and implement adaptations for students with significant disabilities in general education contexts.

District special education coach. In this study special education coaches were experienced special educators who mentored and provided leadership to educators in the District. This role enabled them to work with teachers on as needed basis to offer assistance with classroom practices.

Beyond Access Model. The Beyond Access Model promotes learning of the general curriculum by students with significant disabilities in general education contexts. It involves a planning process supported by professional development, best-practices, and the presumption of competence (see Jorgensen, McSheenhan, & Sonnenmeirer, 2007).

Unified Plan of Support. A unified plan of support is a collaborative teaming process designed to increase the social and academic outcomes for students with and without disabilities, including students who have significant disabilities. The main elements are (a) team meetings, (b) provision of supports to increase social and academic participation in general education lessons, (c) accountability, and (d) ability to change ineffectual supports.

Photo elicited interview. The technique known as *photo elicited interview* refers to inserting photographs into a research interview (Stanczak, 2007). The photographs are used to augment interview questions and serve as a researcher tool to gather rich data from participants.

Chapter Summary

This chapter highlighted curriculum access for students with significant disabilities in general education contexts. Federal legislation mandates and research demonstrated that adaptations are critical for these students to participate and progress in the general curriculum. There is a need to expand the use of adaptations that support learning for students with significant disabilities during academic lessons in general education classrooms. The purpose of this study was to examine how educator teams described the access and progress assessment functions of adaptations they used for

students with significant disabilities and how they were sustained across the general education curriculum and school days.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter begins with an overview of the changing arena of education. This is followed by what is known within the literature and what is needed in terms of the use of adaptations for students with significant disabilities in general education contexts. Next, issues surrounding sustainability of innovative education practices are discussed. Lastly, an explanation of the qualitative approach that was applied in this research study is provided.

Changing Arena in Education

The current arena of education is shifting. Since the passage of NCLB, schools are increasingly more accountable for all students' outcomes, including children with disabilities. One measure for accountability is the reliance on high stake testing (Schoen & Fusarelli, 2008). For students with significant disabilities who make up 1% of the student body, they too are required to participate and do so with alternate assessment measures (Kurz et al., 2012). The focus on the measurement of student outcomes has driven the adoption of research-based instructional practices. IDEA mandates require that teachers instruct students using evidence-based practices (Copeland & Cosbey, 2009). These practices for the most part need to be aligned to academic standards and fit within school districts' general curricula. This section will discuss the following concepts:

general curriculum and standards, legislations and humanity in the classroom, and expectations and presuming competence.

General Curriculum and Standards

The terms curriculum and standards are at the forefront of the education arena. They are often used interchangeably; however there is a clear distinction. *Curriculum* is defined as an organized plan of instruction that engages students in achieving standards. *Standards* refer to the concepts and skills students are expected to learn in specific content areas over the course of an academic grade. School districts adhere to State academic standards and teachers are expected to align their instruction with these standards. Student progress is subsequently measured via standardized assessments. Students with significant disabilities partake in these accountability measures through participation in the general curriculum and alternate assessments (Browder et al., 2007).

Agran, Alper and Wehmeyer (2002) suggested that the intent behind IDEA and NCLB mandates is to improve the outcomes of students with disabilities by (a) enabling access to a challenging curriculum and (b) participating in standards-based and accountability school reform efforts to raise student academic performance and expectations. Jackson, Ryndak and Wehmeyer (2009) used ecological theory and a review of empirical studies to demonstrate that the general education context may offer best access to the general education curriculum for students with significant disabilities. It is known that students with disabilities have greater access to grade-level curricula when they attend general education classrooms (Dymond & Russell, 2004; Soukup, Wehmeyer, Bashinki, & Bovaird, 2007; Wehmeyer et al., 2003). Furthermore, when team members embrace a UDL approach and use the organization of the general education

classroom (e.g. curriculum, standards, instruction, and routines) from the onset and build in necessary supports; classrooms become more accommodating of diverse ability levels for all students to be a part of the learning and social activity (Kurth, 2013; McLeskey & Waldron, 2007; McSheenhan, Sonnenmeier, Jorgensen, & Turner, 2006).

There is controversy as to how to best meet the educational needs of students who have significant disabilities (Ayres, Lowrey, Douglas, & Sievers, 2011). IDEA mandates require that school districts provide a continuum of services or educational placement options, which has resulted in a range of service delivery models across districts and states (Sindelar, Shearer, Yendol-Hoppey, & Liebert, 2006). Ultimately, IDEA requires that IEP teams determine how students with disabilities will participate and progress in the general curriculum, including the types of supports that are required. Therefore, IEP team members are forced to grapple with the challenges that exist in meeting legislative mandates and education reform initiatives with diverse learners.

In the following section, an overview of legislative action that led to a changing arena in education that included students with significant disabilities is highlighted. Next, an appeal to universal principals of humanity in classrooms is addressed.

Legislation and Humanity in Classrooms

Prior to 1975 and the passage of the Education for All Handicapped Children Act, children with disabilities did not have legal access to a public education. Specialized services were not in place to support these children and their families with their schooling experiences; and this was especially true for students with significant disabilities. Such inequality and lack of schooling opportunity, motivated parents of children with exceptionalities, advocates, and professionals to mobilize and lobby together to gain

access to public education for youth with disabilities. This reflected the civil rights movement a decade earlier that sought equal rights via the 14th Amendment of the United States Constitution. The right for children with disabilities to be educated is grounded in the equal protection clause of the 14th Amendment (OSEP, 2007). The Education for All Handicapped Children Act was amended and renamed as IDEA, which placed greater emphasis on an individual, rather than on disability conditions. Subsequent re-authorizations of IDEA further emphasized the rights of children with disabilities to learn and to be educated with students without disabilities. IDEA and NCLB together press for students with disabilities to access and make progress in the general education curriculum, including students with significant disabilities.

Consequently, more students with significant disabilities are now learning and being educated with classmates without disabilities in public schools (Alquraini & Gut, 2012; McCart, 2014). Yet, despite the supporting legislation, fewer than 20% of students with significant disabilities spend 80% or more of their school day in general education classrooms (National Center for Education Statistics, 2011). Hence, parents of students with exceptionalities, advocates, practitioners, school administrators, higher education personnel, and policy-makers continue to wrestle with the practicalities and issues surrounding academic access in public schools.

After decades of education and disability policy in place and a body of research, students with significant disabilities continue to be underserved in general education contexts. Perhaps, it is necessary to appeal to universal principles associated with humanity (a) viewing children with disabilities as children first and (b) valuing each child's unique contributions. Jones (2014), a leader, parent, and self-advocate, illustrated

this concept strongly when he stated, “The humanity of a child should trump disability.” He simply stated, “Deal with children as children and the best labels are children’s own names.” Likewise, Schwarz (2014) claimed, “We all have different abilities; we all have gifts and challenges of our own.” Furthermore, Jones described, “A fully human being as someone who is engaged in community” and questioned, “How do we get the schools to value the humanity of the child?” In other words, how can schools facilitate the engagement of students’ who have disabilities in classroom learning?

Schools have a responsibility to educate all children and teachers have a major role in facilitating learning experiences and discussions around diversity in classrooms. For years, inclusive education practices have provided a model for supporting and instructing children with diverse learning needs together (Downing, 2008; Giangreco, Dennis, Cloninger, Edelman & Schattman, 1993; Villa and Thousand, 2003). Villa and Thousand describe inclusive education as “the principles and practice of considering general education as a placement of first choice for all learners” (p. 20). Taylor (2006) suggested that inclusion meant serving students with a range of abilities and disabilities in general education classrooms with appropriate in-class supports.

Furthermore, Bentley (2008) sought to better understand an inclusive schooling experience of a twelve year-old student with significant disabilities and her peers. The findings in this case study led to a socially constructed meaning of inclusion, coined symbolic inclusion. *Symbolic inclusion* was defined as the “accommodation, assimilation, appreciation, and engagement” in relationships between classmates (p. 549). Peers demonstrated this notion by the way they interacted with and spoke about their classmate who had significant disabilities. Subsequently, Bentley proposed several inclusive

strategies, one being *re-imagining disability*. For example in this study peers viewed their classmate, Lynda, as an able role model and her disability as a positive difference. Furthermore, over time classmates "developed rich relationships, in which friendship, helping and understanding were reciprocal, and not just one-way transactions" (p. 557).

Similarly, in an early study that examined the transformational experiences of general education teachers instructing students with exceptionalities; teachers shifted their beliefs related to learning differences. For example, a participant stated, "it helped me to understand that all people learn differently and have different things that they can do" (Giangreco et al., 1993, p. 368). More recently in an action research project, Kroeger and colleagues (2012) compiled multiple perspectives from faculty and doctoral students in teacher education training programs, student teachers, and cooperating teachers to determine how to increase their capacity to teach students in diverse classrooms. Researchers noted that participants realized that, "when there is a lack of diversity, a deficit orientation can become normative" and articulated that prospective teachers need to view differences in students as something to "celebrate" and "not as something to be removed" (p. 192).

Schools have a responsibility from a humanity perspective to serve all students. McLeskey and Waldron (2007) posed a goal for inclusive education to "make an increasingly wider range of differences ordinary in a general education classroom" (p.163). They described four issues that are imperative in achieving this outcome (a) create inclusive classrooms by making differences ordinary, (b) keep classroom supports natural and unobtrusive, (c) keep the rhythm of the day as typical as possible, and (d) all students must be part of the learning and social community of the classroom. Bentley's

(2008) study highlighted a child perspective in an example provided by a peer without disabilities; “they [classmates with disabilities] are just like you, but in a different way” (p. 556). Hence, Schwarz (2014) advocated for youth to at the very least have an opportunity to be friends with each other; because once individuals get to know others who are different, they learn they also have similarities.

Others have identified that membership in classrooms established a sense of *belonging*; a basic need for every individual (Kunc, 2002; Thunder-McGuire, 1997). DeSchauwer, Van Hove, Mortier, and Loots (2008) gathered perspectives from students with disabilities and found that these youngsters identified similar and different ways to belong and communicated that they wanted to contribute and be part of the class and school context.

Interestingly, McSheenhan and colleagues (2006) found *membership* was enhanced in classrooms as team members shifted their expectations and presumption of competence in students with significant disabilities and subsequently this appeared to create a demand for appropriate supports for these students to participate and learn in general education contexts. The next section will focus on research in the literature related to expectations and the phenomenon of presuming competence in relation to providing necessary supports aligned to the general curriculum in classrooms.

Expectations and Presuming Competence

Families, advocates, and professionals in addition to legislative school accountability reform efforts have demanded raising the expectations on students with disabilities. There are valid reasons for such undertaking. Students with disabilities have historically been held to low expectations and educated in separate settings (Agran et al.,

2002). In separate settings their class make-up consisted solely of students with disabilities. They were taught with an alternative or special education teacher designed curriculum; curricula designed for students with disabilities that often varied in quality, placed emphasis on developmental and functional skills, and contained limited academic content (Agran et al., 2002; Wehmeyer, 2006).

Low expectations reduce learning opportunities for individuals with disabilities (Biklen & Kliewer, 2006; Coyne et al., 2012) and conversely raising expectations have expanded learning opportunities and outcomes (Heeden & Ayres, 2002; McSheenhan et al., 2006; Ryndak, Morrison, & Sommerstein, 1999). McSheenhan and colleagues findings suggested that changes in team members' expectations influenced their practice (e.g. providing supports connected to curriculum in general education contexts), which led to changes in student performance. For example, alternative augmentative communication (AAC) devices used by students were programmed to include age-appropriate messages related to lesson content, which made it possible for students to communicate in class discussions.

It is understood that the expectations that teachers project on students' learning capabilities has an impact on their learning outcomes (Jorgensen et al., 2007; Rosenthal & Jacobson, 1968). In Rosenthal and Jacobson's widely known study, they described this as the "Pygmalion effect," and they suggested the teacher participants' high expectations for the randomly selected students, who were described as being high achievers, positively impacted the students' motivation and learning. Recently, Jones (2014) explained that if teachers think schoolwork is too difficult for students, learning opportunities are blocked. Moreover, if teachers believe students with disabilities can't

learn, they bring that attitude into the classroom and students are sensitive to this message. The risk is that such teachers may not take the steps to prepare the necessary supports for students to learn. Jones exclaimed, "it is not impossible for curricula to be adapted for all students. It is not impossible!"

Specific training and successful inclusive experiences have appeared to raise expectations of teachers toward students with significant disabilities (Bishop & Jones, 2003; Erickson, Koppenhaver, Yoder, & Nance, 1997; Guay, 2003; Heeden & Ayres, 2002; Maul & Singer, 2009; McSheenhan et al, 2006; Ryndak et al., 1999). Bishop and Jones described the perceptions of general education pre-service teachers after receiving training targeted at science instruction for students with significant disabilities. Their findings revealed that the pre-service teachers expressed greater expectations for students with significant disabilities after they received training and an opportunity to practice teaching science with these students. Heeden and Ayres interviewed teachers and found initially many expressed concern or fear, however at the end of the school year teachers remarked, " I'll never be afraid again, and I'm a better teacher for all the students; they all need adaptations" (p. 187).

Closely connected to expectations is the concept of *presumed competence.* Jorgensen (as cited in Jorgensen et al., 2007) proposed an operational definition for presumed competence based from Donnellan's (1984) *criterion of least dangerous assumption* and Biklen's (1999) recommendations for educators to presume competence in students who have difficulties in demonstrating their abilities. Jorgensen et al. proposed, "the least dangerous assumption is to presume a student is competent to learn general education curriculum and to design educational programs and supports based on

that assumption" (as cited in Jorgensen et al., p. 251). This is an alternative stance to presuming that the disability is the primary determinant of the learning process.

Historically, the competence of children and adults with disabilities was measured by performance on standardized intelligence (IQ) and adaptive behavior scales (Biklen & Burke, 2006; Jorgensen et al., 2007). Perhaps unintentionally, interpretation of performance measures contributed to misjudgments by others and led to dire living conditions and poor outcomes for individuals with significant disabilities (Wehmeyer, 2013).

In questioning poor outcomes, Jorgensen and colleagues (2007) suggested that low performance in individuals with significant disabilities might in part reflect a lack of quality instruction, supports, and learning opportunities. In their study they examined the impact of the Beyond Access Model, an intervention that emphasized presuming competence for students with significant disabilities to learn content in the general education curriculum. Their findings were based on observations of education team members' practices with five elementary-aged students with significant disabilities. A shift in practices occurred in the following ways (a) students' IEP goals became more aligned to the general education curriculum, (b) service delivery shifted from outside (pull-out) to inside (push-in) general education classrooms, and (c) there was an increase in the amount of time students spent in general education classrooms. These outcomes demonstrated when education team members presumed competence for students with significant disabilities a positive shift in their practices occurred to enable better access to the general curriculum. Biklen and Burke (2006) suggested that the presumption of competence is a primary premise that underlies inclusive education practices in schools.

Adaptations

Numerous studies have examined practices associated with successful inclusive school experiences for students with significant disabilities: a commonality shared is the provision of supports, known as adaptations (Cross et al., 2004; DeSchauwer et al., 2008; Downing & Peckham-Hardin, 2007; Downing, Spencer, & Cavallaro, 2004; Dymond & Russell, 2004; Fisher & Frey, 2001; Janney & Snell, 1997; Ryndak et al., 1999). The implementation of adaptations is an evidence-based practice recommended in early childhood and school age special education services (Sandall, Hemmeter, Smith, & McClean, 2005; Kurth, 2013). This section will discuss multiple and concurrent issues pertaining to the provision of adaptations. Topics include: adaptation processes and qualities, student engagement and learning outcomes, and availability and team collaboration.

Adaptation Processes and Qualities

Adaptations is a broad term that includes both accommodations and modifications (Jackson et al., 2003; Kurth, 2013). As described in Chapter I, Jackson and colleagues differentiated between accommodations and modifications in the following way. *Accommodations* alter instructional means without changing content or criteria. In contrast, *modifications* alter the instructional means, content, and criteria based on a student's learning level and needs. Janney and Snell (2004) describe adaptations as being curricular, instructional, or alternative in nature. With this framework, *curricular adaptations* are defined as changes in the content taught. *Instructional adaptations* are described as altering how content is taught or how students demonstrate what is learned.

And lastly, *alternative adaptations* shift the goal, the instruction, and the activity and consist of parallel activities/skills.

Also as discussed in Chapter I, adaptations are classified into general and specific categories (Janney & Snell, 2004, 2006; Kurth, 2013). Kurth encouraged practitioners to consider both general and specific adaptations during lesson planning and to collaboratively create adaptations. G*eneral adaptations* are adaptations that can be used on a routine basis determined by the classroom schedule and students' needs. They can be made available class-wide or used repeatedly for a single student. These adaptations may be robust enough to use consistently within a content area and across the curriculum. Whereas, *specific adaptations* are those adaptations that are designed and created for a particular academic lesson or learning activity for an identified student, similar to what Janney and Snell (2004) defined as a curricular adaptation. Typically, specific adaptations are created and implemented with a small percentage of students and require ample time to create (Kurth, 2013).

Others describe adaptation processes with varying terminology (Giangreco, 2007; Horn & Banerjee, 2009; Parrish & Stodden, 2009; Udvari-Solner, 1996: Wakeman, Karvonen, & Ahumada, 2013). Giangreco classified adaptation processes with the terms multilevel curriculum and curriculum overlapping. *Multilevel curriculum* bears resemblance to instructional and curricular adaptations, whereas *curriculum overlapping* parallels alternative adaptations. Horn and Banerjee categorized and defined *curricular modifications* in early childhood special education as: *environmental supports, material supports, special equipment, use of children's preferences, simplification of the activity, adult support, peer support* and *invisible support*. More recently, Wakeman and

colleagues identified strategies for making changes to instruction to meet the needs of students with significant disabilities with emphasis on *changes to the content* and *changes in the student's performance* with little recognition of terms such as adaptation or modification. Again, there are variations in how practitioners and researchers define and label adaptation processes; yet there is consensus that adaptations are required.

Adaptations not only need to be implemented in an efficient manner in classrooms; there is also concern that quality adaptations aligned to curricula are available (Kurth et al., 2012; Kurth & Keegan, 2012). Janney and Snell (2006) summarized quality adaptations as those that (a) facilitate social and academic participation, (b) are only as special as necessary, (c) promote student independence, and (d) are age and culturally appropriate. Kurth and Keegan (2012) confirmed these findings and suggested additional quality indicators such as (a) ease of use, in terms of time and resources, (b) clarity and simplicity of adaptation in regards to implementation, and (c) a focus on students' support needs for success as opposed to emphasizing students' deficits.

Likewise, Downing and Peckham-Hardin (2007) expressed that there is not only a need for more adaptations, but also *better* adaptations, most pronounced at the middle school level. Their findings revealed the importance of providing adaptations that were individualized, meaningful, and relevant. These researchers observed a variety of adaptation examples in classrooms such as: use of pictures with print, simplified content, rephrasing questions to yes/no of options, providing alternative ways to write (e.g. use of letter stamps, typing responses on label makers, and pasting pictures or words onto a paper). However, Downing and Peckham-Hardin also observed inappropriate

modifications; such as, the same modifications used for students at different ability levels and designed at the lower level, incidences of students being prompted to paste an answer on worksheets with what appeared to be greater emphasis on completing the task [pasting] versus learning the content. Other schoolwork samples were inappropriate for students' chronological age (e.g. middle school student completing first grade math handout). A parental perspective urged further inquiry:

> At times I feel that maybe her modifications aren't beneficial to her in the long run. Maybe her modifications could be better so that she could get more out of what she can understand in her life. I think that lots of times whatever the class is doing her modifications are on the same principle. It's modified, it's less than the others have to do, but I don't think that she understands (p. 23).

In a recent study by Kurth and et al. (2012) the types of adaptations used by educators in general education contexts was examined. They surveyed 139 general and special educators (84% and 16% respectively) at the elementary and secondary levels who taught students with low incidence disabilities across seven school districts. Kurth and colleagues inquired about teacher beliefs, knowledge, and practices related to modifying instruction and grading practices for students with low incidence disabilities in inclusive classrooms. They found significant differences between general and special educators and elementary and secondary level teachers. For example, elementary teachers used adaptations more frequently and agreed more strongly that students' modified work reflected concepts or standards within a lesson than secondary teachers reported. Whereas, secondary teachers noted greater use of adaptations that consisted of: alternate or parallel assignments, alternate instruction, peer tutoring, and students' demonstrating knowledge in alternate forms. Collectively, the most common type of adaptation teachers preferred (33% of the respondents, based from 67% of the participants who self-reported)

was shortened or reduced assignments. Kurth and colleagues questioned the appropriateness of this strategy because it is unlikely that this type of adaptation is effective for students with significant disabilities who presumably benefit from adaptations that take into consideration their individual learning styles and ability levels. They recommended additional research in determining the quality of adaptations used specifically by students with significant disabilities in inclusive classrooms.

Surprisingly, IEP goals and academic standards have seldom been considered by practitioners when designing and implementing adaptations (Fisher & Frey, 2001; Kurth & Keegan, 2012). Kurth and Keegan collected examples of adaptations used by practitioners (e.g. general educators, special educators, and paraeducators) with a range of students with disabilities in K-12 grade levels. They found that practitioners reported that it was ‘not appropriate’ or that they ‘did not know’ if an adaptation was aligned to an IEP goal or aligned to a state standard, 88% and 64% of the time respectively. Likewise, Fisher and Frey found teachers did not use IEP documents to develop adaptations; instead teachers and parents reported that the IEP meetings and documents were means to ensure that services and supports would be available.

In summary, the literature described adaptation processes for students with significant disabilities in varying terminology. The field has identified adaptation qualities; however elements of adaptations aligned to academic standards is relatively unknown. In general, practitioners understand the importance of adaptations, yet they appear less clear about how to promote learning with adaptations in relation to grade-level curriculum content. The recent research has relied primarily on survey methods with practitioners. Additional inquiry is warranted through closer examination directly

with team members who produce and implement adaptations for students with significant disabilities in general education contexts.

Student Engagement and Learning Outcomes

The implementation of adaptations in classrooms has an impact on student engagement (Lee et al., 2010; Lieber, et al., 2008; McDonnell, Mathot-Buckner, Thorsen, & Fister, 2001) and learning outcomes in students with significant disabilities (Coyne et al., 2012; Cross et al., 2004; Erickson et al., 1997; Fisher & Frey, 2001; Guay, 2003; Heeden & Ayres, 2002; Ryndak et al., 1999; Skotoko, Koppenhaver, & Erickson, 2004). The following section will summarize studies that have examined the connection between adaptations with student engagement and learning outcomes within general education contexts.

Lee and colleagues (2010) observed students with significant disabilities and found that adaptations were a predicator of academic responses (e.g. task participation). When adaptations were available students demonstrated higher frequency of engagement in learning activities that were linked to content standards. Conversely, when students were not provided adaptations, they were more likely to demonstrate competing behaviors such as, looking around, self-stimulation behaviors, or non-compliance. These findings mirrored those of McDonnell and colleagues (2001) who reported that students improved academic responses and decreased competing behaviors with the implementation of a multi-level curriculum, adaptations, and a school-wide peer tutor support program. Overall, Kurth (2013) iterated that adaptations make learning more meaningful for students with significant disabilities.

The presence of adaptations impacted teacher behaviors as well, for example teachers experienced fewer behavior management incidences (Lee et al., 2010). Fisher and Frey (2001) noted less disruption of classroom routines and higher teacher expectations with the provision of adaptations for students with significant disabilities.

Presently, there are few empirical studies that have measured students with disabilities' progress associated with the use of adaptations. Lieber and colleagues (2008) examined access to the general curriculum and student growth across an academic year for preschool children with disabilities. Their findings suggested that children with disabilities made academic and social progress when provided access to a universally designed for learning (UDL) curriculum with individual adaptations. Coyne and colleagues (2012) examined the effect of a UDL technology-based reading approach with students, in grades 1-12, with significant intellectual disabilities. On average, the results showed that the treatment group made significantly higher gains in comprehension as compared to the control group. Hunt and colleagues (2003, 2002) examined the effectiveness of individualized Unified Plans of Support for students at risk and with significant disabilities. The plans were created by team members and consisted of academic adaptations and communication and social supports. These studies suggested that consistent implementation of supports was associated with student growth in academic skills, interactions with peers, and engagement in class activities. Similarly, after teachers implemented the Beyond Access Model, McSheenhan and colleagues (2006) found improved student performance. They suggested that future investigation examine features of instructional supports that move students beyond access and facilitate learning of general curriculum content.

There are qualitative longitudinal case studies that have revealed student progress in the general curriculum, largely due to the use of adaptations (Erikson, et al., 1997; Heeden & Ayres, 2002; Ryndak et al., 1999). Ryndak and colleagues described the development of literacy skills in a case study of a young woman with significant disabilities over a period of seven years in inclusive educational contexts. Adaptations significantly contributed to her successes. They were designed to maximize use of her current skills and provide opportunities to learn new skills, promote independence, and minimize failures during high school and college classes. Erickson and colleagues (1997) described a two-year study with an elementary-age boy who had multiple disabilities. An essential part of his education in the 4th and 5th grade general education classrooms was the consistent use and repeated modification of his augmentative communication device that enabled him to interact and progress during reading and writing instruction. Another student with multiple disabilities persevered through second, third, and fourth grades with the usage of adaptations in general education classrooms (Heeden & Aryes, 2002). Relevant adaptations provided support for this student to learn reading and spelling skills with classmates.

Similarly, interactions between art educators, paraeducators and students with and without disabilities were observed in inclusive art classrooms. Guay (2003) found substantial differences in the overall art experiences for students with exceptionalities, including a student with multiple disabilities. Meaningful learning experiences were delivered by art educators who recognized students with disabilities as their students, maintained thoughtful interactions with students, collaborated with support staff, and effectively implemented adaptations. Conversely, without these practices, well-meaning

paraeducators resorted to doing the artwork for the students so it would resemble the teacher's model or the majority of classmates. Adaptations were not considered and students were disempowered, rather than empowered. Likewise, Skotko and colleagues (2004) demonstrated meaningful communication exchange between youth with significant disabilities and their parents when adaptive processes were incorporated into home storybook reading.

Most of the reported studies used single subject or survey methodologies, and all involved a small number of participants. Nevertheless, these studies indicated that students with significant disabilities improved academic responses and decreased competing behaviors when adaptations were implemented. Current research recommends further examination of instructional supports that move students beyond access and facilitate learning of general curriculum content.

Availability and Collaboration

Knowing that the provision of adaptations is essential for a student's engagement and progress in grade-level content lessons, researchers have examined to what degree curricular adaptations are available and implemented and who assumes responsibility for students with significant disabilities. This section will summarize studies that have examined the availability of adaptations in classrooms (Dymond & Russell, 2004; Kurth & Keegan, 2012; Lee et al., 2010; Soukup et al., 2007; Wehmeyer et al., 2003) and collaborative issues that are prevalent (Cross et al., 2004; Downing & Peckham-Hardin, 2007; Hunt, Soto, & Doering, 2003; Hunt, Soto, Maier, Muller, & Goetz, 2002; Janney & Snell, 2006; McSheenhan et al., 2006; Udvari-Solner, 1996).

In terms of availability, Wehmeyer and colleagues (2003) observed 33 middle school students with a range of cognitive impairments, 18 were labeled with significant disabilities. These findings revealed problematic results; on the average in only 2.8% of the scheduled data recording intervals did students receive adaptations. Regardless of the low prevalence, findings indicated there were significant differences in the provision of adaptations based on setting with the majority implemented in the high inclusion participant group as opposed to the low inclusion group. Later, Soukup et al. (2007) observed 19 elementary students with intellectual disabilities during science and social studies classes using similar time sampling methods to record the presence of adaptations. Findings revealed, the authors observed adaptations used in just 18% of the intervals.

More recently, Lee and colleagues (2010) found disproportional use of adaptations across subject areas. Adaptations were rarely observed in language arts and math (4.6%, 0%) and more prevalent in science and social studies (23.8%, 70.8%), respectively. Kurth and Keegan (2012) found in the sample of 68 adaptations collected from 31 general educators, special educators, and paraeducators that most (89%) were designed for academic content areas (e.g. language arts, math, science, and social studies) as opposed to art, music, and recess.

Dymond and Russell (2004) investigated differences in grade and disability on the instructional context at an elementary school. In reference to adaptations, their findings indicated a higher prevalence of adaptations for students with significant disabilities, reaching 52% of the intervals observed, as opposed to just 1% for students with mild disabilities. There was not a significant grade difference for the availability of adaptations

between grades 1-2 and grades 3-5. However, Kurth and colleagues (2012) found differences between elementary and secondary teachers instructing students with low incidence disabilities in inclusive classrooms. In their online survey, elementary teachers reportedly used adaptations more frequently than secondary teachers.

The implementation of adaptations takes more than a single practitioner. The literature contains reference to IEP members' roles and collaborative efforts in coordinating and implementing adaptations for students with significant disabilities in grade-level general education contexts (Cross et al., 2004; Downing, 2008; Downing & Peckham-Hardin, 2007; Fisher & Frey, 2001; Heeden & Ayres, 2002; Hunt et al., 2003, 2002; Lee et al., 2010; McSheenhan et al., 2006). Lee and colleagues found that general educators are the dominant instructors in general education classrooms and special educators take on a more prevalent role in developing adaptations.

Ultimately, it is general and special educators who are responsible for instruction and ensuring students with significant disabilities are engaged in learning activities within the general education context (Downing, 2010). Cross et al. (2004) identified five roles involved in making adaptations, *implementer, informant, planner, developer, and trainer*. All team members were designated *implementers* and other roles were held by any of the practitioners on the team dependent on the experience, confidence level, and familiarity of specific children and type of disability. The qualitative findings of this study revealed that after early childhood educators became familiar with children with a disability they reported greater confidence in creating and supporting students with needed adaptations. Similarly, Devore and Hanley-Maxwell (2000) found that after early

childhood staff became familiar with the children they were responsible for they were able to make adaptations to classroom activities and routines with greater confidence.

As previously reported, Kurth and Keegan (2012) found that practitioners' experience as opposed to professional background influenced efficacy in developing quality adaptations. Kurth and colleagues (2012) highlighted that clarification of roles and responsibilities within the collaboration process continues to be needed to assist teachers working in inclusive schools with adaptation processes.

Nevin, Cramer, Voigt, and Salazar (2008) found in an inclusive, co-teaching, and looping classroom model there was strong evidence of adaptations and effective teaching strategies taking place for students with mild disabilities. Nevertheless, these findings illustrated the value in general and special educators learning from each other and sharing their ideas in the context of a unified classroom.

Peers and paraeducators are also key players. Within inclusive classrooms, peers are known to provide support and ideas related to creating and implementing adaptations (Carter & Kennedy, 2006; Fisher & Frey, 2001; McDonnell, et al., 2001). Studies have demonstrated that paraeducators can either hinder or augment these processes (DeSchauwer et al., 2009; Guay, 2003).

Implementing adaptation processes requires time, collaboration, resources, and creativity and challenges exist (Giangreco, 2007; Kurth et al., 2012). When a common understanding of adaptation processes and terminology are not shared and essential planning does not take place between team members, adaptations suffer (Janney & Snell, 2004, 2006; Udvari-Solner, 1996). If teams are ineffective and adaptations are not made

available during lessons, students lose meaningful access to learning opportunities and their progress is questionable.

Janney and Snell (2004, 2006) recommended that IEP team members schedule planning sessions and generate adaptations plans. The intent of an adaptations plan is to identify and record the general and specific adaptations required for individual students on a matrix, which subsequently corresponds to classroom lessons or learning activities during the school day. Others advocated systematic planning (Hunt et al., 2003, 2002; McSheenhan et al., 2006). McSheenhan and colleagues found after teachers implemented the Beyond Access Model they identified team collaboration and planning as a major reason for improved student performance. Recently, Kurth and colleagues (2012) called for more research to examine how practices for students with significant disabilities are incorporated into daily school routines and what kinds of collaboration teachers prefer to support these processes.

In sum, these studies looked at the degree adaptations were available for students to access and progress in the general education curriculum, and clearly there is concern. These above studies suggest that adaptations are disproportionately and under available for students with significant disabilities in general education contexts. The literature discussed the need for collaborative team efforts and systematic planning; for example adaptation plans, Unified Plans of Support, and the Beyond Access Model. At this time, there are few studies that have examined the perspectives of practitioners who work together on IEP teams creating and implementing adaptations aligned with academic state standards in general education contexts.

Sustainability of Innovative Practices

There is support for the concept of including students with disabilities in typical schools and classrooms, but struggles exist with implementing the required practices. Odom (2009) described implementation as the link between evidence-based practices and positive outcomes for children and families. Odom referred to the field of *implementation science* to help explain what factors support the implementation of innovative practices, paying attention to those factors that are embedded into the context in which the evidence-based practices are positioned. Cook and Odom (2013) refer to implementation science as inquiry into "how innovations are adopted and maintained" (p. 140).

Likewise, Klingner, Boardman, and McMaster (2013) used implementation science to better understand what it takes to 'scale up' and sustain evidence-based practices. Klingner and colleagues discussed the nature of and challenges with scaling up evidence-based practices. They described *scaling up* as "the process by which researchers and educators initially implement interventions on a small scale, validate them, and then implement them more widely in real world conditions" (p. 196). They concluded that it is essential for special education researchers to collaborate with school districts in order for innovations to be adopted and suggested that innovative practices match the needs of and be in tune with local school contexts.

The implementation and sustainability of research-based practices is of interest to stakeholders (Bambara, Nonnemacher, & Kern, 2009; Gersten, Chard, & Baker, 2000; Gersten, Vaughn, Deshler, & Schiller, 1997). Gersten and colleagues (2000) suggested three key factors needed for supports to be sustained in classrooms (a) fit into rhythm of daily classroom instruction, (b) perceived by teachers to benefit students with and

without disabilities, and (c) add to teachers' repertoire of instructional strategies. McLeskey and Waldron (2007) claimed one reason for suggesting that supports in classrooms be *natural and unobtrusive* is so teachers will continue to use them as they fit better into the flow of the classroom.

Vaughn, Klingner, and Hughes (2000) expressed that examining the sustainability of research-based practices is worthy; to better understand the complexities that influence the use of innovated strategies over time. They proposed more is needed to be learned from teachers who implement innovative practices, and even more so when such practices challenge them beyond their traditional routines.

Within the field of significant disabilities, sustainability issues are also important, and under addressed. Recently, Ryndak, Jackson, and White (2013) expressed belief that implementation science is a critical resource for educational systems change urgently needed in response to federal mandates for involvement and progress in the general curriculum for all students. Central to understanding how adaptations are accounted for and whether there are identifiable elements that lend to sustained use with students with significant disabilities across the curriculum in general education contexts, is to seek input from teachers who are providing such practice.

Qualitative Research Approach

Qualitative research investigations are valuable in studying human experiences in the context of natural environments (Lincoln & Guba, 1985). They are a means of addressing the complexities that exist in human experiences and outcomes (Merriam, 1998; Stake, 2006). Research questions in qualitative studies are designed to seek understanding of processes and meanings, in contrast to quantitative cause and effect

phenomenon (Bogdan & Biklen, 2007). Hence, qualitative research methods lend well to social sciences and subsequent findings can be used to influence policy and practice (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005).

Common characteristics of qualitative inquiry encompass (a) understanding a phenomenon of interest from the participants' or the insider's perspectives, (b) looking to the researcher as the primary instrument for data collection and analysis, (c) typically requiring field-work, and (d) pursuing an inductive research process (Merriam, 1998). Consistent with qualitative research, data collection processes are unobtrusive and non-manipulative and are generally accomplished using data from observations, interviews, and artifacts (Bogdan & Bicklen, 2007; Lincoln & Guba, 1985; Patton, 1990). These mechanisms guide the basis for a holistic analysis that involves unitizing and categorizing processes from which patterns and themes transpire during the investigation. As a result, qualitative research designs have the potential to guide in-depth inquiry into individuals or groups of individuals' experiences collectively known as *phenomena*. A prevailing qualitative approach in social sciences is the case study method.

Case Studies

Case studies enable researchers to gain greater understanding of an experience or situation through the meanings shared by individuals involved (Merriam, 1998). Yin (1994) viewed a case study as providing a detailed, in-depth examination of a person, group, or settings and the explanatory evidence related to the *how*, *why*, and *what* facets of the research questions under inquiry.

Stake (1995) asserted that we examine cases that are of special interest and seek the interaction of details within its context. Creswell (2008) defined a case study as an

"in-depth exploration of a bounded system (e.g. an activity, event, process, or individuals) based on extensive data collection" (p. 476). Merriam (1998) indicated that the "bounded system, or case, might be selected because it is an instance of some concern, issue, or hypothesis" (p.28). It is the role of the researcher to capture the elements depicting activity within the case or unit of analysis, through patterns (Stake, 2006).

Case study methodology encompasses both single and multiple case designs. Multicase designs, also known as *collective cases*, build on the constructs of single case designs (Stake, 2006; Yin, 2003). In multiple cases, the units of analysis need to show commonality, for example a set of teachers (Stake, 2006). Individual single cases are of interest because they belong to a collection of cases making up the study. The collection of cases is "somehow categorically bound together" and Stake refers to this collection as a '*quintain*' and is defined as "an object or phenomenon or conditions to be studied" (p. 6). Quintain is a term framed to depict the collective target, different than a single phenomenon or an understanding of a single case. It is a focus on examining what is different and similar in the observed cases to better understand the collective phenomenon being studied.

Photo Elicited Interviews

The use of visual methods in research stems from the fields of ethnography, anthropology, and sociology (Bogdan & Biklen, 2007; Harper 2005; 2002). Visual methods have matriculated into research studies as qualitative investigators have given more consideration to the use of images combined with words to better understand human conditions (Dempsey & Tucker, 1994; Kroeger et al., 2012; Prosser, 1998; 2007).

A technique known as *photo elicited interviews* was used in visual research methods from the onset and simply refers to inserting photographs into a research interview (Stanczak, 2007). The images are thought to enable deeper reflection and discussion during the interview process. In an early study, Collier (1957) compared data obtained from participants during interviews that used photographs and conventional interviews that did not incorporate photographs. This study found that photographs used in interviews garnered more extensive and concrete information, sharpened memories of participants, and relieved discomfort felt by interviewees during questioning.

Over recent decades, others have continued to expose how photo elicitation appears to augment conventional interviews by attaining richer data (Clark-Ibanez, 2004; Collier & Collier, 1986; Dempsey & Tucker, 1994; Harper, 2002; Kolb, 2008). Clark-Ibanez explained that researchers use photographs as a tool to expand on interview questions. In turn, participants are in a position to use the photographs to aid in sharing their perspectives associated with research questions and topic. Researchers point out that photo elicitation may facilitate comfort levels and understanding because the interviews become rooted by images (Collier & Collier, 1986; Harper, 2002). Dempsey and Tucker identified that photographs in interviews offered unique features, "an original source of evidence and, later, as a stimuli to gather additional data in the interview" (p. 56). Finally, Harper (2002) suggested that photo elicitation offers potential for collaboration when individuals "discuss the meaning of photographs and try to figure out something together" (p. 23).

Numerous qualitative research studies related to education and youth have incorporated photo elicited interviews (see Agbenyega, 2008; Birnbaum, Cardona, Milian

& Gonzalez, 2012; Clark, 1999; Diamond, 1996; Epstein, Stevens, McKeever, & Braruchel, 2006; Prosser, 2007; Ruto-Korir & Lubbe-DeBeer, 2012). There are different approaches, based in part on the underlying intent of the researcher and inquiry focus. Some researchers prefer to take their own photographs and present photographs to the research participants. This approach enables the researcher to select, frame, and present the visual images to the interviewees based on the research questions (Dempsey & Tucker, 1994). Clark-Ibanez (2004) asserted that researcher produced photographs may be suited for theory driven research. However at risk, is that images could be limited to the researchers' interests and neglect important elements of the inquiry that are relevant to participants. In addition, Clark-Ibanez suggested that researchers could position themselves in a more inductive approach by requesting participants to take photographs. This approach is known as *auto-driven, reflexive photography* (Agbenyega, 2008; Clark, 1999), or a *participatory photo interview method* (Kolb, 2008).

Participatory photo interviews strongly seek participants' viewpoints. It is believed that photographs taken by research participants are likely to reflect their experiences more accurately and in the interview process provide a greater opportunity to share their perspectives, create meaning, and make meaning known to the researcher (Clark, 1999; Kolb, 2008). A participatory photo interview method helps bridge the common divide between researcher and participants (Harper, 2002; Stanczak, 2007). It enables participants to be more active in the research process (Clark, 1999; Kolb, 2008; Ruto-Korir & Lubbe-De Beer, 2012). Lastly, Clark-Ibanez (2004) suggested that participatory photo elicited interviews can be a "powerful tool to simultaneously gather data and empower the interviewee" (p. 1513).

Chapter Summary

This chapter first reviewed the changing arena in education and how students with significant disabilities were impacted. I discussed the general curriculum and standards, expectations and presumption of competence, and significant legislation with recognition of humanity in schools. Secondly, the literature that addressed processes and quality of adaptations, student engagement and learning outcomes, and availability and collaborative issues pertaining adaptations was presented. Thirdly, sustainability factors related to implementing research-based practices were described. Lastly, an overview of a qualitative research approach that incorporated case study and photo elicited interviews used to address my area of inquiry was introduced.

CHAPTER III

METHODOLOGY

The purpose of this study was to gain an understanding of educator teams experiences and perspectives with adaptations aligned to state academic standards. In particular, how they described the access and progress assessment functions of adaptations and accounted for sustained use across the curriculum and school days for students with significant disabilities.

In this chapter, the research questions are presented followed by an explanation of the researcher's lens through which this study was conducted. This lens includes: researcher background, philosophical assumptions, theoretical paradigm, and interpretative framework. Next, the research strategy is reviewed. Lastly, descriptions of the research procedures, data analyses, and steps taken to ensure credibility in the study are provided. A chapter summary concludes this chapter.

Research Questions

The research questions that guided this inquiry are:

Q1 How do educator teams describe the access functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q2 How do educator teams describe the progress assessment functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q3 How do educator teams account for sustaining adaptations aligned to academic standards (e.g. language arts, social studies, and science) across the curriculum and school day(s)?

Through the Lens of the Researcher

The findings a researcher seek to understand in qualitative inquiry is "derived from the orientation or stance" that she brings to her study (Merriam, 1998, p. 45). A researcher's disciplinary orientation or stance is based upon the lens through which the world or professional context is viewed; the issues pondered and the questions asked. The connection between a researcher's stance and the review of literature frame the structure of the inquiry; the "problem" in the study, research questions, data collection and analysis, and interpretation of findings. In this study my unique stance is embedded throughout. Creswell (2007) claimed that qualitative inquiry requires from the onset clarity in a researcher's (a) philosophical assumptions, (b) theoretical paradigms, and (c) interpretive framework. In this section, I highlight my personal background followed by a description of each of these components in relation to the lens of the researcher.

Researcher Background

My initial experience with individuals with exceptionalities was as a residential summer camp counselor. The camp sessions were designed for adult and child campers with physical disabilities. The campers I met and grew to know, memorably revealed their beautiful selves. This experience influenced my subsequent pursuits in the field of special education. I received my bachelors and masters degrees, both in special education, with concentrations in severe/profound, multiple disabilities and deaf-blindness.

I worked professionally as a special educator within early intervention and school-age services in center-based and home environments as well as in segregated and inclusive classrooms. I have also served as a university supervisor in higher education institutions for both undergraduate and graduate level special educator candidates during their practicum experiences. Throughout these professional experiences, I was drawn to collaborative means in creating ways for children with significant disabilities to engage in learning opportunities. Creating adaptations for children with significant disabilities has been a long-time interest.

Not only have the adults and youngsters with exceptionalities influenced my beliefs, their family members, my former and current colleagues have as well. Together these relationships, my work experiences, and my ongoing interest in continual learning motivated me in taking broader action to support children with significant disabilities in inclusive contexts. I believe children with diverse ability levels are able to thrive when significant others presume from the onset their competence and embark on collaborative and creative efforts to facilitate learning opportunities. Furthermore, I imagine there are valuable insights to be gained from teachers who currently approach the daily responsibilities required in classrooms to support students with significant disabilities.

Philosophical Assumptions

There are philosophical assumptions researchers make that lead to pursuing qualitative approaches. Creswell (2007) identified five such assumptions: ontological, epistemological, axiological, rhetorical, and methodological. Each contributes to choosing qualitative inquiry. I presumed the ontological assumption, the belief in multiple realities, when I sought the perspectives of general and special educators across

different contexts. This was accomplished by using a multicase design. In order to gain knowledge via participants in this study, I adhered to the qualitative researcher epistemological assumption that required reducing the distance between participants and myself, as the researcher. I observed adaptations used in classrooms with general and special educators and incorporated photographs of adaptations into the photo elicited interviews that educator teams had selected and used with their students. The axiological assumptions in qualitative inquiry require that researchers contribute value: My professional background and theoretical lens influenced the design of this study. I embraced the rhetorical assumption accepted in qualitative research and utilized the first person language. Lastly, I pursued the answers to my research questions in an inductive manner, which is at the forefront of qualitative methodology. This means that I worked back and forth with data to formulate patterns and increasingly more abstract units of information until comprehensive themes were established.

Theoretical Paradigm: Social Constructivism

A paradigm or worldview is defined as, "a basic set of beliefs that guide action" (Guba, 1990, p. 17). Bogdan and Biklen (2007) describe a paradigm as, "a loose collection of logically related assumptions, concepts, or propositions that orient thinking and research" (p. 24). There is an array of paradigms, but Creswell (2007) identified four significant theoretical paradigms connected to qualitative research: postpositivism, social constructivism, advocacy/participatory, and pragmatism. Each one singularly or in combination uniquely informs the practice of research and is dependent upon the researcher's view. The theoretical paradigm that most closely matches my view is *social constructivism*.

The nature of a social constructivism paradigm is to seek knowledge and understanding of the world or experiences of targeted individuals in which they operate. Schwandt (2007, p. 39) described a constructivist as one who "seeks to explain how humans interpret or construct some X in specific linguistic, social, and historical contexts." With a social constructivism worldview or paradigm, Creswell (2009, p. 8) explained that the goal of research is to "rely as much as possible on the participants views of the situation being studied." He described these views as being multiple, complex, and subjective and are constructed based on social interaction.

In practice, the researcher uses broad interview questions so that participants can construct the meaning of their experiences, typically formed in discussions or interactions with others (Creswell, 2007, 2008). The researcher listens attentively to what they communicate and do in their worlds. In this study both joint and individual interviews were conducted and provided a rich opportunity for dialogue and the exchange of ideas and perceptions relevant to the research purpose and posed research questions. Additionally, researchers observe specific settings in which the participants work in order to understand the context. The intent of the researcher is to make sense of the meanings held by others. In the end, I made interpretations from what I found, inductively generating patterns of meaning. At the same time, I was conscious that such interpretations were shaped through my researcher lens.

Interpretive Framework: Disability Theory

An interpretive framework pulls together and unites the elements of a qualitative study. It underlies an identified "problem" and the research questions, the participant selection process, data collection and analysis, and how findings are presented and used.

Different, but connected to a researcher's philosophical assumptions and theoretical paradigm, the interpretive framework encompasses distinct bodies of literature and issues or concerns (Creswell, 2007). The interpretive framework for this study is shaped by the disability theory.

Disability theory is concerned with individuals within the disability community and policies and practices that impact their lives (Creswell 2007, 2009). For example, disability inquiry looks at the meaning of inclusion practices in schools with stakeholders: students with disabilities, educators, support personnel, and families (Mertens, 1998). In this study, I directly involved general and special educators who worked together to support children with significant disabilities and their classmates learning in general education contexts.

Historically, individuals with disabilities have been viewed through lenses that differ from how "typical" people are viewed. Gill (1999) described a progression of viewpoints: the moral model, the medical model, and the rehabilitation model of disability. The moral model assumed that disability is a consequence of punishment. The medical model viewed disability as a problem that needed to be fixed by experts. And the rehabilitation model sought to assist individuals in becoming as independent as possible. In response to these models, scholars, self-advocates, and significant others framed disability in new and radically different terms. The disability theory that emerged sought to explain disability from the "perspective of a social, cultural minority group such that disability is defined as a dimension of human difference and not a defect" (Mertens, 2003, p. 138). With this understanding, disability is "viewed as one dimension of human difference" (p. 139). Moreover, people with disabilities celebrate their uniqueness, their

equal place in society, and they acknowledge their differentness not as a detriment, but as something to be valued (Gill, 1999). Consequently, viewing individuals with disabilities in this light is reflected in research processes; for example what questions are asked, how data collection will impact individuals with disabilities, and how findings are reported (Creswell, 2007). For these reasons, the disability theory guided the focus of this study.

Research Strategy

The research strategy, also known as *strategy of inquiry* (Creswell, 2009), or *research methodology* (Mertens, 1998), is the design a researcher selects to conduct a study. It must be compatible with a researcher's background experience, assumptions, theoretical paradigm, and interpretive framework, as well as the research problem and audience the study is intended for (Creswell, 2009). In this study, I utilized a multicase study design with photo elicited interviews plus follow-up interviews, observations and artifacts.

The multicase study design and the photo elicited interview technique were introduced in the Qualitative Research Approach section in Chapter II. In sum, case study research encompasses both single and multicase study designs that require multiple forms of data collection. Creswell (2008) defined a case study as an "in-depth exploration of a bounded system (e.g. an activity, event, process, or individuals) based on extensive data collection" (p. 476). Merriam indicated that, "the *bounded system*, or case, might be selected because it is an instance of some concern, issue, or hypothesis" (p. 28).

In general, case studies enable researchers to gain greater understanding of an experience or situation through the meanings shared by individuals involved (Merriam, 1998). I was interested in understanding how general and special educators described the

functions of adaptations aligned to academic standards across the general curriculum and school days for students with significant disabilities. The multicase study research methodology allowed me to study more than one particular instance of general and special educators who used adaptations in general education contexts for students with significant disabilities. A comparison across the three selected cases provided a means to gain greater insight into this phenomenon.

Interviews are a main source for collecting data in multicase studies. In this study, photo elicited interviews were the primary source for attaining rich data from the participants. Integrating photographic examples of adaptations that teachers utilized in their classrooms was central to this inquiry. The photographs were used as a tool to elicit descriptive information from the participants who were key sources for understanding this phenomenon. This technique also enabled participants to take an active role in the research and facilitated collaboration between the participants and myself, as the researcher. In so doing, the voices of the participants were embedded into the findings that are relevant for practitioners who develop and use adaptations to support students with significant disabilities during academic lessons in elementary general education classrooms.

Observations are another source for collecting data in multicase studies. Observations differ than interviews in that they allow the researcher to encounter the phenomenon of the study firsthand (Merriam, 1998). Stake (2006) recommended observing the cases in their ordinary activities and places. Gathering data in this way enabled this researcher to observe instances in which adaptations were being used in

classroom lessons. Observational data were invaluable for understanding educators' experiences with adaptations.

Artifacts are also a source of data utilized in case study research. In this study photographs of adaptations developed by educators and used in general education classrooms served as sources of data (Dempsey & Tucker, 1994). In addition, these artifacts were used to verify that adaptations were aligned to academic standards.

In addition to the photo elicited interviews, follow-up interviews were used to seek verification and elaboration of data retrieved from the photo elicited interviews. The follow-up sessions with the educator teams provided opportunities for participants to respond to researcher's questions, share concerns, and to verify findings.

In qualitative research a confirmation interview is a type of interview that is used to confirm the findings of a study obtained with data collected from other methods (Gall, Gall, & Borg, 2003). Gall and colleagues described this type of interview when combined with surveys, as a *confirmation survey interview*. In this study, the researcher used confirmation interviews in a similar capacity: to confirm findings collected from the photo elicited interviews. Confirmation interviews were conducted with District special education coaches after preliminary cross-case analysis was completed.

Procedures

This section describes the research procedures used to orchestrate this study, which took place over a period of approximately one year. This section begins with the initial step of obtaining formal permission to conduct the research in a local school district. Next, a description of the participants, the setting, and the data collection

measures are presented. The data analysis and credibility measures will be described after these procedures have been delineated.

Institutional Review Board and School District Approval

Prior to conducting research formal permission from the higher education institution and school district in which the research occurred was sought and received. See Appendix A to view the institutional review board (IRB) approval letter. In this procedural step, formal participant consent letters were composed and secured. The general and special educators' and District special education coaches' consent letters are found in Appendix B and Appendix C, respectively. The research began after receiving the formal approval and consent from the participants.

Participants

In the literature, collaborative efforts between general and special educators is known to be critical in implementing adaptations for students with significant disabilities to learn in general education contexts (Downing & Peckham-Hardin, 2007; Kurth, 2013**)**. Therefore, a key criterion for participant selection required that (a) the general and special educators worked together as an educator team, (b) the educator teams used adaptations for students with significant disabilities during grade level instruction in general education classrooms, and (c) educator teams who were open to sharing their perspectives and daily work related to adaptations they used in the elementary classroom context were favored.

The School District in which this research was approved guided the selection of the participants, a purposeful convenience sampling procedure (Creswell, 2007). Based on the School District's recommendations, I approached schools that would inform

understanding of the research questions in this study and with teachers who were accessible. This participant selection resulted in three educator teams at the elementary school level. The *educator team* is defined as a general education teacher and a special education teacher who worked together to implement adaptations used during grade level instruction with students who had significant disabilities in general education classrooms.

During the participant recruitment phase, permission was requested to expand this study to include the perspectives of District special education coaches. In this District, *special education coaches* were experienced special educators who mentored and provided leadership to teachers. They had the knowledge of and expertise with research-based practices for instructing students with disabilities. This role enabled them to work with teachers on an as needed basis to offer assistance with classroom practices. Their feedback related to the findings gathered from the general and special educator teams was sought; as well as their own perceptions of adaptations aligned to academic standards for students with significant disabilities.

Early on there were challenges in securing teams of participants. In the end, I had contacted six special educators and met with four potential educator teams. Two special educators did not pursue general education partnerships, voicing concern for balancing their teaching workloads with the expectations of the study, and ultimately were not given permission by their Principal to participate in this study. Another educator team I met with decided not to participate due to conflicting personal commitments. The remaining three educator teams agreed to participate and became the core of this study.

In sum, I recruited three educator teams, representing three elementary school classrooms, who used adaptations with students who had significant disabilities during

grade-level instruction. I addressed one educator team at a time and gave them pseudonyms, Team A, Team B, and Team C. In addition to these teams, I recruited two District special education coaches, one coach assigned to Team A and Team B and the other to Team C (see Table 1 and Table 2 for participants' characteristics). Participants were compensated for their time and commitment in the following manner (a) presented a letter of recognition addressed to the building principal, (b) received a twenty-five dollar Visa gift card, (c) if desired, assistance in uploading the photographed adaptation examples to the district Curricular Adaptation Resource Library, and (d) granted credit in an 'adaptation guide' designed for the School District based on the findings in this study.

Table 1

Educator Teams' Characteristics

Characteristic	Team A	Team B	Team C
Grade	4th Grade	Kindergarten	Kindergarten
Mean teaching experience	2 years	6 years	24.5 years
Mean experience with significant disabilities	4 years	8 years	20.5 years
Number of students in general education classroom	26	14	24
Number of students on special educator caseload	11	13	6
Highest degrees earned:			
General educator	Bachelors	Masters	Masters
Special educator	Masters	Masters	Masters
Teaching certifications:			
General educator	Elementary	Early Childhood	Elementary and Special Education
Special educator	Special Education	Elementary and Special Education	Special Education

Table 2

District Special Education Coaches' Characteristics

Characteristic	Coach 1	Coach 2
Teaching experience	13 years	18 years
Experience with significant disabilities	10 years	18 years
Coach experience	2 years	6 years
Highest degree earned	Bachelors	Masters
Teaching certification	Elementary and Special Education	Special Education

Setting

This study was conducted in three elementary school buildings across one school district. The meetings with the educator teams and District special education coaches, classroom observations, and interviews took place during convenient and scheduled times at designated school locations.

The School District was in a western state of the United States and served close to 28,000 students from Pre-K to 12th grade, across fifty schools, of those thirty-two were elementary schools. It was generally a high performing District and was in the top ten of the largest districts in the state. Across the District, the majority population was Caucasian at 73%. Within the total population, approximately 33% of the District's students received free/reduced lunches, 11% were identified as Gifted and Talented learners, 7% were English language learners, and 8% of the students were eligible for

special education services. Of those who qualified for special education, 7% had significant disabilities, representing a low-incidence within the school population.

Individual school sites offered a continuum of special education services designed to meet students' unique needs defined by their individualized education program (IEP). There were a number of general education classrooms that included students with significant disabilities with individualized supports and personnel. Furthermore, this School District had offered general and special educators, paraeducators, and related service providers professional development opportunities on inclusive practices that included adaptation processes for students with disabilities.

Data Collection

Multiple forms of data were collected from classroom observations, interviews, and artifacts (e.g. adaptation photographs, adaptation descriptive templates, and state academic standards). Data collection steps suited for qualitative case study design and photo elicited interviews were conducted. The overall steps in this process entailed (a) initial meetings, (b) expectations for photographed adaptation examples, (c) classroom observations, (d) photo elicited interviews, (e) reference to state academic standards, (f) debriefing meetings/follow-up interviews with educator teams, and (g) confirmation interviews with District special education coaches. These steps are summarized below.

Initial meetings. The initial meetings with each educator team were determined by their joint availability. During this initial meeting, I introduced myself, described the research project, and informed the educators what participation would entail for them. I used an agenda, the formal consent letter, and a script specifically for the photographed adaptation expectations. Additionally, I discussed the confidentiality and consent

protocol and explained the participant incentives. After reviewing the formal consent letter that included the right to withdraw at any point from the study, teachers decided whether or not they agreed to participate in the research project. If they were uncertain, they were given additional time to decide. After educators agreed to participate, they signed the consent letter, received a copy for their records, and subsequent classroom observations and interviews were scheduled. The initial meetings with the District special education coaches were handled in a similar manner. Once they signed the formal consent letter the interview began.

Expectations for photographed adaptation examples. As noted above, during the initial meeting with educator teams, a script was used to explain the photographic and descriptive expectations for the adaptation examples in this study. The script highlighted the research topic, provided a definition of adaptations with examples, and listed four bulleted notes to summarize expectations (see Appendix D). For example, I requested three photographed adaptation examples that the educator teams used during language arts, social studies, or science lessons in the general education classroom with students who had significant disabilities, without images of students. I also requested the completion of electronic researcher-made adaptation descriptive templates, shown in Appendix E. These templates sought background information pertaining to the classroom lesson, relevant state academic standards, and general reference to planning and implementation of the adaptation. The collection of photographs paired with the adaptation descriptive templates served as artifacts or sources of data for this study (Collier & Collier, 1986; Dempsey & Tucker, 1994).

In this study, I gave participants the choice to take their own photographs or receive my assistance. Each team chose to digitally photograph adaptations that they used during a general education lesson in the identified content areas. This enabled participants to take the initiative in documenting adaptations they used and were not dependent on my presence to photograph adaptations. Each team contributed a range of four to nine photographs, totaling nineteen in all. They served as visual prompts during the photo elicited interviews.

Classroom observations. The classroom observations took place in general education contexts. Observations were scheduled with participants according to their availability, anticipated use of adaptations in the classroom with students with significant disabilities, and with minimal intrusion to classroom instruction. I observed during language arts, social studies, and science lessons for approximately 25- 45 minutes in each content area. These observations established a better understanding of participants' teaching world, facilitated a rapport with participants prior to interviews, and served as a triangulation feature for credibility of findings. I instantaneously recorded field notes and reflective memos at each observation using a researcher-made observation guide (see Appendix F). It was designed to gather comparable data related to the research questions across sites (Bogden & Biklen, 2007). Immediately following the observations, I recorded these notes and memos electronically into a word document in preparation for data analysis.

Photo elicited interviews. Photo elicited interviews with educator teams were the primary source of data in this study coupled with follow-up interviews and confirmation interviews with the District special education coaches. Qualitative methodology relies

heavily on interviews with participants as a means to understand a research question from the subjects' point of view (Creswell, 2007; Gubrium & Holstein, 2002; Kvale & Brinkmann, 2009; Merriam, 1998). Generally, when conducting interviews it is essential to establish rapport and communication between interviewer and interviewee to acquire data (Bogdan & Biklen, 2007). I had a number of opportunities to interact with participants prior to the interviews, for example via email correspondence, the initial meetings, and during classroom observations. In Chapter II, I described the photo elicited interview technique that I used in this study. The participants' photographs were incorporated into the interviews as visual cues to elicit rich information. This technique enabled teachers to take an active role in the research and fostered collaboration between team members and myself, as the researcher.

Prior to conducting the interviews with the educator teams in this study, a pilot photo elicited interview was completed to assess the flow and meaning of the interview questions. A special educator with over ten years of experience teaching students with significant disabilities was interviewed. As a result of this pilot interview, questions were altered slightly for clarity. Also, attention to the timing of the questions was addressed to better prepare for conducting the interview within the timeframe planned with the participants.

During the photo elicited interviews, a semi-structured interview schedule was utilized (see Appendix G). Individual items within the interview schedule were linked to the research questions (see Appendix H). For example, broad interview questions included (a) tell me what you like about these adaptations? (b) how do these adaptations support students with significant disabilities' with access to language arts, social studies,

or science lessons? (c) describe anything about these adaptations that enable you to use them in other content areas across the school day? In addition to these broad questions, I prepared follow-up probes to gather deeper responses. For example, I followed-up an interview question by asking (a) how did students demonstrate understanding of content aligned to academic standards in an observable way during the lesson? and (b) how do the principal, your colleagues, and students' families impact your ability to provide adaptations? Lastly, with permission from each participant, I digitally audio-taped the interviews. I personally transcribed the interviews verbatim shortly after they occurred for data analysis and credibility measures. Transcriptions were sent electronically to participants for their feedback and assurance of accuracy representing their perceptions.

The photo elicited interviews with the educator teams were scheduled sequentially after conducting three classroom observations, one team at a time. The interviews were scheduled based on the educator team's availability. Team A's and Team B's interviews took place in the morning during teacher workdays, when students were not present and lasted 47 and 40-minutes, respectively. Team C's interview was scheduled during an afternoon, after school hours and was completed in 55-minutes.

Reference to state academic standards. It was important for adaptations to align to state academic standards. Hence, the educator teams reported the state academic standards and in many cases the alternate standards for each adaptation example. As the researcher, I then reviewed the relevant academic standards to cross check how the adaptations aligned to grade level academic standards. I looked for coherence between the reported lessons, the reported academic standards, and the adaptations used for students with significant disabilities during the identified lesson, and compared what I

found with the perceptions of the participants. This process served as the triangulation feature discussed later in the qualitative research credibility section in this chapter.

Follow-Up interviews with educator teams. Follow-up sessions with educator teams were scheduled after completing preliminary data analysis. Any questions related to data collected were verified with participants before proceeding with the following educator team. This meeting also provided an opportunity for participants to share concerns, address any questions they had, and provide feedback on the transcribed interviews and preliminary themes that I generated. With participant permission, I digitally audio recorded the meetings to avoid losing information that was shared. The audio recordings were transcribed shortly after they occurred. The follow-up interviews were completed in 20-40 minute time periods.

Confirmation interviews. Confirmation interviews were tailored to the District special education coaches. An interview schedule guided the interview (see Appendix H). Additionally, I shared the photographic examples of the adaptations and a visual representation of the collective cross-case findings (e.g. matrices) to refer to during the interview. These interviews were scheduled after the preliminary cross-case analysis and were geared toward confirming case findings from the District special education coaches' broad perspective. The interviews were scheduled upon availability and took approximately 55-minutes to complete. Shortly after the interviews were conducted, they were transcribed verbatim and an electronic copy was sent to each interviewee for member check procedure.

Data Analysis

Data analysis in qualitative studies involves making sense out of text and image data (Creswell, 2007). Merriam (1998) described that "making sense out of data involves consolidating, reducing, and interpreting what people have said and what the researcher has seen and read- it is the process of making meaning" (p.178). The meanings that are generated constitute a study's findings. Moreover, the findings are organized in "descriptive accounts, themes or categories that cut across the data, or in the form of models and theories that explain the data" (p. 178). In this mulitcase study, as the researcher, I sought to understand how educator teams described the access and progress assessment functions of adaptations aligned to academic standards and how they accounted for sustained use of these adaptations across the curriculum and school days for students with significant disabilities.

Thematic analysis (Schwandt, 2007) leant itself well with the forgoing purpose for this study. It is a common approach to analyzing data derived from observations, interviews, and artifacts to gain understanding of a phenomenon. Hence, thematic analysis was conducted using coding, category construction, and theme development.

Coding is a data analysis activity that requires review and organization of data collected from multiple sources (Bogdan & Biklen, 2007). The coding process involved identifying critical information, organizing data into chunks or segments of text, then developing interpretive constructs or categories, related to the goals of my study (see Merriam, 1998; Rossman & Rallis, 1998). Theme development goes a step further by collapsing categories into broad interpretative abstractions. All three processes require immersion in the data for their proper formation. To form themes in this study, I used the

constant comparative method of data analysis (Merriam, 1998; Straus & Corbin, 1990). This process involved continual comparing and contrasting data and images collected, segmenting and combining categories into tentative themes, and then labeling those themes with a term.

In multicase studies there are two stages of analysis, the within-case analysis and the cross-case analysis. The *within-case* analysis treated each case as its own entity, whereas the *cross-case* analysis sought to create general understanding across cases (Merriam, 1998; Yin, 2003, 2014). Each of these analysis processes is further described below.

Within-Case Analysis

The within-case analysis for this study was a descriptive analysis of individual cases. Photo elicited interviews were the primary means of data collection in this study. Dempsey and Tucker (1994) recognize photographs used in photo elicited interviews as visual prompts to obtain rich information from participants as well as serve as original sources of evidence. Consequently, the descriptions generated from the adaptation examples used in general education classrooms for students with significant disabilities formed the basis for the within-case analysis. The case descriptions encompassed the schools, educator teams and District special education coaches, classroom environments, and sets of photographed adaptation examples. With respect to the latter, the adaptations represented the major thrust of the within-case analysis. The analysis included (a) specific reference to the alignment of academic standards and (b) broad descriptions of the general education classroom lessons and the planning, implementation, and needed

support associated with each adaptation example collected. The within-case findings are represented in descriptive vignettes in Chapter IV.

Cross-Case Analysis

The coding, categorization, and theme development processes necessary for cross-case analysis were initiated while doing the within-case analyses. Then using these themes, I looked for commonalities and differences that transcended the cases. Themes were compared and contrasted to generate new sets of cross-case themes (Stake, 2006; Yin, 2003, 2014).

To augment this process, I utilized a computer assistive qualitative data analysis software (CAQDAS) program, known as QSR NVivo ™. CAQDAS programs are available to assist with storing, sorting, and retrieving qualitative data (Bogdan & Biklen, 2007). With NVivo, I electronically coded and sorted data sets collected from each case (e.g. transcriptions and observation field notes) into categories associated with the research questions (e.g. standards, access, progress assessment, and sustainability). The advantage of NVivo was that I was able retrieve disaggregated data by main categories, then immerse in the text, note significant quotes, and affirm and adjust my preliminary interpretation and theme development for the cross-case findings. The cross-case findings are reported in Chapter V.

Confirmatory Analysis

As noted previously, confirmation interviews were conducted with District special education coaches. In these interviews the major themes under each research question were reviewed with the District special education coaches. Confirmatory analysis involved transcribing and analyzing these interviews. I looked for agreement and

disagreement and broad perspectives related to the research questions. When needed, the themes were adjusted. The main purpose of the confirmatory analysis was to contribute credibility and strength to this study.

Model Development

During data analysis, interrelated themes emerged across the research questions. Therefore, further analysis was conducted to address the theme relationships and interconnectedness of the findings that answered these questions. Again, data were compared and contrasted and new categories were formed. This process resulted in a conceptual overview that took into consideration the relationships among the major themes under each research question, the makings of a model (Merriam, 1998). These new categories became the components represented in a visual model. The visual model provides another explanation as to how the educator teams' perceive adaptations aligned to academic standards used by students with significant disabilities to support access to and progress across time in the general education curriculum in elementary schools. This visual model is presented in Chapter VI.

Qualitative Research Credibility

Researchers who pursue qualitative inquiry need to identify the steps they have taken to ensure credibility of their findings. Validity and reliability are sought, however they present differently than in traditional quantitative studies. Gall et al. (2003) noted that case study researchers conceptualize and assess the validity and reliability of findings differently based from differing assumptions. Creswell (2009) explained *qualitative validity* as the processes a researcher takes to check for accuracy of findings. It is recommended that researchers employ several strategies to check the accuracy of

findings. *Qualitative reliability* seeks to establish consistency across "different researchers and different projects" (p. 190). Yin (2003) suggested that case study researchers thoroughly document their procedural steps in order to demonstrate a reliable approach to the reader. Research is credible or trustworthy to the extent that the researcher has accounted for the validity and reliability of the content presented to an audience (Merriam, 1998).

Qualitative researchers embrace a number of processes to demonstrate validity (e.g. triangulation, member checking, and researcher bias clarification) and reliability (e.g. audit trail and peer and expert review). Together these processes seek the standpoint of participants, colleagues, and the researcher themselves. I utilized these processes in this study and they are each described below.

Triangulation

A key feature of multicase studies is the use of multiple sources of data. Using multiple sources of data enables a researcher to generate and confirm findings that converge based on an array of evidence (Yin, 2003). Thus when findings are supported by different sources of information, a reader is more likely convinced of its accuracy. The term *triangulation* is used to describe this process and is used for securing validity in a qualitative study. I organized and interpreted multiple forms of evidence from data (e.g. interview transcripts, observation field notes, and artifacts) to support the findings in this study. General and special education teachers who worked together to support students with significant disabilities in general education contexts shared their perspectives related to the use of adaptations during grade-level lessons. Likewise, District special education coaches shared their broad view of that concept and their view could be compared and

contrasted with those of the teachers. Lastly, educators reported the academic standards associated with each adaptation example and I, as the researcher, crosschecked adaptations aligned to academic standards by looking for coherence between the state academic standards (including alternate standards), classroom lessons, and the adaptation examples.

Member Check

In a qualitative study, *member check* is a strategy that directly involves input from the participants to check accuracy of a researcher's findings (Creswell, 2009). In this process a researcher shares transcriptions, descriptions of generated themes, or a final report and requests that the participants read and comment on whether they perceive content is accurate. This can be accomplished in a written or oral format. In this study, member checking occurred after interview transcription and preliminary theme development. I provided the participants in my study printed and electronic texts of the interview transcriptions and drafted themes in matrices for their input.

Researcher Bias Clarification

In qualitative inquiry, the researcher is the primary instrument for gathering data and conducting analysis. The role of the researcher is seen as a critical tool in filtering meanings derived from multiple data sources, theory, and literature. From the beginning of a study it is critical for an investigator to clarify biases and provide the audience with an understanding of their assumptions and theoretical positions (Merriam, 1998). In an effort to separate from researcher bias, I explained my interpretive lens that influenced the development of this study. I also used a notebook to reflect thoughts and prepare for steps taken throughout this research process.

Audit Trail

An audit trail provides documentation on how data were collected, how categories or themes were generated, and how decisions were made through the inquiry process (Merriam, 1998). As Yin (2003) recommended, I documented the steps I used to collect and analyze multiple forms of data, for example I used an observation guide with each classroom observation, followed an interview schedule with each educator team and District special education coach, transcribed interviews after they occurred, instantaneously recorded field notes and memos, maintained a log of necessary activities, and presented findings in visual representations (e.g. matrices) in stages as they occurred.

Peer and Expert Review

Peer review involves asking a colleague to verify data analysis in a qualitative study (Merriam, 1998). I obtained peer review from an experienced colleague in the field of low incidence disabilities. She was given access to individual case databases (e.g. transcripts, observation field notes, adaptation descriptive templates and photographs) and requested to review of the documents and comment on the preliminary findings organized in matrices. The feedback contributed to solidifying the findings in this study. An expert review is similar in that it allowed verification of findings and interpretations with an expert in the field. In this study, I sought input from my research advisor. I provided my advisor access to transcripts and matrices that contained the findings related to the research questions, and the generated visual model. Through review and discussions, findings were affirmed and reconfigured as appropriate to reach the final set of findings and the accompanying visual model.

Chapter Summary

In summary, I employed a multicase research design combined with a photo elicited interview technique. The participants in this study consisted of three educator teams and two District special education coaches. The educator teams consisted of general and special educators who worked together to implement adaptations with students who had significant disabilities during grade-level instruction in elementary classrooms. The District special education coaches supported these teachers in implementing best-practices.

Typical in multicase studies, data were collected through multiple sources including interviews, observations, and artifacts. The educator teams were interviewed together and the District special education coaches were interviewed individually. I observed adaptations used during language arts, social studies, and science lessons for each case. Photographs and descriptions of adaptations were collected and served as artifacts. Both within-case and cross-case analyses were conducted. The within-case findings report descriptions of schools, educator teams, classroom environments, and the planning and implementation of photographed adaptation examples that were aligned to academic standards in language arts, social studies, and science lessons. The cross-case analysis examined the commonalities and differences across cases and generated major themes that addressed each research question. The confirmatory analysis involved showing matrices of findings to the District special education coaches for verification and feedback.

Because of the complexity of this analysis, the researcher deemed it necessary to split the individual within-case analysis and the cross-case analysis into two chapters.

Hence, in the next chapter, Chapter IV, a comprehensive analysis of the individual cases are offered, then in the subsequent chapter, Chapter V, the cross-case analysis is offered to address the research questions. In the final chapter, Chapter VI, a visual model is presented, which provides a holistic picture of the phenomenon studied (Creswell, 2009).

CHAPTER IV

DESCRIPTION OF CASES

In this study, I examined three cases to investigate material adaptations used in general education classrooms with students who have significant disabilities. Each case consisted of an educator team that photographed examples of adaptations used during language arts, social studies, and/or science lessons in elementary school classrooms. The within-case analysis consisted of the development of descriptive case vignettes.

This chapter presents the case vignettes, referred to as Team A, Team B, and Team C. Each vignette provides descriptions of the (a) elementary school, (b) educator teams and District special education coaches (c) general classroom environment, and (d) photographed adaptation examples. With respect to the latter, adaptation examples were analyzed in the context of classroom lessons, and specifically addressed alignment to academic standards and the planning and implementation of the adaptations.

Students with significant disabilities were not participants in this study. When educator teams described adaptations with reference to students with significant disabilities, student names were not identified and I subsequently used the masculine pronoun to represent all students when reporting findings. The chapter concludes with an overall summary.

Vignette Team A

School Description

Team A was based in a neighborhood school in a developing community in the District. This elementary school opened in 2007 to reduce overcrowding in an existing elementary school. The teaching staff had an average of seven years teaching experience and 15 of the 29 educators had a master's degree or above. The majority of the students, 84% were Caucasian, 12% were Hispanic and 4 % were multiracial or from other ethnic backgrounds. Within this student population, approximately 37% qualified for free/reduced lunch, 4% were identified as Gifted and Talented learners, and 9% received special education services.

The mission of this school was to deliver an extraordinary education for every child. The school's vision sought to provide a supportive environment, in which students developed and used academic and thinking skills and became empowered learners. The teachers instructed students using a high quality standards-based district curriculum with emphasis on inquiry and critical thinking. This combination provided an engaging and differentiated curriculum. Overall, the school believed that every child could achieve academic success.

Team A Educators

Team A educators were the first team to agree to participate in this study. The general educator on this team was a fourth grade teacher and the special educator was responsible for students who had significant disabilities in this classroom and throughout the school building. This was the first school year the classroom teacher taught a student who had significant disabilities. She remarked that the special educator was an "amazing

teammate." The special education teacher had a total of seven years of experience supporting students with significant disabilities in school settings, three of which as a special educator.

Team A Special Education Coach

The special education coach with Team A had eighteen years of experience directly supporting students with significant disabilities as a special educator and six years supporting educators who worked with students with significant disabilities as a special education coach. She was a major contributor in professional development, specifically pertaining to students with significant disabilities.

Classroom Environment

The fourth grade classroom environment was welcoming and conducive for learning. The general educator provided differentiated instruction during small group and whole class instruction. Educational supports were used to facilitate independence, social interactions, and learning for the whole class, for example instructional visual cues, prompts, explicit expectations and praise, and a variety of learning materials. Students were familiar with one another from previous school years together. The following adaptations were designed for a student with significant disabilities who met the criteria of significant disabilities, described in Chapter I. He joined the classroom approximately 40-80% of the school day. Adult support and a communication device were provided when in the general education classroom.

Adaptation Examples

Team A photographed and described four adaptations used with a student who had significant disabilities during language arts, social studies, and science lessons in the

fourth grade classroom. The classroom teacher led the lessons with support from the special educator or a paraeducator. These adaptations were incorporated into the photo elicited interview process and are summarized in this section, beginning with the Reader's Theater on a communication device and ending with the Science Energy Book.

Reader's Theater on communication device. The Reader's Theater adaptation incorporated the use of a student's communication device. This adaptation was used throughout a week-long small group literacy activity that culminated in a group performance in front of the class. The Reader's Theater adaptation was aligned with a fourth grade state academic standard in the content area of Reading, Writing and Communicating. More specifically it was aligned to Standard 2.1 (Reading for All Purposes- Comprehension and fluency matter when reading literary texts in a fluent way) with the corresponding extended evidence outcomes (EEOs) and extended readiness competencies (ERCs) (see Table 3).

Table 3

Adaptation Alignment to Academic Standards—4th Grade

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
Reader's theater on communication device	Content area: Reading, writing, and communicating Standard 2. Reading for all purposes 1. Comprehension and fluency matter when reading literary texts in a fluent way.	I. Match a simple sentence that includes an attribute to a picture. II. Answer questions about who, what, and where using a 2- to 3-sentence literary passage. III. Read and comprehend adapted 4th grade literature.	1. Expressing an understanding for the relationship between pictures and text. 2. Connecting meaning to symbols that represent attributes. 3. Gaining and maintaining a repertoire of literary interests.
Answering WH questions on Netbook	Content area: Reading, writing, and communicating Standard 2. Reading for all purposes 2. Comprehension and fluency matter when reading informational and persuasive texts in a fluent way.	I. Answer simple when and where questions about content specific informational text. II. Identify meaning of 2-3 key vocabulary in informational text by matching text to a picture, model, or action. III. Read and comprehend adapted 4th grade informational texts.	1. Connecting meaning to symbols for time (when) and locations (where). 2. Gaining and applying a variety of learning strategies. 3. Sustaining participation in reading activities.

Table 3 (continued)

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
State map on a pillowcase	Content area: Social studies Standard 2. Geography 1. Use several types of geographic tools to answer questions about the geography of the state.	I. Identify features on a state (i.e., mountains, rivers, plains, lakes). II. Create or illustrate features on a state map.	1. Accessing technology related to maps.
Science energy book	Content area: Science Standard 1: Physical science 1. Energy comes in many forms such as light, heat, sound, magnetic, chemical, and electrical Evidence outcomes: b. Show that electricity in circuits requires a complete loop through which current can pass. c. Describe the energy transformation that takes place in electrical circuits where light, etc. effects are produced.	I. Select sources of light, heat, and sound. II. Identify a resource as renewable or nonrenewable.	1. Attaching meaning to symbols related to light, heat, and sound. 2. Attaching meaning to symbols related to sources of light, heat, and sound. 3. Making choices related to light, heat, and sound. 4. Selecting technology appropriate to the situation to manipulate light, heat, and sound.

Note. EEOs = extended evidence outcomes; ERCs = extended readiness competencies. Alternate standards aligned to grade-level state academic standards (State Department of Education website).

The general and special educator collaborated to plan this adaptation so a student with significant disabilities would be able to participate in his assigned small group lessons. The special educator programmed the communication device so that specific icons corresponded to lines in the story, titled *Tacky the Penguin.* She informed the paraeducator, who then supported this student in using the Reader's Theater adaptation in taking turns reading lines in the story along with classmates. The icons that represented different lines in the engaging and fun fourth grade story are shown in Figure 1.

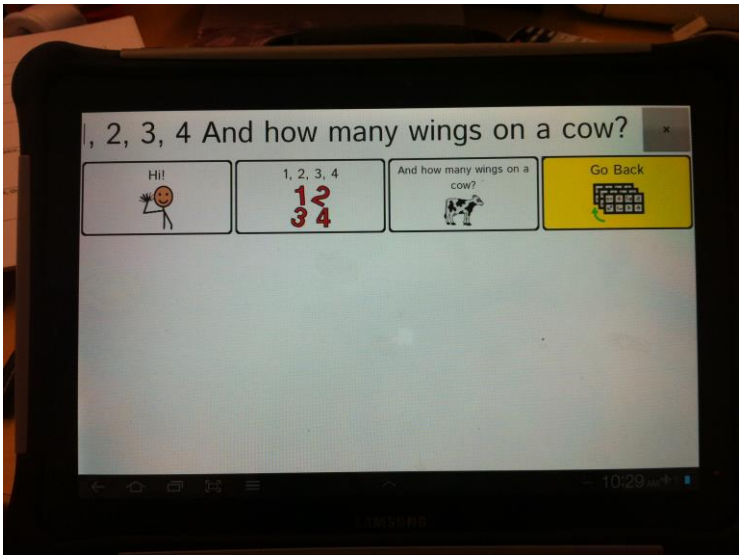

Figure 1. Reader's Theater on communication device.

Answering WH questions on Netbook™. The answering WH questions adaptation incorporated the use of a student's Netbook with adaptive software (e.g. PixWriter™). This adaptation was used during a routine small group reading and discussion lesson. The Answering WH questions adaptation was aligned to a fourth grade state academic standard in the content area of Reading, Writing and Communicating. More specifically it was aligned to Standard 2.2, (Reading for All Purposes-Comprehension and fluency matter when reading informational and persuasive texts in a

fluent way) with the corresponding EEOs and ERCs. This adaptation also aligned to EEOs and ERCs aligned to Standard 2.1, described in the Reader' Theater adaptation (see Table 3).

The educator team collaboratively planned this adaptation. They incorporated the student's IEP objective, answering WH questions. The special educator created the grid. A paraeducator, occupational therapist, or the special educator supported this student in using the adaptation during and often following the reading lesson in practicing with and responding to WH questions related to the storybook content read out loud with partners. Figure 2 shows the photograph of the grid used to guide the student who had significant disabilities in answering WH questions in sentences using left to right progression. The PixWriter software had the capacity to 'read' back multiple word sentences to the student, teacher, or peers via the Netbook.

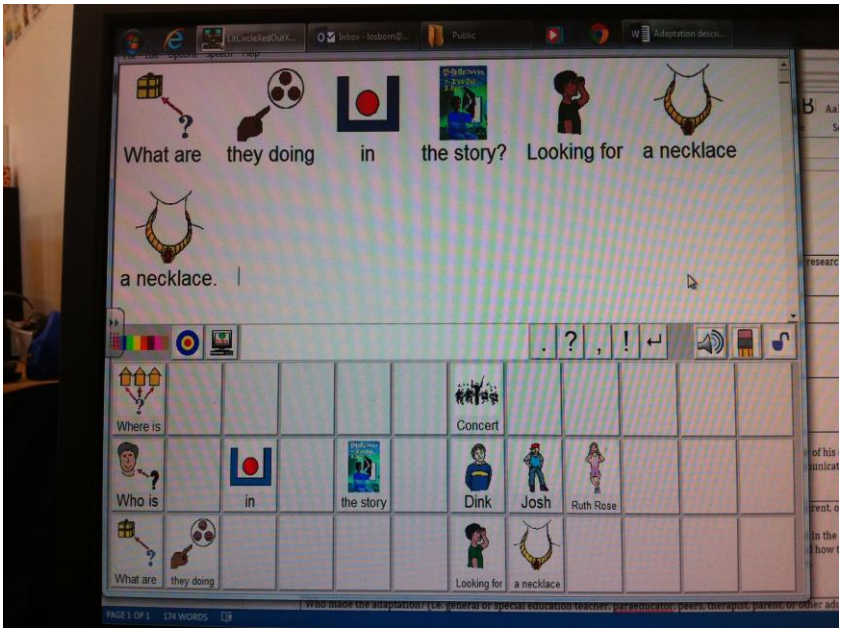

Figure 2. Answering WH questions on Netbook.

State map on a pillowcase. The state map adaptation was used during a series of whole class social studies lessons. This adaptation was aligned to a fourth grade state academic standard in the content area of Social Studies. More specifically it was aligned to Standard 2.1 (Geography- Use several types of geographic tools to answer questions about the geography of the state) and the corresponding EEOs and ERCs (see Table 3).

The educator team collaboratively planned this adaptation. The special educator created labels ahead of time and shared the plan with a designated paraeducator. The paraeducator supported this student by offering choices, prompts, hand-over-hand assistance, and new labels (as needed) so the student was able to participate with classmates as they progressed in this learning activity. All students were expected to attend to the classroom teacher and instructional visual aids (e.g. Smartboard and textbooks) when labeling key landmarks, towns, roads, and national parks/monuments on their maps made from pillowcases (see Figure 3).

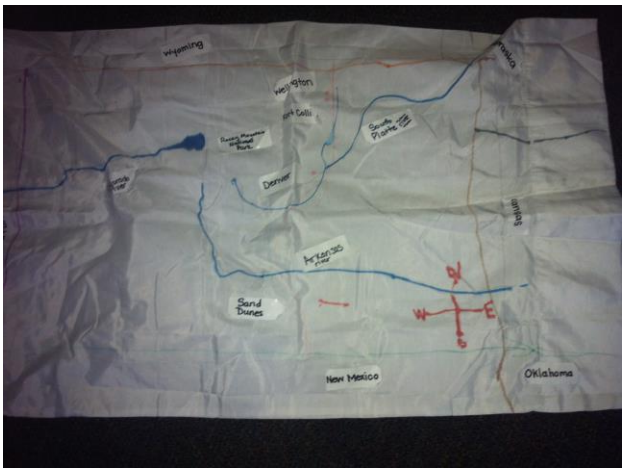

Figure 3. State map.

Science energy book. The science energy book adaptation was based from a fourth grade science experiment. This energy book adaptation was aligned to a fourth

grade state academic standard in the content area of Science. More specifically it was aligned to Standard 1.1 (Physical Science- Energy comes in many forms such as light, heat, sound, magnetic, chemical and electrical) and the corresponding EEOs and ERCs. In this lesson, the adaptation was aligned closer to the fourth grade evidence outcomes that specifically addressed electrical circuits (see Table 3).

The educator team collaboratively planned this adaptation. The paraeducator supported this student in actively participating in and observing the experiment with classmates. The observations of the experiment were recorded in the completed adaptive book. Numerous steps occurred: searching for and selecting visual representations from Google Images™; printing, cutting, and pasting those images into the science energy book; and creating simple explanatory sentences using the PixWriter software. Figure 4 shows a photograph of a single page in this student-made science energy book.

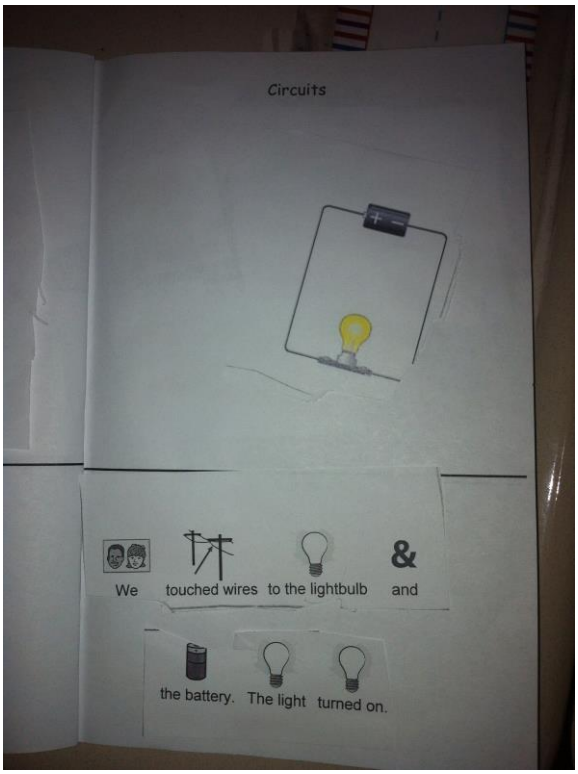

Figure 4. Science energy book.

Vignette Team B

School Description

Team B was based in a neighborhood elementary school northwest of the historic section in this community. The school was opened in 1956 and was remodeled in 1999. The teaching staff had an average of eight years experience and 15 out of the 36 teachers held a master's degree or higher. The school served a diverse population of students and their families from Pre-Kindergarten to 5th grade. Approximately 59% of the students were Hispanic, 35 % were Caucasian and 6 % were multiracial or from other ethnic backgrounds. Within this student population, approximately 86% qualified for free and reduced lunch, 2% were identified as gifted and talented learners and 12% received special education services.

The school curriculum emphasized a science-based approach across content areas, including the arts. Each child's individual needs and strengths were supported and inquiry learning and critical thinking skills were reinforced. The school's motto was PRIDE, which stood for positive attitude, respect, integrity, determination, and empathy. In an effort to better serve young children from low-income and/or linguistically diverse backgrounds, the District placed a cap on the number of students enrolled in targeted elementary schools. In this school the kindergarten enrollment did not exceed fourteen students per class. This elementary school welcomed parental and community involvement.

Team B Educators

Team B educators were receptive and willing to participate in this study. The general educator on this team was a kindergarten teacher and the special educator

supported the students who had significant disabilities in the kindergarten classroom and across the school building. The classroom teacher had taught for eleven years and each of those years had taught students with significant disabilities in her early childhood classrooms. The special educator on this team was a first year teacher. She had prior experience working with students with significant disabilities as a paraeducator and with respite care.

Team B Special Education Coach

The special education coach for Team B was the same individual who supported Team A. As noted previously, she had eighteen years of experience directly supporting students with significant disabilities as a special educator and six years supporting educators who worked with students with significant disabilities as a special education coach. She was a major contributor with professional development, specifically pertaining to students with significant disabilities.

Classroom Environment

This kindergarten classroom environment provided a welcoming, stimulating, and positive learning atmosphere. There were structures in place to facilitate independence and active learning for all children, shown by materials that were organized for student access and use. Visual images and text were visible within the classroom and reinforced learning content and expected behavior. The children with and without disabilities freely interacted with each other and with significant adults in the classroom. Two students had significant disabilities and were in the kindergarten classroom more than 80% of the school day. Both students met the criteria of significant disabilities, as defined in Chapter I. They received adult support when in the kindergarten classroom.

Adaptation Examples

Team B photographed and described adaptations used in the kindergarten classroom to support two students who had significant disabilities. These adaptations were used during language arts and science/math lessons led by the classroom teacher along with classmates and paraeducator support. These examples were incorporated into the photo elicited interview process and are summarized in this section, beginning with the literacy workstations and ending with a science floating experiment.

Literacy workstations. This collection of literacy workstation adaptations were used daily in the kindergarten classroom. All students worked in pairs or small groups and rotated through four designated learning stations. These stations included (a) the classroom teacher guided reading intervention, (b) two cooperative independent literacy workstations, and (c) instructional handwriting lesson led by the classroom paraprofessional. Adaptations for the classroom teacher guided reading intervention (see Figure 5, Figure 6, and Figure 7) and the classroom paraprofessional instructed handwriting lesson (see Figure 8, Figure 9, and Figure 10) make up the collection of materials used for the literacy workstations. These examples were aligned to kindergarten state academic standard in the content area of Reading, Writing and Communicating. More specifically they were aligned to Standard 2.1 (Reading for All Purposes- A concept of print to read and a solid comprehension of literary texts are the building blocks for reading), 2.3 (Reading for All Purposes- Decoding words in print requires alphabet recognition of letter sounds and Standard 3.2 (Writing and composition- Appropriate mechanics and conventions are used to create simple texts) and the corresponding EEOs and ERCs (see Table 4). In this lesson, the guided reading binder

adaptation was aligned closer to the kindergarten grade-level evidence outcomes that addressed skills such as; following words from left to right, understanding that words are separated by spaces in print, and recognition and name all the letters of the alphabet, more than the five letters stated in the EEO.

Table 4

Adaptation Alignment to Academic Standards—Kindergarten

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
Literacy workstations	Content area: Reading, writing, and communicating		
	Standard 2. Reading for all purposes:		
	1. A concept of print to read and a solid comprehension of literary texts are the building blocks for reading.	I. Identify simple attributes of a picture in a book. II. Demonstrate questioning behavior to seek information about a book. III. Make meaning of information from symbols. IV. Participate in reading activities with adapted K-level literature	1. Connecting meaning to symbols related to attributes. 2. Manipulating reading materials. 3. Sustaining participation in reading materials.
	3. Decoding words in print requires alphabet recognition and knowledge of letter sounds. Evidence Outcomes: a. Demonstrate understanding of organization and basic features in print. i. Follow words from left to right, etc. iv. Recognize and name all letters, etc.	I. Identify directionality of print. II. Identify five upper-case or lower-case letters of the alphabet.	1. Accessing communication system to identify letters (sign language).

Table 4 (continued)

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
	Standard 3. Writing and composition:		
	2. Appropriate mechanics and conventions are used to create simple texts. Evidence Outcomes: a. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. i. Print many upper- and lower-case letters.	I. Make meaningful marks to approximate letters in name.	2. Attaching meaning to symbols related to their name.
Sorting Velcro mat with blocks	Content area: Science		
	Standard 1. Physical science 2. Objects can be sorted by physical properties, which can be observed and measured.	I. Investigate how objects can be sorted using physical properties shape and color.	1. Making choices related to physical properties. 2. Using and organizing objects based on physical properties.
	Content area: Mathematics Standard 4. Shape, dimensions, and geometric relationships: 1. Shapes can be described by characteristics and position and created by composing and decomposing.	I. Identify two dimensional shapes: circle and square. III. Match like shapes.	1. Maintaining attention to shapes.

Table 4 (continued)

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
Floating experiment handout	Content area: Science Standard 1. Physical science 2. Objects can be sorted by physical properties, which can be observed and measured. Evidence Outcomes: a. Observe, investigate, and describe how objects can be sorted using physical properties.	I. Investigate how objects can be sorted using physical properties shape and color. .	1. Making choices related to physical properties. 2. Using and organizing objects based on physical properties. .

Note. EEOs = extended evidence outcomes; ERCs = extended readiness competencies. Alternate standards aligned to grade-level state academic standards (State Department of Education website).

The general educator compiled the adapted guided reading binder based on the instructional level and needs of the students with significant disabilities. She and the special educator that made up this educator team communicated regularly about classroom activities and the individual needs of these girls. The classroom paraprofessional and the special education paraeducators assisted these students with the handwriting rotation, using the same manipulative materials as classmates and with the option of a lower level handwriting workbook (e.g. preschool level by the same publisher). The photos in Figures 5-10 show the materials that were used: a combination of the same, supplemental, and adapted materials.

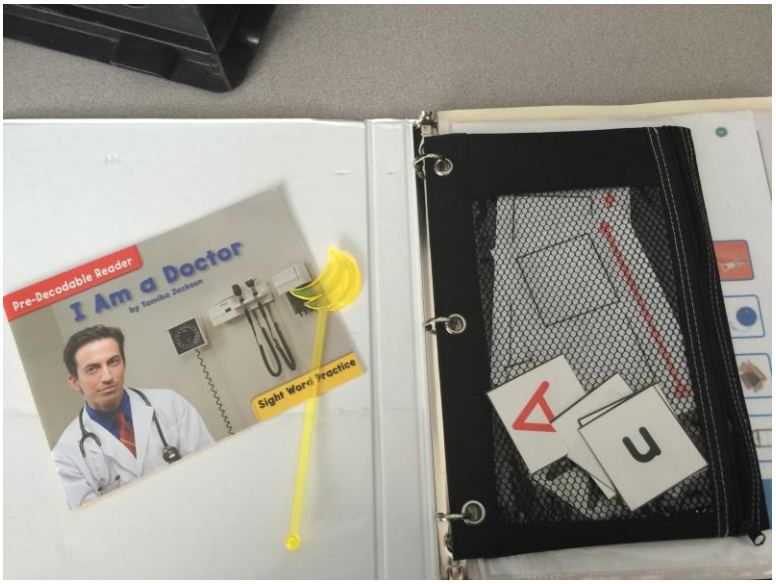

Figure 5. Guided reading binder.

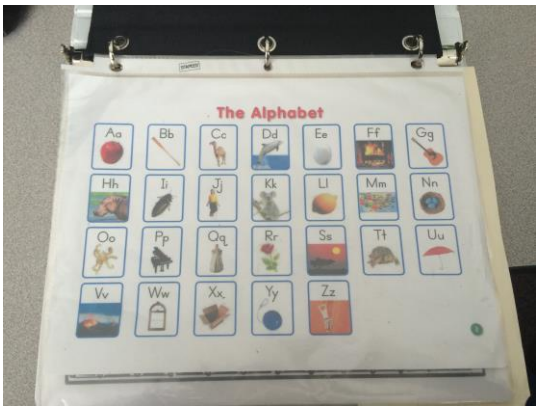

Figure 6. Alphabet chant.

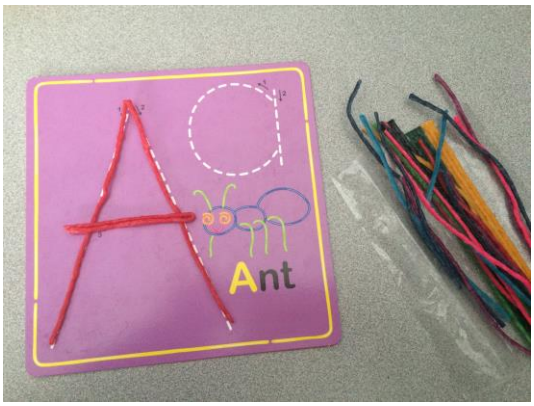

Figure 7. Wikki sticks letters.

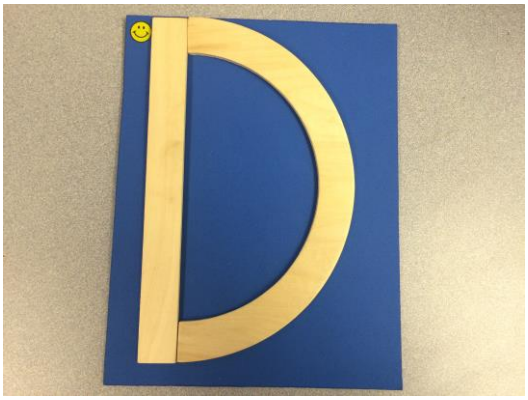

Figure 8. Wooden letter sticks.

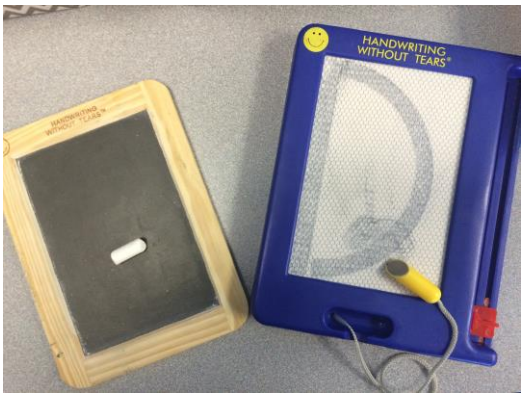

Figure 9. Chalk and Magnadoodle.

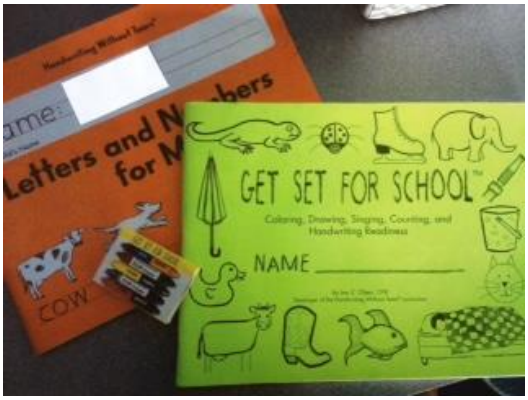

Figure 10. Kindergarten and Pre-K workbooks

Sorting Velcro mat and blocks. The sorting Velcro mat adaptation and blocks were used during a whole-class science-math blended lesson that introduced the vocabulary word “attribute” through a song and attribute train game. The sorting mat adaptation was aligned to a kindergarten state academic standard in the content area of Science and Mathematics. More specifically it was aligned to Standard 1.2 (Physical Science- Objects can be sorted by physical properties, which can be observed and measured) and to Standard 4.1 (Shape, Dimensions, and Geometric Relationships- Shapes can be described by characteristics and position and created by composing and decomposing) and the corresponding EEOs and ERCs (see Table 4).

The general educator planned this lesson and incorporated the familiar sorting Velcro mat, made by the special educator, into the lesson. The classroom teacher guided the student with significant disabilities and a peer who needed additional language reinforcement. After completing the sorting mat, made with laminated shapes and Velcro, they used the same plastic blocks as classmates to play the attribute train game (see Figure 11 and Figure 12). The classroom teacher specifically paired theses students together to work on similar color and shape sorting skills that both students needed practice with.

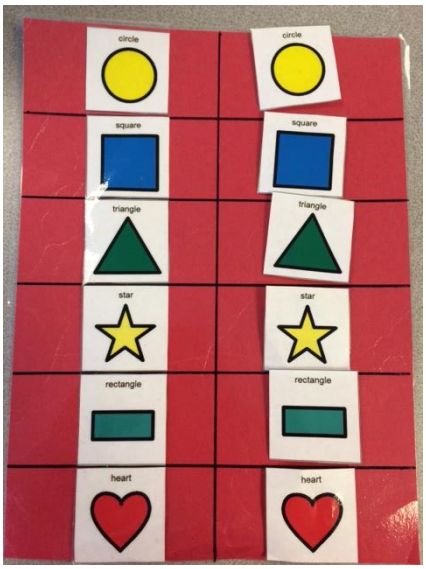

Figure 11. Sorting Velcro mat.

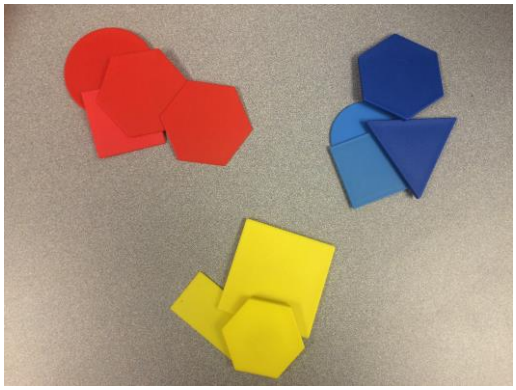

Figure 12. Classroom sorting blocks.

Floating experiment handout. All classmates used the floating experiment handout adaptation during the class science lesson experiment lead by the classroom teacher. The handout was aligned to a kindergarten state academic standard in the content area of Science. More specifically it was aligned to Standard 1.2 (Physical Science- Objects can be sorted by physical properties, which can be observed and measured) and also aligned to the kindergarten evidence outcome (1.2.a. Observe, investigate, and

describe how objects can be sorted using their physical properties), as well as the corresponding EEOs and ERCs (see Table 4).

The general educator planned and delivered this lesson. The handout was minimally adapted for all students, simply by providing a more realistic image of the marshmallow cookie (see Figure 13). The entire class gathered on the rug in the front of the classroom, made predictions, and observed the floating experiment. The classroom teacher facilitated a group discussion and differentiated questions for students at their instructional levels. The science lesson concluded with drawing pictures of the experiment and a pair share. The students with significant disabilities were paired with peers who were likely to engage them in conversations related to the experiment. A paraprofessional was assigned to support these students throughout the lesson, for example with cutting and gluing, maintaining attention, responding to questions, and interacting with peer partners.

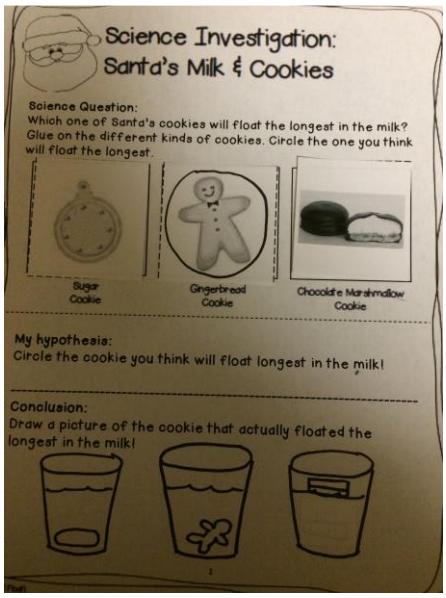

Figure 13. Floating experiment handout.

Vignette Team C

School Description

Team C was based in a neighborhood elementary school on the northeast side of the historic section in this community. This school was opened in 1993. The teaching staff had an average of ten years of experience and 24 out of the 38 teachers held a master's degrees or higher. The school served a diverse population of students and their families from Pre-Kindergarten to 5th grade. Approximately 52% of the students were Caucasian, 39% were Hispanic and 9% were multiracial or from other ethnic backgrounds. Of this school population, 64% qualified for free or reduced lunch, 3% were identified as Gifted and Talented learners and 9% received special education services.

The school provided a learning environment where differences were celebrated. The curriculum emphasized an arts and technology approach across content areas with focus on educating the whole child. It was a Positive Behavior Intervention Support school and integrated character traits into daily instruction. This school, like other schools in the District welcomed parental involvement and community volunteers.

Team C Educators

Team C educators were also receptive and willing to participate in this study. The general educator on this team was a kindergarten teacher and the special educator supported the students who had significant disabilities in this classroom and across the school building. The general education teacher had eleven years teaching experience and each of those years taught students with a range of ability levels including students who

had significant disabilities. The special educator on this team was a veteran teacher with approximately thirty years of experience teaching students with significant disabilities.

Team C Special Education Coach

The special education coach for Team C had thirteen years of experience teaching students with disabilities and approximately ten of those teaching years had students with significant disabilities. This was her second year working as a special education coach. She was a contributor to professional develop trainings in the District, specifically related to curricular adaptations and co-teaching strategies.

Classroom Environment

This kindergarten classroom environment projected a stimulating and positive learning atmosphere. There were structures in place to facilitate independence, social interactions, and active learning for all children, for example materials that were organized for student access and use, classroom job assignments, and peer partners. Visual images and text were visible within the classroom and reinforced learning content and expected classroom behavior. The children with and without disabilities were getting to know one another. The following adaptations were designed for a student who met the criteria of significant disabilities, as defined in Chapter I. He joined the classroom approximately 40-80% of the school day. Adult support was provided the majority of the time when in the general education classroom.

Adaptation Examples

Team C photographed and described four adaptations used in the kindergarten classroom and one adaptation used in the special education classroom with a student who had significant disabilities. The adaptation examples were used during language arts and

science lessons led by the classroom teacher along with support from the special educator or a paraeducator. These examples were referred to during the photo elicited interview process and are summarized in this section, beginning with a language arts writing journal and ending with the science animal matching adaptation.

Writing journal. The writing journal adaptation was used class-wide as students enter the classroom two-to-three mornings per week. The writing journal adaptation was aligned with a Kindergarten state academic standard in the content area of Reading, Writing and Communicating. More specifically it was aligned to Standard 3.2, (Writing and Composition- Appropriate mechanics and conventions are used to create simple texts) and a corresponding EEO and ERC (see Table 5).

Table 5

Adaptation Alignment to Academic Standards—Kindergarten

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
Writing journal	Content area: Reading, writing, and communicating		
	Standard 3: Writing and composition 2. Appropriate mechanics and conventions are used to create simple texts..	I. Make meaningful marks to approximate letters in name.	2. Attaching meaning to symbols related to their name.
Name matching	Content area: Reading, writing, and communicating:		
	Standard 2. Reading for all purposes: 2. A concept of print to read and a solid comprehension of informational text are the building blocks for reading.	II. Recognize own name.	1. Attending to the environment.
	3. Decoding words in print requires alphabet recognition and knowledge of letter sounds.	I. Identify directionality of print. II. Identify five lower-case letters of the alphabet.	1. Accessing communication system to identify letters (sign language).
Shape matching	Content area: Mathematics: Standard 4. Shape, dimensions, and geometric relationships 1. Shapes can be described by characteristics and position and created by composing and decomposing	I. Identify two dimensional shapes: circle and square. III. Match like shapes.	1. Maintaining attention to shapes.

Table 5 (continued)

Adaptation	State Academic Standards: Concepts & Skills Students Master	Alternate Standards	
		EEOs: With Appropriate Supports, Students Can:	ERCs: Content-Based Description Access Skills
Turkey matching	Content area: Science: Standard 2. Life science 1. Organisms can be described and sorted by their physical characteristics.	I. Sort a group of items based on size, shape, or color. II. Identify the similar attributes of sorted items.	1. Attaching meaning to a symbol related to color, shape, or size.
Animal reader matching	Content area: Science Standard 2. Life science 1. Organisms can be described and sorted by their physical characteristics.	I. Sort a group of items based on size, shape, or color. II. Identify the similar attributes of sorted items.	1. Attaching meaning to a symbol related to color, shape, or size. 2. Expressing an understanding of differences in attributes.
	Content area: Reading, writing, and communicating: Standard 2. Reading for all purposes: 2. A concept of print to read and a solid comprehension of informational text are the building blocks for reading.	I. Identify when a book is held upright. VI. Participate in reading activities with adapted K-level informational text. .	1. Attending to the environment. 2. Responding to others during reading activities.

Note. EEOs = extended evidence outcomes; ERCs = extended readiness competencies. Alternate standards aligned to grade level state academic standards (State Department of Education website).

The general educator created this adaptation. It is an example of a common adaptation format made by the special educator and other team members in school. It involved highlighting letters for a student to trace and is an example of an adaptation that was self-explanatory for support persons to guide the student or provide hand-over-hand assistance, as needed (see Figure 14).

Figure 14. Writing journal.

Name matching activity. The name matching adaptation was repeatedly used when classmates wrote their names throughout the day across content areas in the kindergarten classroom. The name matching adaptation was aligned to kindergarten state academic standards in the content area of Reading, Writing and Communicating. More specifically it was aligned to Standard 2.2 (Reading for All Purposes- A concept of print to read and a solid comprehension of informational text are the building blocks for reading) and Standard 2.3 (Reading for All Purposes- Decoding words in print requires alphabet recognition and knowledge of letter sounds) and corresponding EEOs and ERCs (see Table 5).

The special education teacher created this adaptation that was accessible in the kindergarten classroom. The adaptation was laminated and the matching letters were attachable with Velcro and stored in the envelope adhered to the file folder. This was an example of an adaptation used by a student with significant disabilities to learn letters by practicing matching the letters in his name (see Figure 15).

Figure 15. Name matching (pseudonym name).

Shape matching activity. The shape matching adaptation was primarily used in the special education classroom to reinforce matching and sorting attributes by shape. This adaptation was aligned with kindergarten state academic standards in the content area of Mathematics. More specifically it was aligned to Standard 4.1 (Shape, Dimensions, and Geometric Relationships- Shapes can be described by characteristics and position and created by composing and decomposing) and a corresponding EEO and ERC (see Table 5).

The special educator made this adaptation with materials she had collected. The student with significant disabilities completed this activity mainly during math centers in the special education classroom. The special educator or paraeducators ensured the student stayed on task by providing least to most prompts (see Figure 16).

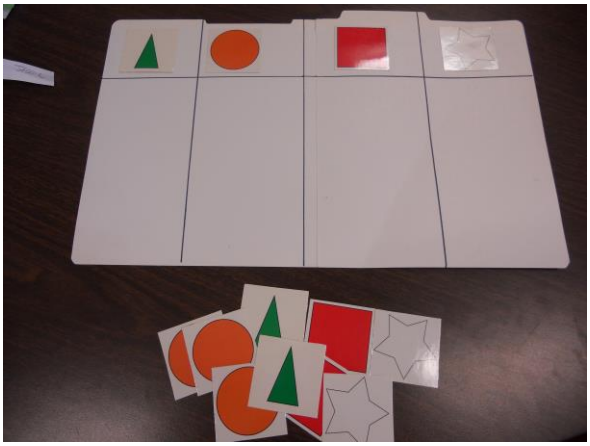

Figure 16. Shapes matching.

Turkey matching. The turkey matching adaptation was incorporated into a Thanksgiving activity in the kindergarten classroom earlier in the school year. This adaptation was aligned to a kindergarten state academic standard in the content area of Science. More specifically it was aligned to Standard 2.1 (Life Science- Organisms can be described and sorted by their physical characteristics) and the corresponding EEOs and ERCs (see Table 5).

The special educator made the turkey matching adaptation. This adaptation was laminated and the matching pieces were attachable with Velcro (see Figure 17). A paraeducator supported the student with significant disabilities in completing this activity while classmates completed a different but related turkey activity. It was stored in the special education classroom for other students with significant disabilities in future school years.

Figure 17. Turkey matching.

Animal reader matching. The animal reader matching adaptations used the same materials as classmates during a small group science lesson. This example was aligned to Kindergarten state academic standards in the content areas of Science and Reading, Writing and Communicating. More specifically it was aligned to Standard 2.1 (Life Science- Organisms can be sorted by their physical characteristics) and Standard 2.2 (Reading for All Purposes- A concept of print to read and a solid comprehension of informational text are the building blocks for reading) and the corresponding EEOs and ERCs (see Table 5).

The general educator prepared these materials and led the small group science lesson with four students during center-time in the classroom. The Animal Reader was part of the Kindergarten's supplemental curriculum; kindergarten teachers chose the readers for all students because of the strong visual images that augmented the text. Each student had a reader and matching animal pictures to manipulate. As the classroom

teacher went through the reader she differentiated questions based on students' ability levels. This hands-on lesson stimulated discussion and comprehension checks as students matched pictures of animals on corresponding pages. The student with significant disabilities participated with least-to-most prompts from the special educator.

Figure 18. Animal reader matching-1.

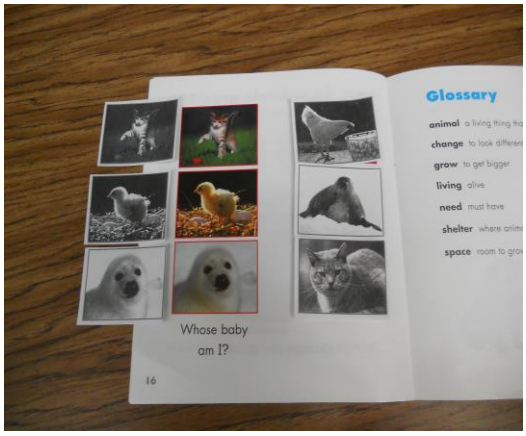

Figure 19. Animal reader matching-2.

Chapter Summary

This chapter presented detailed vignettes of the three cases in this study, referred to as Team A, Team B, and Team C. These vignettes served as the within-case analysis and included descriptions of the elementary schools, educator teams and District special education coaches, classroom environments, and photographed adaptation examples used with students who had significant disabilities in the context of classroom lessons led by general educators. The grade-level state academic standards and the corresponding alternate standards that each adaptation example addressed were also identified. Each case revealed how these adaptations were planned and who supported their implementation.

Table 6 summarizes the analysis across cases and offers a contrasting view. As shown in this table, there were broad similarities in the management of the adaptation

processes. Differences in grade level across cases might suggest that differences would be uncovered in the adaptation processes, yet broad similarities in the uses of adaptations across cases resulted in considerable uniformity in how adaptations served access and assessment functions. These will be discussed in the next chapter.

Table 6

Summary of the Within-Case Analysis

Team A	Team B	Team C
4th grade classroom	Kindergarten classroom	Kindergarten classroom
Weekly adaptation planning	As needed adaptation planning	As needed adaptation planning
Adaptations made by special educator and paraeducator.	Adaptations made by special educator and general educator.	Adaptations made by special educator and general educator.
Adaptations were primarily technology-based and used visual representations with text.	Adaptations incorporated matching. Also used visual representations with text and focused on ABCs.	Adaptations incorporated matching. Also used letter tracing.
Instruction by general educator with support from special educator or paraeducators	Instruction by general educator with support from special educator or paraeducators	Instruction by general educator with support from special educator or paraeducators

CHAPTER V

FINDINGS

In this study, thematic analysis was conducted across the three cases to generate findings for the research questions posed. This cross-case analysis resulted in findings that provided a collective representation of the perceptions and experiences voiced by three educator teams, the cases. Additional, confirmatory analysis was conducted with District special education coaches associated with the educator teams. This chapter presents the cross-case analysis for each research question, the confirmatory analysis, and a chapter summary.

As noted above, the cross-case analysis was structured to address the research questions separately. The major themes that emerged in relation to the research questions are shown in Table 7. In Table 7, the first set of themes, shown in the column on the right, are representative of the first research question: How do educator teams describe the access functions of adaptations aligned to academic standards that they use with students with significant disabilities? The second set of themes, shown in the column on the right, address the second research question: How do educator teams describe the progress assessment functions of adaptations aligned to academic standards that they use with students with significant disabilities? The third set of themes are associated with the third research question: How do educator teams account for sustaining adaptations aligned to academic standards across the curriculum and school day(s)? The following

section provides the cross-case analysis for each research question. As the analysis proceeds, previously shown figures are identified so the reader can refer back to specific adaptation examples, as needed.

Table 7

Themes that Emerged for Adaptations Aligned to Academic Standards

Research Question	Major Theme and Defining Elements
Research question #1: Access functions	1. Tangible and doable ▪ Manipulative and tactile ▪ Visual ▪ Student accepted ▪ Self-Explanatory ▪ Portable ▪ Workable 2. Student-Centered ▪ Connect to IEP goals ▪ Level of understanding ▪ Level of tolerance ▪ Academic and social communication 3. Blend with classroom materials and instruction ▪ Same materials- different learning target ▪ Related materials ▪ Linkage to academic standards in lessons ▪ Complimentary forms of support
Research question #2: Progress assessment functions	1. Show what students' know ▪ Engagement- Answering questions ▪ Engagement- Manipulating materials ▪ Practice ▪ End products ▪ Work samples and data for student progress monitoring 2. Blend with what peers are learning ▪ Connect to classroom lessons ▪ Peer modeling and support ▪ Vary in need 3. Ownership of learning ▪ Incremental changes ▪ Students' demeanor ▪ Familiarity

Table 7 (continued)

Research Question	Major Theme and Defining Elements
Research question #3: Sustain across curriculum and school days	1. Team collaboration ▪ Communicate and exchange ideas ▪ Shared responsibilities ▪ Challenges as opportunities 2. Resources available ▪ Technology and materials ▪ Capacity to save examples ▪ Other adaptations ▪ Broad team support ▪ Time allocation 3. Rhythm and routine ▪ Repeated processes and use ▪ Planned, implemented "on-the-fly," or a combination "hybrid" approach ▪ Positive culture with established relationships 4. Build momentum ▪ Develop foundation for learning ▪ Instill success and expand adaptations with student ▪ Grade-Level academic standards and IEP goals as a road map

Research Question #1: Access Functions

Three themes emerged related to the first research question that examined how educator teams described the access functions of adaptations aligned to academic standards used for students with significant disabilities during language arts, social studies, and science lessons. These themes portrayed educator teams' perceptions and experiences with adaptations that fostered access to the general education curriculum. The access function themes included: adaptations that were tangible and doable, adaptations that were student-centered, and adaptations that blended with the classroom

materials and instruction. These major themes and their respective elements are discussed below.

Tangible and Doable

Tangible and doable refer to the elements, which teachers described that were inherent in material adaptations to be made and used to access the general education curriculum. A number of elements contributed to adaptations that were tangible and doable, such as: manipulative and tactile, visual, student accepted, self-explanatory, portable, and workable. These six elements are further described below.

Manipulative and tactile. Adaptations that had manipulative hands-on features enabled students to participate actively. The adaptation examples in this study were material or technology based. A kindergarten teacher specified how an adaptation supported a student with significant disabilities with access to a science lesson in this way, "I think, definitely with the science book (Figure 18 and Figure 19) it gave him [student with significant disabilities] a tangible thing that he was doing. I think it helped with the engagement." Another kindergarten teacher remarked that the Wikki sticks and blocks used during the literacy center (Figures 7 and Figure 8) were "tactile and gives them [students with significant disabilities] a lot of feedback."

Visual. In addition to being manipulative and tactile, teachers spoke of the visual quality of these adaptations. In examining the adaptation examples that were made for students with significant disabilities, visual elements were consistently embedded to access lessons. A general education teacher revealed that visual representation is one of the first things she considers when creating adaptations for all students in her classroom. She explained:

> I know, when I think about adapting for any child. In my classroom they all need some type of adaptation at some point. You think of the main things…like, how do you make it visual? Because, that usually for all kids, makes it more accessible for them. So how do you make it visual? How do you make it hands-on? Which all of these [adaptation examples] the student would be doing something. And how do you make it something that is matching what everybody else is doing but at the level they need?

Visual representation in adaptations was significant for access. Matching visually like images was a common initial means for adapting materials for kindergarten students with significant disabilities to actively participate amongst their peers in the general education classroom. Moreover, the kindergarten science floating experiment (Figure 13) used visual images to represent the objects in the experiment. Each of the adaptations photographed by the fourth grade team used visual representations; these images augmented academic content and communication for a student with significant disabilities to access and participate in classroom lessons.

Student accepted. Adaptations that were accepted by the students using them contributed to whether or not adaptations provided access to lessons. Basically, when students liked the adaptation they used them. Teachers described designing adaptations that looked like what classmates were using. In the literature this was also found to be the case in keeping adaptations 'as special as necessary' (Janney & Snell, 2006; Kurth & Keegan, 2012). Educators also indicated that students liked adaptations that were manipulative. One educator commented, "any kid likes when they are doing something and you're like, 'oh my gosh, it's great you are doing it' and they get excited when they are doing something they are supposed to be doing and when they are doing it correctly." Again, adaptations that were accepted were more likely to provide access.

Self-Explanatory. Educators shared that it made a difference when adaptations were self-explanatory. Better access occurred when adaptations were self-explanatory, in the sense that others were able to understand how to use them. In other words, they were clear for students and adults supporting the student with the adaptation, a similar finding to Kurth and Keegan (2012). A general educator, who was responsible for overseeing a full class and all its complexities, explained why a self-explanatory adaptation worked in her classroom. She said:

> We are lucky to have a lot of volunteers. I know a lot of teachers have that kind of thing. It's not hard for others to walk in and see what we are doing. Even with the handwriting [writing journal adaptation] if you have to quickly make the lines and show them. But then anyone who comes in your classroom would know what the goal is. It is very easy which I think is important as well. Especially in the general ed [education] room. When there are times when I have the benefit of volunteers, I need to be able to have them work with students and just be able to understand and not take time away to explain, because then you loose everybody else.

Portable. Portability, defined as manageable and accessible for use, enabled adaptations to be readily available. Many of the kindergarten adaptations were created with classroom materials and were accessible for use due to the nature of their portability. Fourth grade adaptations incorporated technology and the advances in technology have made devices more accessible. Interestingly, the portability of the communication device used by a fourth grader raised curiosity amongst some classmates. For example, a special education teacher indicated,

> They [peers] always see him carrying it [communication device] around. But is it an iPad that he gets to use for fun? Or is it a laptop? What is it? So he was able to teach them [in class], this is what I am able to use it for. I can use it to participate in this activity and say a whole sentence that I might not be able to memorize.

For other classmates accustomed to adaptive devices, adaptations represented 'tools' a student with significant disabilities used. For example, the general educator remarked,

"otherwise, it's his tool and he uses it how he needs and they don't really get bothered by it or too interested."

Workable. Educator teams acknowledged and demonstrated that adaptations created for access must be doable. Educator teams, particularly in the kindergarten classrooms, emphasized that the adaptations they made for students to access lessons can be simple. For example, a special educator expressed, "they [adaptation examples] are simple and anyone can do them [make them]" and the general educator added, "none of it [materials] really uses anything extremely fancy or anything." Likewise, another general educator in a kindergarten classroom expressed:

> I think the most important thing that I would have to say about adaptations, is that it does not have to be difficult. A lot of what we do is really simple, using the similar resources as the gen ed [general education] peers. Sometimes when you hear the word 'adaptations' for your students [with significant disabilities] or any other student [with disabilities], teachers panic, but it really doesn't have to be difficult. You just kind of have to be creative. How does the student's skills relate to the standard and how can it look different. I don't know, I think it doesn't need to be complicated and it can be really simple.

Similarly, in the fourth grade, the adaptations enabled access to academic content because support persons knew how the adaptation design worked. The special educator explained:

> You [paraeducator] have this kid for a half hour to 45-minutes, now you have this kid. He [student with significant disabilities] has a total of maybe five people who work with him throughout the day. So, no matter who is in here, everybody knows how to use the same program [adaptive software]. So it is not a struggle with, how should I do this with this student? Or, how do I set this up. Everyone just knows how to do it and so it decreases that time of making something right there and using it and focuses more on him using it.

Student-Centered

When an adaptation is student-centered, it is more likely to provide access to the general education curriculum. A wide range of adaptations was used in this study to help students access the general education curriculum, but they invariably were student-

centered. They were student-centered in the way they were connected to IEP goals, matched levels of understanding, considered levels of tolerance, and enabled academic and social communication. These defining elements are described below.

Connect to Individualized Education Program (IEP) goals. The educator teams reported that adaptations should be designed to support the acquisition of IEP goals in the context of the lessons in general education classrooms. When adaptations were connected to IEP goals in this context they were more likely to provide access to the general education curriculum. Put differently, these adaptations supported students in accessing academic content that was relevant to their IEP. The Readers' Theater adaptation (Figure 1) offers an example described by the special educator:

> So, where we started, the classroom teacher described the assignments to me and then we looked at what the student was working on and how can we work his goals [IEP] into the assignments. We've been focusing a lot with him using his [communication] device and how to use it appropriately and to communicate. So that is why we thought about using that [adaptation] with the Readers Theater [lesson].

Level of understanding. Educator teams indicated that students' level of understanding should be supported to access daily learning activities that occur in general education classrooms. For example, a general educator expressed:

> As the classroom teacher, I think it's really exciting to be able to include all kids at their level with their abilities and so having the support from other people really allows me to include the student in everyday work [learning activity].

Therefore, adaptations must be at students' level of understanding for classroom teachers to include them in lessons. A special educator also emphasized this when describing how adaptations supported students in accessing learning opportunities, and said:

> I would say, so it [an adaptation] is at their [students with significant disabilities] level. It's not so far above their heads that they are so focused on trying to figure out what they're doing or what we are talking about but they are able to do it. If it is too far above their heads and they are struggling so hard to figure out even where we are, then they are not going to learn because they are worried about what they are supposed to be doing. And a lot of the times, if the materials we provide them, if it is too hard, they are wandering around; they are talking because they don't know and they're not going to engage in it. But, if it is something they are able to do, they engage in it and participate actively. So, I think that is how the adaptations really help keep them where they are supposed to be. And they are interested.

More specifically, adaptations designed at students' levels of understanding provided access to the general education curriculum. The Answering WH Questions adaptation (Figure 2) provided an excellent example. The grid created in this adaptation facilitated answering WH questions during a fourth grade small group literacy lesson. The special educator explained:

> I set it [grid] up into the left to right progression for him to make a sentence. So on the left he has the choice, are we going to talk about where? Are we going to talk about who? Or, are we going to talk about what they are doing? So, if he can go across the grid, he knows when we talk about who, we are going to be talking about these ones. If we say, "where?" We are going to be talking about this one. It makes is a little more simpler to understand as far as navigating.

Level of tolerance. Along with students' understanding levels, tolerance levels should also be considered in designing adaptations to achieve access. *Level of tolerance* was defined as those other learning factors unique to students, such as attention level, pace, or fatigue issues. An example of a student-centered adaptation that considered tolerance level was illustrated during a classroom observation. In a kindergarten classroom, the team supported a student with significant disabilities who needed periodic 5-minute breaks. Along with material adaptations and adult support, the team used a timer. The timer served as a concrete tool to enable the young student with significant disabilities to request a break, go to another part of the classroom to take the break, and

when the timer beeped return back to the classroom learning activity. This appeared to be a regular and accepted adaptation within the classroom that recognized a student's level of tolerance to foster access to the general education curriculum.

Academic and social communication. Educator teams revealed that adaptations designed to enable students with significant disabilities to communicate academically and socially promoted access to lessons. For example, the Answering WH Questions on the Netbook adaptation (Figure 2) was set up for answering questions specific to a fourth grade story. On other occasions, the Netbook with the adaptive software was used during writing activities to compose and share stories with peers, the special educator explained:

> The typing program [PixWriter] is also nice because there is an option for it to read it back to him [student with significant disabilities]. So it could be where he types a story and if he wants to read it to a friend, all he has to do is push a button and it will read it for him.

Adaptations fostered communication exchanges amongst peers in other ways. For example, during a small group literacy lesson, I saw peers wait anxiously to hear what a classmate with significant disabilities was going to communicate using his Netbook with a voice output feature. It was also common to observe adaptations as a piece of the support that enabled children with significant disabilities to be with their peers during lessons. Within these lessons, I observed students communicate with each other in reciprocal ways, such as: exchanges in eye contact, smiles, high-fives, hugs, laughter, and words spoken in a range of ability levels.

Blend with the Classroom Materials and Instruction

Despite the variation of materials and instruction that took place in classrooms, adaptations that blended with both grade-level class materials and with instruction

facilitated access to the general education curriculum. Adaptations that blended with classroom materials and instruction included: same materials-different learning target, related materials, linkage to academic standards in lessons, and complimentary forms of support. These defining elements are described below.

Same materials-different learning target. Teachers explained that adaptations, which promoted access in classroom lessons, ranged from using the same materials as their peers to using materials that were related, but looked different. At times, same materials were used with different learning targets. A kindergarten teacher expressed, "A lot of what we do is so closely related to the general ed [education] kids, that I'm just… same materials, different targeted skill." Using the same materials was evident during the science floating experiment (Figure 13). To access the science experiment, students with significant disabilities used the same materials as their peers in conjunction with support from a paraeducator. Another kindergarten teacher referred back the Animal Reader Matching adaptation (Figure 18 and Figure 19) to stress the use of same materials as classmates and said:

> Back to the reader. It was cool. They were using all the same materials. My other students were not doing it any differently than he [student with significant disabilities] did. He had [special educator] for the support. But otherwise he was doing it like the other students and he will probably get some different things from it than they [classmates] did. But still the façade of it is the same. They have their different goals, but yeah it was cool.

Related materials. Most often, the adaptations used in classrooms for students with significant disabilities to access lessons incorporated related materials. Their appearance was different, yet they were related to the learning activity. During a photo elicited interview, when looking at the assortment of adaptations used by a student with significant disabilities in the general education classroom, a special educator summed up

that the adaptations looked different than typical grade-level materials, however there was a connection. She claimed, "I'd say the other thing as well, is that these [adaptation examples] are in the subject that the rest of the class is doing, or the theme, or the topic." Sometimes, lessons incorporated a combination of same and related materials. The kindergarten attribute shape-sorting lesson provides an example that used the same materials with different expectations plus a supplemental adaptation that was related, but looked different from classmates (Figure 11 and Figure 12). Overall, a special educator described material adaptations as, "it may look different and they [students with significant disabilities] may get to it in a different way."

Linkage to academic standards in lessons. From the outset, educator teams aligned students' IEP goals to academic standards. Teachers then implemented these adaptations in the context of lessons that addressed grade-level academic standards. This observed congruence supported access to the general education curriculum for students with significant disabilities. Although seemingly complicated, this process was logical and accomplished in a teacher friendly manner and is represented through the below explanations shared by an educator team. The special educator stated:

> All of his IEP goals and objectives are linked to standards, as well. The EEOs and ERCs, are the modified standards in the [state] Academic Standards. So we use those when we are writing his IEP. We sat down and looked at them all and said what is appropriate for this student? What would we like to see him working on? What skills are not as strong or missing? So, then when we are using, for instance the sentence sequencing and WH questions, which are both linked to the standards already. So it is kind of friendly and built in for us.

And her general educator counterpart added:

> And I try to keep, with your help [special educator], I try to keep the activity as true to the activity that we are doing as possible. And so those are all directly linked to standards and so keeping it true allows it to link directly to his standards and the standards that the rest of the class is working toward at the same time.

Complimentary forms of support. Adaptations that blended with classroom materials and instruction complimented other forms of support found in the context of the general education classrooms, thereby enabling access. These nonmaterial forms of support included: choices, prompts, cues, and partnerships. They assisted students with significant disabilities with using the adaptations to access lessons.

Instructional strategies such as choices and prompts were built into the provision of adaptations. General educators, special educators, paraeducators and at times classmates provided choices or verbal, visual, and physical prompts to assist students in using adaptations correctly in the context of classroom lessons. These instructional strategies modeled best-practices used for students with significant disabilities, for example providing *least-to-most intrusive prompts* (Copeland & Cosbey, 2009; Kurth, 2013). Furthermore, educator teams reported that as students with significant disabilities participated in classroom lessons; contextual cues supported the use of material adaptations to access lessons. The Reader's Theater adaptation (Figure 1) was practiced repeatedly throughout a week's time and the consistent order in which students took their turns to deliver their lines provided a natural cue.

Peer partners were described as complimentary forms of support that contributed to the access. A general and special educator, respectively shared:

> And picking the partners we have him [student with significant disabilities] work with, you know the students that work well with him. I know the students that will be able to support him, the students that will go out of their way to interact and support.

> Yeah, I feel that [classroom teacher] makes table groups with those kids we know will be able to turn and say [name] what do you think? Instead of those kids that will be okay so… So giving him that support initially.

To another classroom teacher, peer partners were integral to adaptation functions used in the classroom. She expressed:

> I think that's a really important tool, to really understand who you want them [students with significant disabilities] paired with and for which reasons. So I think that is another form of an adaptation.

Summary of Access Functions

Three major themes emerged and answered the first research question related to how educator teams used adaptations aligned to academic standards to access language arts, social studies, and science content. The themes were (a) tangible and doable, (b) student-centered, and (c) blend with classroom materials and instruction. The first theme addressed the concrete nature of adaptations used to access the general education curriculum. The second theme recognized that well designed adaptations consider the unique learning needs in students with significant disabilities to obtain access. The third theme grounded access functions of adaptations to the general education context.

Along with providing access to the general education curriculum, adaptations also need to provide a vehicle for teachers to assess the progress of students with significant disabilities. The next section discusses how adaptations serve as a means to assess student progress.

Research Question #2: Progress Assessment Functions

Three major themes emerged related to the second research question that examined how adaptations aligned to academic standards used for students with significant disabilities during language arts, social studies, and science lessons facilitated progress assessment. These themes addressed how adaptation provided a means for students to demonstrate learning that was interpretable by teachers. The progress

assessment function themes included: show what students know, blend with what peers are learning, and ownership of learning. These major themes and the defining elements are described below.

Show What Students' Know

Adaptations that show what students know make readily apparent the learning that is occurring. The elements that define this theme included: engagement-answering questions, engagement- manipulating materials, practice, end products, and data for progress monitoring. These five defining elements are described below.

Engagement- Answering questions. Adaptations need to be designed in ways that students with significant disabilities can respond to questions related to lessons, so their responses can inform others about what they understand. The grid created by the fourth grade team provided a great example (Figure 2) of an adaptation that makes it possible for a student to use his Netbook to answer questions related to stories read out-loud during a small group literacy lesson. The classroom teacher explained:

> And then [student with significant disability] is able to answer some of the questions using these icons that were preprogrammed. And so, I can ask him a question. Say, "So what happened to this?" or "who was the person that…?" And he is able to select the correct answer, which is really fun to see him following along and understanding and being able to answer those questions from what he does know and what icons are provided already for him.

Likewise, a kindergarten teacher described how she differentiated questions during the science floating experiment to make the questions meaningful or relevant to students with significant disabilities. For example, the classroom teacher said, "it is really knowing where the students [with significant disabilities] are at, especially with their language skills and asking something in their skill level to repeat back to me."

Moreover, classroom teachers generally assessed students' understanding of lesson content in the form of questions. A general educator expressed:

> The easiest answer [how do you know students are learning?], comes with getting to know your students, I know what each student can show me. In group discussions, it is not as much as 'okay, we are being tested on this question write it down.' I do that sometimes, but often it's their reactions, their ability to talk with their peers, and address the question to that, and then we apply it in the rest of the rotations [small group centers]. I see it more in the written format after my group. But, it is the conversations they have, that I see it in my small group. How they answer my questions, that I mostly see it.

This quote emphasizes that questions occur in the context of teacher discourse, and reinforces the importance of adaptations situated in these constructs for bringing attention to presented content and enabling students with significant disabilities to answer and show what they know.

Engagement- Manipulating materials. Another way adaptations informed teachers with what students knew were through the way students' manipulated materials or the adaptation itself. In the kindergarten classrooms teachers used adaptations that required students to match like images that were related to what the class was working on, the act of matching in itself required students to act. And with matching, teachers witnessed students' performance levels, simply by accuracy and consistency. An educator team acknowledged the appropriateness of adaptations in terms of engagement and showing others they are learning. The classroom teacher explained it this way:

> When the adaptations are appropriate, they are demonstrating they [students with significant disabilities] are learning because they are engaged, they are manipulating materials, they are answering questions, that's how we know they are learning. But, that is when the adaptations are appropriate and at their level, because sometimes they haven't been.

The special educator affirmed, "yeah, totally." Followed again by the classroom teacher who said, "and they are less engaged," when an adaptation is not appropriate.

Practice. In classrooms, educator teams reported observable changes in student growth as they practiced skills using adaptations. Growth was observed after practicing targeted skills within a similar context and across content areas. For example, in a kindergarten classroom, the Guided Reading Binder adaptation (Figure 5 and Figure 6) was created and used to teach early literacy skills. This team believed the repeated practice through these adaptations contributed to measurable student learning. The classroom teacher reported:

> I also think like during guided reading time, they [students with significant disabilities] know exactly what we are doing every time and that repeated practice, with like the alphabet chant. I mean one of the students in particular when I tested him knew 14 capital letters and 12 lower case letters and I think he had 7 sounds and he had nowhere near that at the beginning of the year. So I think that repeated practice has really helped him learn those skills and concepts. So I think that repeated practice, they know what to expect, they know the routine, and it helps them connect their learning during the day. So I do think they do pick up new skills pretty quickly, but I think that the repeated practice helps it really stick.

In regards to practicing with adaptations across content areas, educators reported practice contributed to the progress that was made with matching in the kindergarten classrooms and with answering WH questions in the fourth grade classroom. For instance, the special educator on the fourth grade team commented:

> I have noticed an increase in him being able to answer those WH questions because anytime he is asked, "Who is the story is about?" Even if it is not quite the correct one, he is answering with a character's name. So he is at least associating 'who' with a character rather than describing what just happened. So I think the reinforcement of him being asked those questions and using this [answering WH questions adaptation] is helping him get that understanding of what those questions really mean.

Moreover, answering WH questions stretched to questions addressed class-wide. The classroom teacher shared:

> They are questions that are asked to the whole group and he is still able to answer the question. "Who is the new character, who was just introduced?" So, the doctor, he is able to pick the doctor. Maybe not the doctor's name but he knows it is a doctor, he is able to select that. He is right in with the group, which is really cool.

End products. The notion of completing an act of learning or end product was brought up as a means of identifying what students' know, similar to how all students are assessed. Adaptations provided a framework for students with significant disabilities to complete end products. I observed kindergarten students with significant disabilities proudly showing classmates and teachers the schoolwork they completed and eagerly carry the schoolwork to their backpack to take home. At home, teachers reported families further engaged their children in talking about their schoolwork.

In the interviews, teachers described the need to prepare ahead of time so students had access and would be supported in doing the schoolwork. One educator explained, "so it can be their [student with significant disabilities] own work as opposed to the para [paraeducator] doing the work for them." Guay (2003) illustrated this same point in a study conducted in an inclusive art classroom that included a student with multiple disabilities. The fourth grade educator team photographed the Science Energy Book adaptation (Figure 4) that was completed by a student with significant disabilities. The special educator shared:

> He was able to, with the assistance of the paraprofessional programming in the words and phrases, he was then able to click on the phrases to create the sentence of what he did. He still participated in the entire activity with friends of creating the circuit to make the light bulb light up, but then was able to record it in a different way.

Data for student progress monitoring. Educator teams discussed how adaptations served as vehicles within work samples for assessment purposes, and how

they could also be used when collecting observable data. They described these elements in the context of the general education classrooms.

In the kindergarten environment, a special educator explained that she uses similar adaptations and work samples as artifacts to represent students' mastery level for the District's alternate assessment. The fourth grade educator team provided an example in how they used similar adaptive formats to assess math skills during a class test and writing skills during a school-wide assessment. The special educator and general educator, respectively, described the math assessment in the following way,

> We've had [the student with significant disabilities] do a couple of tests. So for example for their [class] geometry test they had the front page with a bunch of shapes and they had to label the shapes with their name. So what we did, [the student with significant disabilities] has a shape page on his [communication] device. We had the student get on that page and the paraeducator that was with him at the time would point to a shape on his test and say, "oh, what is that?" He would find whatever his answer was on his device and she [paraeducator] would scribe it for him.
>
> He got 3 out of the 5 correct of the shapes that were on his [communication] device. Of those shapes, he was able to identify correctly three out of them.

Blend with What Peers are Learning

An adaptation that blends with what peers are learning is an adaptation that is consistent with the activity of classmates. Adaptations must be nestled in with what peers are learning. This theme was defined by the following elements: connected to classroom lessons, involved peer modeling and support, and varied in need. They are described below.

Connect to classroom lessons. Educator teams noted observable learning behaviors of students with significant disabilities when they used material adaptations that were intractably related to classroom lessons. Put differently, adaptations were connected to grade-level lessons and not used off to the side in an isolated learning

activity. In the fourth grade classroom, the Reader's Theater adaptation (Figure 1) was used during the series of small group lessons with classmates, who were practicing reading fluency. At the end of the week-long instructional period, the student with significant disabilities successfully performed his designated lines using the adaptation with minimal prompts. The special educator and general educator, respectively shared:

> He was in a group with I don't know how many other kids. They also knew when it was that student's turn to say a line so they would kind of help. And he would get used to who's talking before him, "I need to get ready. I need to pay attention."

> He was one of the penguins. And they would say really strange things, for whatever reason these penguins were odd! And so when it came to his turn, he had his lines ready to go. His first line was "hi", his next line was counting 1,2,3,4 because that was the penguins marching, and then the next line they started singing strange songs to scare away hunters, and so that was his next line. So each box or image was a different line for him, and so he was able to when it was his turn. He was able to select the correct line or say what his line was. So for 'Hi' at the beginning, he was able to do that without the communication device. I think he ended up doing both because he could. But he was able to say "hi" and he was able to count along with the 1,2,3,4 with the communication device. Then he just pushed the button or image for the final line because it was a full strung out sentence that was really long. So, what he was able to do on his own was really impressive and then what he wasn't able to do, he knew what he needed to do and what he needed to do at that time. It was super minimal prompting.

In a kindergarten classroom, a team remarked on a favorite adaptation example (Figure 18 and Figure 19) that augmented the classroom teacher's small group instruction for all students. During this science group, the special educator supported the student with significant disabilities with least to most prompting as the classroom teacher led the lesson. The educator team indicated this was a new phase of learning for this student. The classroom teacher said:

> It was really nice to see the adaptation with the science reader, because I feel that was authentic learning. He was doing what other kids were doing, it was using what we had already taught him with matching (these other matching activities), but he was actually doing it more in a learning, authentic lesson. That's about right now, the closest we are going to get. I have done similar things like that with other activities, but a lot of it revolved around a basic level. But still the fact that he was doing it with the other kids, that was a big thing for us to get to!

The special educator agreed and responded, "That was a little harder, well he got it! But, it was a lot to look at," in terms of images and text for this student to attend to.

Peer modeling and support. Peer modeling and support were associated with how educator teams described the progress assessment functions of adaptations. Peers modeled grade-level expectations and at times supported students with significant disabilities in demonstrating learning. In the fourth grade classroom, the general educator described how a student with significant disabilities demonstrated learning along with what his peers were learning. In addition to available adaptations, the classroom teacher observed that his involvement and responses were in unison with what his peers were learning, although at his level and different than his peers. The classroom teacher excitedly described the learning observed in the small group literacy lesson in this way:

> I think this is one of my favorite ways for [student with significant disabilities] to participate because he really does get involved and you can tell he gets really into the discussion because he sits at the table with everyone. The way I set it up, I often have students read in pairs, so that they have that support. So, I have him read with another student and he will follow along and he will be able say some of the words, more in an echo. But sometimes he will be able to actually participate in the reading of it. The students are great. They include him, they're like this is where we are, make sure you are following along.

Vary in need. Teachers indicated there were some learning activities in which students with significant disabilities were at a closer level to their peers, than in others. Sometimes they could use the skills they had without necessarily requiring a material adaptation. This is important for teachers to be aware of as it directly impacts if an

adaptation is needed. In other cases, adaptations had to serve as a catalyst, permitting them to produce a skill that they could not have done without the adaptation. These variations occurred in relation to how teachers interpreted or assessed students learning.

In classrooms, variation was noted and demonstrated in the following ways. The science floating experiment adaptation (Figure 13) provides and example, the classroom teacher said, "it was less adapting for that lesson, they [students with significant disabilities] just had more one-on-one support with the paraeducator." In this lesson, the pareducator provided guidance for following directions and physical support for cutting and gluing while the students with significant disabilities used the same materials as their classmates.

In another kindergarten classroom, I observed a teacher deliver a language arts lesson with (a) a vocabulary review using visual images with the printed vocabulary words projected on a Smartboard and (b) role playing in assigned small groups. The classroom teacher had created a simple adaptation (e.g. word necklace). It was a creative way to include a student with significant disabilities in this particular lesson; the adaptation was at the student's level and was connected to the lesson content with peers. After several rounds of role-playing with the adaptation, this classroom teacher recognized that the student with significant disabilities preferred participating in this learning activity without the aid of the adaptation. In response, the classroom teacher affirmed with the student and his group that he no longer needed to use the adaptation and encouraged participation without it, similar to the other small groups. Consequently, in the final group performance, he participated with his classmates without the material adaptation, which resulted in a positive outcome for all students. This illustrated a

situation in which the need for a material adaptation shifted or varied within the lesson dependent on how the student was performing.

Ownership of Learning

Teachers were more likely to say students were learning when they demonstrated ownership. Ownership of learning looked different in relation to the student, level of support (e.g. available adaptations), and the context of the classroom. A classroom teacher framed this concept as she spoke about meaningful on-the-fly adaptations that supported lesson content. She described it this way:

> Some adaptations are just on-the-fly with whoever. I think those are the best ones because they are so meaningful. It is truly here is the task and how can we make it yours [student with significant disabilities] without really changing it. How does it become something at your level, something that you [student with significant disabilities] can own as your own learning without being like go sit in the corner and color.

The defining elements of adaptations that supported ownership of learning included: incremental changes, students' demeanor, and familiarity. These four elements are described below.

Incremental changes. Educator teams revealed changes in how students used adaptations in classrooms gave them insight that learning was occurring. Teachers reported gradual growth in students with significant disabilities when progressive incremental changes in adaptations occurred.

In the context of the kindergarten classrooms, all students started the school year needing to learn new expectations. For many this was the first time in a classroom with that number of peers, five days a week. The students with significant disabilities were not alone in having to sort out how to be a student. A kindergarten teacher stated,

"Kindergarten is a big year for just the development of student, on top of student being academic." She further pondered:

> In preschool and especially in kindergarten is… part of what we do, is getting them ready and learning how to be a student and a learner and how to show what they know. That doesn't just automatically happen for the majority of the students. And I think same with him [student with significant disabilities]. It is just going to be a slower process and we are building it differently. But, we have kind of had the different phases.

Her teammate, reflected further and offered and interesting comment, "in a couple of years it [adaptations] will be different with him [student with significant disabilities] because he will be doing different things. In other words, teachers perceived growth and student ownership occurring gradually over time with incremental changes in adaptations that develop along with students' learning. Teachers need to pay attention to student learning so they can respond with adaptation changes that will move students forward in their learning.

Students' demeanor. Students' demeanor refers to how students showed their affect across learning situations. Educator teams observed students' demeanor to assess if learning was taking place. Also, teachers noticed when students expressed excitement and pride in the adapted schoolwork they accomplished. In classroom observations, I noticed positive affects in students with significant disabilities who used adaptations to engage in stimulating learning activities. It was represented in their body movements, facial expressions, and overall involvement.

From the educator team's perspectives, noting student demeanor was an important way they assessed how a student with significant disabilities clicked in a classroom lesson. Adaptations that promoted positive student demeanors were associated with better learning. For instance, the kindergarten team reflected on the science lesson with the

Animal Reader Matching adaptation (Figure 18 and Figure 19) in this way, the general educator expressed:

> And the look on his face and his reactions too…are I think are what are so important. Because you can tell too, he knew, I am doing this with my friends. And he really likes to sit with the other kids and they're great with him too. We have been working towards that. So it was cool to see.

Likewise, in the fourth grade classroom, the classroom teacher commented on classmates and her own excitement regarding the fourth grader with significant disabilities' role in the Reader's Theater project. She said, "the class loved having [fourth grader with significant disabilities] involved, and I really enjoyed it, and you could tell he was really excited to be involved too." The team also reflected on how active participation and adaptations that serve as end products resulted in demonstrating ownership of learning that the student invested in. The special educator expressed:

> And he is a kid who loves and craves positive adult attention. When he is able to use an adaptation or do an activity with his friends, if he has an end product or if he gets to tell somebody else what he did, he really gets excited about taking that ownership of what he's done. So it's about making it super purposeful for him, he gets really proud of himself. He'll come in here [special education room] and "tell Ms. M. what you did." He loves having that experience. So when he has all these activities that we know he can accomplish and we know they are purposeful for his learning, he gets excited about it, which then we get excited. It's that professional really happy circle. Then, when he is taking that ownership and he is excited and invested in it we know he is going to get so much more from it.

Familiarity. The familiarity of adaptations, as an aspect of ownership, helped teachers notice when new learning was occurring. When adaptations were familiar, students with significant disabilities and support persons were more likely to know how to use the adaptation, which meant that new learning was easily recognized. Put differently, students were able to focus on lesson content, rather than trying to figure out what they were expected to do with the adaptation. Wakeman and colleagues (2013)

noted using familiar graphic organizers for mathematics with students with significant disabilities allowed them to "generalize a process regardless of the numbers in the equation." This approach, in turn "could help students use fewer supports, increase student independence to solve problems [math equations], and develop a deeper understanding of the content" (p.10).

Furthermore, when adaptations become a familiar tool students are more likely to be able to engage in teacher discourse and sort out challenges. This includes as a tool to make mistakes with and figure out answers, an aspect of developing ownership of learning that is universal for all students. During a classroom observation, a student with significant disabilities participated in a literacy lesson with a familiar adaptation (e.g. Netbook with adaptive software). On this day, he appeared uncertain how to respond to the classroom teacher's question related to a story read out-loud. With minimal adult support, he was given time to fumble and try to figure out his response. In this process, working through the challenge contributed to this student's ownership of his learning that the teacher was ultimately able to assess. Erikson (2015) emphasized that making mistakes and figuring out answers are learning opportunities and should also take place for students with significant disabilities.

Summary of Progress Assessment Functions

Three major themes emerged to answer the second research question. Educator teams described how adaptations could be used in the assessment of progress in language arts, social studies and science lessons. The themes were (a) show what students' know, (b) blend with what peers are learning, and (c) ownership of learning. The first theme emphasized that when students' use well-designed adaptations, learning was self-evident.

The second theme recognized the influence of what peers were learning as a factor in the assessment of learning in the student with significant disabilities. The third theme addressed ownership of learning as a factor in progress assessment.

Adaptations provided a vehicle for assessing progress, however it still remains to be seen what features of adaptations lead educators to continue to use them. These are addressed with the next research question.

Research Question #3: Sustain Adaptations Across the Curriculum and School Days

Four major themes emerged related to the third research question that examined how educator teams accounted for sustaining adaptations aligned to academic standards used for students with significant disabilities across the curriculum and school days. These four themes addressed elements of adaptations that enhanced sustained use in general education classrooms. The themes included: team collaboration, resources available, rhythm and routine, and build momentum. These four major themes and the defining elements are described below.

Team Collaboration

Team collaboration, pertains to the how educator teams working together to create and implement adaptations in general education contexts provided a basis for sustained use. This included: how educator teams communicated and exchanged ideas about lessons and students' needs, shared responsibilities, and shifted challenges to opportunities. These elements are described below.

Communicate and exchange ideas. Educator teams shared various ways they communicated and worked together to provide sustainable adaptations aligned to academic standards for students with significant disabilities in general education

contexts. They exchanged information and ideas about student needs and classroom lessons to make adaptations available. The manner in which teachers approached exchanging information about lessons and students' needs were unique to their team. Educator teams reported using e-mail exchanges, informally meeting before or after school, or planning scheduled meetings. There was a general sentiment that it was necessary to share information. One general educator explained:

> I think it's really important that [special educator] and I are in constant communication about the students' needs. And that helps. She either has ideas for adaptations or I say, "oh this is how I am adapting this lesson with my own materials." I think the most important thing is that time for [special educator] and I to collaborate and communicate about what is going on in here [general education classroom] and share materials.

These findings were also substantiated in the literature (Downing & Peckham-Hardin, 2007; Kurth, 2013). Furthermore, educators noted that the communication between general and special educators was passed along to paraeducators who supported students with significant disabilities in the general education classrooms. This was repeatedly referenced by educators in the adaptation descriptive templates they completed that provided background information as to how the adaptation was planned, who made the adaptation, and who assisted with implementing the adaptation in the classroom context. An explanation of the Science Energy Book adaptation (Figure 4) provides an example of this critical step, described by the special educator:

> For example with the science book you [general educator] gave that to me ahead of time. We talked about a good plan to do for this assignment and then I passed that on to one of the paraprofessionals who is with him at that time period everyday. So, she has been able to go through and help him complete that assignment.

Shared responsibilities. General and special educators need to share the responsibilities for creating adaptations in order for the use of these to be sustained across

time. This sometimes meant that general educators took over from special educators' job of designing adaptations.

The level of comfort and how well classroom teachers knew students appeared to impact their willingness to take on the job of designing and creating an adaptation. One kindergarten classroom teacher expressed:

> And I would say from my perspective, I adapt a lot of times. I have talked with [special educator] lots about these boys [students with significant disabilities]. I know their IEP goals and objectives. And anything that I plan is aligned to their goals and objectives. So, I do, do a lot of their adaptations without [special educator] support because I kind of know where the boys are. I frequently assess all my students, but I know where they are at too, in relations to their peers. I kind of know how to make those in-the-moment adaptations without [special educator] support.

Typically in classrooms that include students with significant disabilities, the special educator takes on the major role in the adaptation processes (Kurth et al., 2012; Lee et al., 2010). For example, the special educator in the fourth grade did assume the main role in creating adaptations, as compared to the kindergarten classrooms where classroom teachers were more active in producing adaptations. It is important to note that in the fourth grade, adaptations were significantly different from the instructional materials of peers, whereas in the kindergarten classrooms common materials were frequently applicable. However, in both cases what is demonstrated here is that part of sharing responsibilities is to designate specific roles in the development and use of adaptations. Although in some cases shared responsibilities meant differentiated roles, in all cases teachers together with other persons in the classroom environment worked as coordinated partners in the process of designing and using adaptations during daily lessons. It was this equitable partnership that contributed to sustainability in the use of adaptations.

Challenges as opportunities. Educator teams recognized the challenges that existed in maintaining the level of communication needed to implement adaptations day after day. Nevertheless, these challenges motivated teachers to work towards finding ways to collaborate that would enable them to sustain their job in providing well-designed adaptations. Moreover, they demonstrated perseverance with attitudes that they would try their best and more specifically by some taking action to make team collaboration a priority. For example, a special educator said this about team planning, "that has been one of my personal goals this year, is to get better at knowing what is going on in the classrooms. And it makes a huge difference in what the kids are able to do and able to participate in." And this thinking inspired that personal goal:

> So rather than just relying on the paras [paraeducators] to do it all. I think it makes it a lot easier and a little more streamlined that we're [educator team] communicating. So, I am able to make a lot of those things ahead of time or at least have a plan.

Resources Available

When resources were available educator teams were in a better position to maintain the implementation of adaptations across content areas and school days. Multiple facets of available resources were described, including: technology and materials, the capacity to save examples, other adaptations, broad team support, and time allocation. These five elements are described below.

Technology and materials. Adaptations in this study utilized appropriate technology and materials across content areas and school days. The regular availability of these resources made adaptations available in classrooms. An educator team emphasized the availability of technology in this way:

> So it [Netbook with adaptive software] is always in the room [general education classroom] and is accessible to him [student with significant disabilities] whenever he is doing a writing assignment. It is not something we have to plan ahead for. It's like, oh we can do this on the computer, let's make a grid really quickly.

They further expressed this was a "nice" and "convenient" feature. The special educator added:

> Because the other resources for him are fairly simple. We are super lucky to have the technology that we do in this building, so he does have Pix-writer available to him all the time. And even just searching for those images and being able to print them out.

Other materials used regularly to make adaptations available across content areas and school days were identified. For example, a special educator said, they "do a lot of laminating and use lots of Velcro." Sometimes materials were found within the context of the classroom and blended with the materials classmates used. A kindergarten teacher shared this perspective and experience:

> A lot of what we use, are already… they're kindergarten materials. So it just might be at a different level. So kind of like the sorting lesson we did. The kids are focusing on sorting by three different ways, by color, shape and size and I am using the blocks to sort by color. So really it's not, most of what we do isn't a lot of gathering extra resources, it's thinking about how you can use the same resources at a different level, more targeted at their [students with significant disabilities] needs.

Capacity to save examples. The capacity to save examples of adaptations was a means for teachers to continue to produce and use adaptations with students across school days. Saving examples made ideas for adaptations more readily available, as they could be "tweaked" for other lessons or students. Teachers spoke about saving adaptations for future students who would be entering that grade-level. They were saved electronically or as is, in file folders or on shelves.

Other adaptations. Other adaptations refer to the additional physical or environmental adaptations educators described that were used regularly in general education classrooms in combination with the material adaptations aligned to academic standards that were designed specifically for classroom lessons. Examples of these other adaptations that educator teams described included, a supportive chair, a slant board to rest on table surface that held paper or books at an angle, a rug square to define where a particular student was expected to sit when on the floor with classmates. Adaptations of this nature are common in classrooms that include students with disabilities (Downing, 2010). Moreover, "they are simple, and accessible, and work well," said an experienced special educator.

Broad team support. Educator teams discussed the broad team support that encouraged and made implementation of adaptations possible across the curriculum and school days. This broad support served as a resource and included; paraeducators, colleagues, classmates, families, and administration. A general consensus was communicated that teachers should not take on adaptation processes alone. A classroom teacher emphasized this:

> I think from my perspective, honestly, having that support, having a paraprofessional or having you [special educator] in the room with him at all times is amazing. I feel like I can really reach him more at his level with that support where I couldn't doing it all by myself.

This classroom teacher provided a more specific example and was affirmed by her teammate, she said:

> So having someone to guide those questions or have PixWriter pulled up, or have the communication device ready to go on the pages we need. It's so helpful for me. Or having someone cut it out and paste and show where those need to go. I couldn't do it without the support.

"Absolutely," responded the special educator. And the classroom teacher reiterated, "That is the biggest resource for me, honestly."

At the top of each of the educator teams' list for essential support were para-educators. Paraeducators in this study were adult staff assigned to support students with significant disabilities during the school day. They were under the direction of the special educators and worked collaboratively with general and special educators in the day-to-day school activities. They are resources in schools and in this study were familiar with students' needs and the adaptations students used in general education classrooms. A special educator said, "I would say they [paraeducators] are definitely our biggest resource and just making sure that things get done, and he [student with significant disabilities] is doing what he is suppose to be doing." A general educator had this to say about the paraeducators she worked with, "the paras [paraeducators] are really good about adapting and modifying for their [students with significant disabilities] needs. They know the boys really well."

Colleagues on IEP teams and grade-level teams shared materials used for adaptations, as appropriate. They also facilitated the use of adaptations in general education classrooms and at times in separate settings. During classroom observations, I noted related service providers supporting students during independent student work-times or group lessons.

Classmates of students with significant disabilities provided support in various ways. In this study, peers supported the use of adaptations in lessons across content areas and school days. In general, they became familiar and comfortable with adaptations being

used for students with significant disabilities, discussed more within the third research question theme, *Rhythm and routine*.

Families contributed to sustaining the use of adaptations. Educator teams reported that families were involved in their child's education and reinforced learning at home. This was helpful, for example, the classroom teacher expressed, "it definitely makes a huge difference when you can see the continuation of and you know this kid is going to go home and use his device and work on those skills." The special educator added:

> Which is helpful for us instead of having to re-teach something. If his device is only at school we would have to be re-teaching how to use it and where things are. But you know if he is using it all the time he is going to become more familiar and he is going to learn that so much more quickly. Which is super helpful for us.

Administrators were also part of the broader team support that served as resources for teachers to sustain adaptations. Educator teams credited principals in their buildings for providing necessary support to do their job in the provision of adaptations in classrooms and categorized this in different ways. Teachers provided a number of examples that included, assurance of materials and technology, encouragement and time to collaborate, and overall support and trust.

Time allocation. Educators need time to design and create adaptations. The most difficult challenge associated with sustaining adaptations was time; time to collaboratively plan and time to physically prepare the adaptations. An educator team strongly iterated together, "Time." "It takes time." And the general educator expanded this way:

> That's probably the hardest thing. Like, honestly I feel like I have enough experience under me that I have a lot of just natural…, when I look at something I can think about how I can modify it, but actually having the time to do that because some of these things you know… and because there are many chunks throughout the day. So starting the day having everything ready to go because obviously in here that is not the only thing I need to worry about. I have to keep everything else going. So that's why having some of these things, the tracing in the journal and the name matching, having some things that are just used kind of over and over is nice. Because you can't everyday have a complete… and I don't think it would be great for him anyway because you would be switching it up too much. Like many things with our job, the time to feel like you are really devoting the time and giving it what it needs.

Sometimes, additional help is needed for creating and retrieving materials, for instance a special educator added, "And, extra pair of hands to do it [make adaptation], if you don't do it yourself would help, and the materials. I have materials that I have been collecting for a long time."

Rhythm and Routine

The atmosphere of the classroom portrayed by how teachers and students interacted and engaged in learning on a daily basis impacted how educator teams' sustained adaptation processes across the curriculum and school days. The elements that define this theme included: repeated processes and use of adaptations; reference to how adaptations were implemented via planning, on-the-fly (Jackson et al., 2003), or a combination approach; and the existence of a positive classroom culture with established relationships. In total, three defining elements are described below.

Repeated processes and use. The repeated processes and use of similar adaptations became routine and contributed to sustained use. For example, the matching adaptations in kindergarten classrooms were used during language arts and science lessons, as well as in other settings in the school building (e.g. pull- out with special

education and related-service providers). In the fourth grade the PixWriter grid was readily used day after day with new content. The special educator described:

> Since that grid is already made and it's pretty broad we can use it almost, pretty much everyday after literacy group. Where he is reading the story and then we go back and talk about all of those questions. And so we can use the same grid every single day. It is just kind of streamlined; "Oh, we just need to go straight across and make a sentence and our answer."

The team further explained, in general the PixWriter on the Netbook was used repeatedly in other content areas or for assignments (e.g. writing). A special educator expressed the Netbook was used, "throughout different subjects and throughout the year." And, "it is pretty easy and quick to program, so it is good for those writing assignments that are just happening throughout the day." Visual representations were another form of adaptation processes that was used repeatedly across subject areas and school days. For example, searching for, locating, cutting and pasting images into end products associated with lesson content are shown in adaptation examples (Figure 3, Figure 4, and Figure 13). A special educator emphasized, "So that's an activity we use for a lot of different times throughout the day."

Planned, implemented 'on-the-fly', or a combination hybrid approach. Having more than one way to implement adaptations permitted a greater likelihood that adaptations were sustained during language arts, social studies, and science lessons in general education classrooms. Educator teams reported that adaptations were implemented: with prior planning, on-the-fly, or a combination, 'hybrid' approach.

Adaptations designed and used for designated lessons required planning and team collaboration. Adaptations implemented on-the-fly were typically embedded into flexible experiences within classrooms. One educator team provided an example when there was

an unexpected schedule change. They also remarked on the flexible nature of the student. This is what the general and special educator, respectively, shared:

> Today [paraeducator] was with him. We have been having different schedules because of assemblies. They were in for DLI (daily language instruction) time, which he is not usually in for. She [paraeducator] was able to, I passed it [paper] to him, pick the sentences, and they wrote the sentences together using the DLI. Using the concepts we were using he was just able to do it on-the-fly. We did not plan for it because the schedule changed. It is great having support that is so willing to, "Okay that's what we are doing, all right hop in." The other day, [different paraeducator] was in and we were working on a measuring scavenger hunt, students had to find things that were between 1 foot and 36 inches…he [student] was able to grab different supplies needed, point to different things, find things and [paraeducator] would ask, " is it big or is it small?" and he was able to respond… "big"…"small!" He was able to participate with those prompt questions, on-the-fly. He can be thrown into anything.

> That is a very wonderful thing in general about him [student with significant disabilities]. We can ask him to do anything and figure it out as we go. He is very flexible that is nice about him. As long as he can be with his friends!

A combination approach, referred to as *hybrid*, occurred when educator teams planned to use an adaptation connected to a specific lesson led by the classroom teacher, however there was spontaneity in the manner it was used and followed the rhythm within the lesson. This approach was used with the State Map adaptation (Figure 3) and described by the special educator this way:

> I feel like that one [State map adaptation] is a really good example of that [hybrid approach]. Like you [general educator] said he was following along with the directions at the time. But he was able to use the stickers instead of having to write the words and he was doing it at the same pace as his peers, with them, but it's still his work.

Positive culture with established relationships. Positive classroom cultures with established relationships impacted sustained use of adaptations in general education classrooms. The educators provided positive classroom environments and referred to relationships when they spoke about adaptations used in general education classrooms.

Classmates typically developed bonds and viewed students with significant disabilities from a perspective that they were like them, but did things differently. Teachers' belief in students with significant disabilities being a part of the general education classroom with peers likely led to adaptations embedded into routine days in the elementary classrooms. In the literature, McSheenhan and colleagues (2006) found as team members' presumed competence in students with significant disabilities, membership and the provision of appropriate supports were enhanced in general education contexts.

The manner in which adults facilitated reciprocal peer interactions contributed to positive learning environments; learning environments that would stretch into future school years. A special educator reflected that positive cultures started early:

> And it starts here [kindergarten classroom] and we have a good role model with [classroom teacher] and her para [paraeducator] and the kids. And as our students get older… just today, with the student in 5th grade, and the kids are fifth graders, they were quiet, they were focused and they attended to [5th grade student with significant disabilities]. At the end they all did the hands up and high-fived him. Our fifth graders, there are attitudes and behaviors and they can sometimes not be nice to each other…but in that moment… supporting the student that I have in 5th grade…it was just like, "ah"…because it starts early. The kids are very accepting and supportive.

Her teammate added:

> Well, yeah the kids, I feel in a way become without realizing an adaptation for that student [student with significant disabilities] all the time just in the way they treat them and help them be a part of stuff and model for them and they know that it's kind of part of their job to be this student's classmate. I think we have always felt that [elementary school] is just a place that you see that a lot. Kids don't see those kids as different. They know that they might have to help them or they might do things differently. It is just a cool part of what kids become accustomed to. Another cool thing is that my students have never been like, why is [student with significant disabilities] working on that, I want to do that. They just know sometimes students are going to have different things because we are all learning different things, at different times.

And again the special educator reiterated, “Somehow they [classmates] know. Somehow they just know and accept and support.”

Positive classroom cultures included families. Each educator team referred to families who: were excited in knowing how their child participated in the general education classroom with peers, provided reinforcement and assistance, and developed relationships with both general and special educators. One special educator said, “The bottom line is, inclusion includes parents with the regular ed [education] teacher.”

Build Momentum

Building momentum pulled together educators’ efforts to use adaptations aligned to academic standards to promote active participation in ongoing learning activities within the context of general education lessons. There was perhaps a cyclical nature to sustaining the use adaptations. Three defining elements fostered this momentum and included: develop a foundation for learning, instill success and expand adaptations with students, and grade-level academic standards and IEP goals as a roadmap to obtain constant student growth. They are described below.

Develop foundation for learning. Adaptations served as a tool for students with significant disabilities to develop a foundation for learning. To build a learning foundation, a steady use of adaptations over time is needed. Teachers understood this and were committed to this process. This notion helped to build a momentum that impacted the sustained use of adaptations. One general educator explained the process this way:

> I think with all children, when they’re young, at the age that I have, there is an element of having to build just the foundation for them to be able to do work to show you what they learned or know. It is not always automatic, they can learn something and show that. It is a process.

Instill success and expand adaptations with student. Adaptations need to instill success and expand with students to other content areas, units of study, and school days. General and special educator alike expressed intent in moving students forward. For example, a kindergarten teacher sent home adapted materials and level readers for families to reinforce. Another kindergarten teacher expressed concern and eagerness to make sure a student with significant disabilities returned to school from an extended absence able to continue to successfully utilize adaptations tied to lessons.

The fourth grade teacher indicated she was eager to repeat another Readers' Theater performance and perhaps witness growth in the student, "I am hoping to do it [Readers Theater adaptation] again soon, right before the end of this semester and kind of get to see that change." In a follow-up interview, the educator team excitedly shared that they extended an adaptation (e.g. Netbook with adaptive software) that this student was successful with to a new poetry unit. They reported that the student chose his topic and composed a diamante poem (writing about opposite topics) using the same template as his classmates in combination with the familiar PixWriter grid adaptation on his Netbook. These are a sampling of examples that show how teachers expanded successful adaptations to new academic content in lessons as the school year progressed. In the literature, strategies that fit into the rhythm of teachers' work and benefitted students were more likely to be sustained (Gersten et al., 2000; McLeskey & Waldron, 2007).

Grade-Level academic standards and student IEP goals as a roadmap. Educator teams consistently stated that IEP goals were linked to academic standards and adaptations were designed to support the acquisition of IEP goals and participation in general education lessons. IEP goals and academic standards guided the development and

implementation of adaptations that perpetuated the need for continued use. According to Kurth and Keegan (2012) the majority of general and special educators and paraeducators in their study claimed they were not aware of the state standards and IEP goals that were linked to the collected adaptation samples. On the contrary, the educator teams in this study were cognizant of both IEP goals and academic standards that the adaptation examples were aligned to and ultimately used them as roadmaps to guide sustained use.

In practice, classroom teachers implemented adaptations that addressed the learning needs of students with significant disabilities, established in IEPs. Interestingly, this practice fit similarly into what they naturally did for the class as a whole. One educator team contemplated together and the general educator explained it this way:

> That is the same with all my kids, whether they have an IEP or not. I have kids that are reading amazing books right now and I have kids who are still learning letters and sounds and everything in between...You teach for the higher skill because that is where you want them to get eventually... and you talk about it and work through it and you do stuff together. But the practice, the really nitty gritty time, is when okay what do these specific students really need and how are you going to make it work for them?

The adaptation outcomes varied across the three cases. Educators shared that adaptation examples looked different, but had these consistent alignment principles. Acknowledgement that every student was different and that perhaps it made sense that adaptations were different as well, was communicated. A general educator expressed, "and every student it will be different, so it is not like what we decide [in terms of adaptations] this year, that we will have the golden ticket for next year." Moreover, she affirmed:

> It does need to be individualized so that in the moment in the year, you just focus. If it gets too broad that in my mind isn't necessarily the best use of time. Because really, you can't prepare for something now that will blanket be used forever. You really have to make it work for that kid.

Finally, a concluding statement went this way, “and those standards being the end of the year goals, what you really just want is constant growth and for every kid, that is going to look different.”

Summary of Sustainability of Adaptations

Four major themes emerged to answer the third research question related to how educator teams account for the sustainability of adaptations for students with significant disabilities across the curriculum and school days. The themes included (a) team collaboration, (b) resources available, (c) rhythm and routine, and (d) build momentum. I stressed how these elements were directly related to sustaining adaptations across the curriculum and school days.

It is clear from this discussion that it is not enough for adaptation to offer access and provide a means to assess progress. If they are to be continued to be used by teachers there must be properties that support sustainability. The themes and their defining elements appeared to this investigator to explain how sustainability, together with access and progress assessment could occur, in educator teams’ use of adaptations, however confirmation was needed. This is discussed in the next section.

Confirmatory Analysis

Two District special education coaches offered specific confirmatory comments and expanded on the themes that emerged from the cross-case analysis. This section will first highlight confirmatory comments in regards to the three research questions. I will then report on the broad perspectives of the special education coaches related to adaptations aligned to academic standards.

Confirmatory Comments

First, the special education coaches confirmed the findings that answered the first research question pertaining to how educator teams described the access functions of adaptations used with students with significant disabilities during language arts, social studies, and science lessons. Briefly in terms of the access functions, coaches indicated it was a "good list" and "yeah, that looks great." Additional comments related to the self-explanatory nature of adaptations and to the other forms of support that complimented adaptations were particularly of interest and are described below.

One of the special education coaches confirmed that a self-explanatory feature impacts both the student with significant disabilities as well as the support person in making the adaptation doable. She remarked:

> In seeing it, it is motivating in itself, because it does not look complicated. I imagine it is because the student knows and perhaps the support person knows they can be successful doing it. Because it is not so overwhelming like I don't know if I want to try it because I am not exactly sure what she wants me to do. I think that is part of it being motivating. I can do this…I have seen this, it is familiar whether it is matching or a file folder [common form of adaptation]. I have seen this before, that I have done. I have confidence going into it and it will be okay. And if you were not the person who put it together, if you were a support person, it would be the same for them. Oh, we have used this with different students. I know what the intent is behind it. I can do this. I can support this person. I can anticipate it.

On another note, a coach expanded on what she saw as a *service aspect* connected to the adaptations. When asked to explain, what she summarized appeared to match educator teams' explanations of the other forms of support that complimented adaptations. She emphasized it as the part of access that "the adult is doing to help provide that access." She elaborated this way:

> It's what is happening in the interactions between students and students and teachers and students that isn't just physical. It is that prompting, that motivational system, those other forms of support. To me sometimes those are just as strong. It's the relationships between teachers and students, how a teacher prompts, how a teacher motivates, how a teacher knows that student and what they need to move forward to the next level of independence or the next level of academic mastery. It is sometimes just as important and sometimes more important. Sometimes you can have the hands-on manipulatives or you can have some of the physical part the activity part accommodated or modified. But sometimes you need that other piece, you need that personal piece that interaction piece of the learning and teaching to actually bring the student to reach more mastery.

Second, in regards to the second research question, the District special education coaches confirmed the findings pertaining to how educator teams described the progress assessment functions of adaptations used with students with significant disabilities during language arts, social studies, and science lessons. Of particular interest were confirmatory comments related to peers and student ownership of learning.

Both coaches agreed that peer interactions were valuable in contributing to how students with significant disabilities used adaptations for learning in classrooms. One coach expressed, peers may "provide the purpose and the why behind the work because peers are working on it too." Moreover, they contemplated as peers became familiar with their classmates who had significant disabilities' learning styles; presumably opportunities for "celebrating each other's successes" occurred.

In terms of student ownership of learning, both coaches were pleased to see this highlighted in the findings. They affirmed when students with significant disabilities had adaptations and were able to participate they were motivated and their enthusiasm came through. Similarly, they agreed on the value of opportunities for students to make mistakes and figure out answers. In essence, build the learning process. One coach expressed, in classrooms where "mistakes are honored and you honor that it is a learning

process and are not just praising a product or correct answers; you are focusing on the process of learning." In fact, both general and special educators in this study reflected together on elements of ownership of learning for students with significant disabilities when using adaptations in elementary classrooms. One coach remarked, "that's awesome," after learning that general educators were equally committed in fostering the ownership of learning with students with significant disabilities.

Third, the District special education coaches affirmed findings related to the third research question that examined how educator teams accounted for sustaining adaptations aligned to academic standards across content areas and school days. More specifically, a number of confirmatory comments follow. The coaches affirmed the team collaboration theme and remarked that it can look different within teams and emphasized its critical need. For example, one coach said, "collaboration, always as everything changes." The coaches emphasized that classroom culture and relationships were "huge." Furthermore, they confirmed the flexibility needed in classrooms and that on-the–fly adaptations were a part of how classrooms functioned. Lastly, one coach specified she liked the following terms used in the findings: *reciprocal*, *rhythm*, and *hybrid.*

Broad Perspectives

In addition to providing confirmatory comments specific to the research question findings, the special education coaches expanded on these themes and shared broader perspectives. Four prominent areas related to adaptations are reported below.

First, in the literature educational terminology varies within and across the general and special education professions. In terms of adaptations, this can result in miscommunications and possibly poor planning (Janney & Snell, 2004, 2006; Udvari-

Solner, 1996). In this study, commonalities in diverse terminology were recognized. One coach in particular associated the term adaptations with differentiation and scaffolding. She emphasized that differentiation and scaffolding are part of "everyone's world, general and special education." She elaborated in this way:

> There is a special ed [education] component to that [differentiation and scaffolding] and for students with more significant disabilities that is obviously another level. It is more of that modification piece than accommodations or just slightly differentiation. But it is all kind of the same theme…of what we are doing and how we are scaffolding to reach independence and mastery of content objectives…or whatever objectives we have whether it is a life skills objective or content objective. Trying to reach that mastery and independent level.

Interestingly, Wakeman and colleagues (2013) capitalize on the term 'change' in regards to "changes to the content" and "changes in the student's performance" when describing adaptation processes for students with significant disabilities (p. 8). Within the field of education terminology varies and it not known fully how this impacts practice for students with significant disabilities in general education contexts.

Second, the collaborative nature between the general and special educators that was demonstrated in this study stimulated attention to the innate benefits of working as a team. In the literature, collaborative teaming practices are integral pieces described in successful schooling experiences for students who have significant disabilities in general education contexts (Downing & Peckham-Hardin, 2007; Fisher & Frey, 2001; Heeden & Aryes, 2002; Hunt et al., 2003; Hunt et al., 2002; Kurth, 2013). The District special education coaches indicated the value in teachers learning from each other. One coach expressed:

> Where the gen ed [general education] teacher is the content expert that's where the spec ed [special education] teacher is or should be the adaptation expert, and that's why you have those expertise. That's why you are a team and that's okay… I think that the best type of professional development is with your colleagues. That sounds like a good match to me and learn from each other!

Third, within this District, conversations around closing students' academic performance gaps were at the forefront. Both of the special education coaches verified the District's attention to instructional levels of students and grade-level expectations. The coaches emphasized that the District wanted to see growth in both. Hence, one coach iterated, "how are we making sure we meet them [students with significant disabilities] at their instructional level and give them some comfort and have success. What is appropriately challenging for them? That is an art, I think." She further elaborated, "some people are in a support mode, but then how can we become a growth model?"

Fourth, in this study material adaptations were used across content areas and served as examples of what students with significant disabilities were capable of. One coach in particular, noted that others in the District could benefit from carrying over familiar adaptations that addressed students' learning needs across content areas. Specifically this is what she said:

> I think people don't think about it a lot to carry over content areas…even like specials, art, music, and P.E. [physical education]. We used to get that a lot of "what do we do? Art project takes 20-minutes but done in only three…what do we do?" But, there are so many other components that they could be doing as well and do not always think about how they can be carried over in other environments.

Additionally, she highlighted that adaptive schoolwork samples could inform teachers of students' present levels. This is particularly important when students move to the next grade level. She noted:

> Those are the kind of things that would be helpful in the beginning of the year for a classroom teacher to have an awareness level of. Sharing those pictures or work samples so a classroom teacher, who has not had that prior experience with the student can support that student at the appropriate level, to ensure that success. So now that all this great work is done, how can we empower the next grade level for success? To have a higher baseline they would have had if they did not know anything about the student.

The District special education coach also acknowledged that teachers do share. However, there are times when this coach saw a gap and wondered, "what happened to all the previous information and how can we make sure it gets shared?"

To summarize, a confirmatory analysis was conducted with two District special education coaches. Overall, they confirmed the findings that answered the research questions pertaining to how educator teams described the access and progress assessment functions of adaptations and how they accounted for sustaining adaptations aligned to academic standards across content areas and school days. Examples of confirmatory comments were provided for each research question. Also, the special education coaches expanded on the findings and provided broad perspectives regarding four prominent areas related to: terminology, learning from teammates, growth expectations, and material adaptations usage. These perspectives will be integrated into the discussions in the following chapter.

Chapter Summary

Three research questions were examined in this study. The questions sought educator descriptions of adaptations they used with students with significant disabilities during language arts, social studies, and science lessons in general education classrooms. Specifically, the research questions addressed the access and progress assessment

functions of adaptations aligned to academic standards and how they were sustained across the curriculum and school days from the perspective of educator teams.

This chapter provided the findings that emerged from the cross-case analysis. These findings reported the collective perceptions and experiences of the three educator teams who participated in this study. The findings associated with each research question were structured into major themes with defining elements explained in the text. A brief summary of the themes concluded the findings associated with each research question. A confirmatory analysis using District special education coaches helped verify the general findings and provided additional broad insight. At the same time, I wish to note that throughout the study my role as the researcher was a critical tool in the filtration of meaning.

Overall, the findings were complimentary between cases, despite the differences in schools, educator teams, classrooms, and adaptation examples. In conclusion, an educator concisely captured the gist of these themes in the following way:

> I want him [student with significant disabilities] to be apart of everything we are doing as much as he can, but we also need to make sure that his learning is targeted to what he needs, so that we're incorporating both sides of learning targets, and the objectives, and what we need to meet with the standards. Just knowing where we are at with that, allows us to stay with the subjects and stay with the tasks and focus on his needs instead of just making it, doing it because we [in grade level general education classroom] are doing it.

It is noteworthy to acknowledge the theme overlap that occurred. During the data analysis stage, it became obvious that elements of themes were interconnected across the research questions; which addressed access, progress assessment, and sustainability properties of adaptations. In Chapter VI, I present a reconfiguration of these findings into

visual model that takes into consideration the relationships between the themes and research questions.

CHAPTER VI

DISCUSSION

A multicase study was conducted with three educator teams who used adaptations with students with significant disabilities in elementary school classrooms. Data from multiple sources were collected and included (a) photo elicited and follow-up interviews with educator teams, (b) classroom observations, (c) artifacts, and (d) interviews with District special education coaches. Case descriptions were formulated with a large part devoted to examples of adaptations aligned to academic standards. A collection of themes emerged from the data analysis processes that addressed each research question in relation to the general education curriculum and classroom practices. These findings could apply to practitioners who create adaptations for students with significant disabilities in general education contexts.

This chapter first presents an overview of the findings in relation to the research questions. Then, the limitations and strengths of this study are shared. Next, a visual model is presented and the findings are discussed through the components of the model. Lastly, implications for practice are identified and suggestions for future research are proposed. The chapter ends with conclusions.

Overview of Findings

The following research questions guided this inquiry:

Q1 How do adaptation teams describe the access functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q2 How do adaptation teams describe the progress assessment functions of adaptations aligned to academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?

Q3 How do adaptation teams account for sustaining adaptations aligned to academic standards (e.g. language arts, social studies, and science) across the curriculum and school day(s)?

There were differences and commonalities that existed between the cases. The elementary schools varied in demographics in terms of the ethnic and socio-economic backgrounds of students' they served. Additionally, the educator teams' years of experience with students with significant disabilities ranged from four to twenty years. In the literature, experience has been shown to impact the quality of adaptations practitioners produced (Kurth & Keegan, 2012). However, in this study educator experience appeared less influential and what did appear impactful were teachers' commitment to working together to create adaptive learning opportunities for students with significant disabilities to access and make progress the general education curriculum.

Overall, the findings were complimentary between cases, despite the differences in school demographics, educator teams' experience and collaborative tactics, classrooms, and adaptation examples. Table 8 displays a summary of the major themes that emerged for each research question.

Table 8

Major Themes that Emerged Related to Research Questions

Access	Progress	Sustain
Tangible and doable	Show what students know	Team collaboration
Student-centered	Blend with what peers are learning	Resources available
Blend with classroom materials and instruction	Ownership of learning	Rhythm and routine
		Build momentum

The first research question addressed how educator teams described the access functions of adaptations aligned to academic standards that they used for students with significant disabilities during language arts, social studies, and science lessons. In the table those themes are under the heading titled, *Access*. The first theme (tangible and doable) addressed the concrete nature of adaptations generally used for students with significant disabilities. The second theme (student-centered) recognized learning needs in students with significant disabilities. The final theme (blend with classroom materials and instruction) grounded access functions of adaptations to the general education context.

The second research question examined how educator teams described the progress assessment functions of adaptations aligned to academic standards that they used for students with significant disabilities during language arts, social studies, and science lessons. In the table those themes are under the heading titled, *Progress*. There was a progression of abstraction noted in these themes. The first theme (show what students' know) emphasized the assessment of learning in individual students. The

second theme (blend with what peers are learning) recognized the influence of what classmates were learning in relation to a student's learning. The final theme (ownership of learning) addressed a deeper awareness of learning that perhaps advances with the student.

The third research question looked at how educator teams accounted for sustaining adaptations aligned to academic standards across content areas and school days. In this table these themes are under the heading titled, *Sustain*. As shown, there are four major themes (team collaboration, resources available, rhythm and routines, and build momentum). These themes express a dynamic that goes across the activities of teachers in time, and in many ways define the parameters of teaching in inclusive settings. It is also noteworthy that the themes associated with access and progress contained elements that mirrored these four themes.

Limitations and Strengths

This study has a number of limitations and strengths for readers to consider. I will offer five limitations and simultaneously counter these with associated strengths in the text below.

First, the study was limited to a purposeful convenience sample and is not representative of a wider population. Three cases were examined in one school district in a western state. Furthermore, three potential special educators who were contacted did not seek general educator teammates and did not participate in this study. It is unknown whether the findings would have emerged differently. However, the three educator teams who did participate were willing to share their perspectives and experiences that offered rich insight. Common in qualitative inquiry, the findings in this study are specific to the

cases used. Interested readers may interpret the findings to meet their unique circumstances.

Second, adaptation selection was based on the discretion of educator teams and this actually represents both a limitation and a strength. In terms of the limiting factor, educators were given a general criterion for choosing adaptations to be used in this study. Hence, it is not fully known why they chose the adaptations that they did. Nevertheless, the fact that educator teams chose adaptation examples served as a strength in this study. Participants had more autonomy and were empowered by sharing adaptations they created and selected for this study; and such an approach fostered a collaborative relationship with the researcher (Clark-Ibanez, 2004; Harper, 2002; Stanczak, 2007).

Third, the adaptation examples represented a limited array of the full range of adaptations that could be used for students with significant disabilities in elementary classrooms. However, by focusing on a small number of adaptations, their functions and properties could be thoroughly examined. Furthermore, referring to the photographed adaptation examples throughout the photo elicited interviews stimulated rich discussions.

Fourth, students were not participants in this study. Therefore, specific learner profiles are not addressed, nor were students' formally assessed for learning. Instead, educator teams reported student growth associated with adaptations aligned to academic standards and student profiles fell generally within the range of significant disabilities. At the same time, the study as it was designed provided an in-depth look at the way the properties of material adaptations contributed to the access, to the progress assessment, and to the sustainability aspects of adaptations.

Fifth, the research interviews were conducted jointly with the general and special educators who made up the educator team. It was not obvious that any of the team members were limited by this arrangement, but it is possible that some educators may have been restrained in what they shared (Creswell, 2007). Counter to this scenario, I observed strengths in the joint interviews. For example, the educator teams approached the interviews in unity, they had agreed to participate in this research as a team and together they chose the adaptation examples that the photo elicited interviews were based on. Moreover, educators reflected, affirmed, and built off each other's thoughts. Lastly, each team indicated that they appreciated or enjoyed the time spent talking together more deeply about their perspectives on the work they accomplish or strive for related to creating and using adaptations for students with significant disabilities in general education contexts.

Visual Model

There were points of overlap in the themes that emerged in relation to access, progress assessment, and sustainability properties of adaptations. In response to the interconnectedness between the themes, I reconfigured the findings into a visual model. In this section, I present the visual model offering it as a holistic view of the phenomenon examined in this study (Creswell, 2008).

As shown in Figure 20, there are five components represented in this visual model, each of these extending out from the core. These components along with the core, together represent the significant parts of the phenomenon studied and provide an alternative to viewing the research questions separately. The core refers to adaptations aligned to academic standards. Expanding out from the core are five essential

components that consist of and transcend the access, progress assessment, and sustainability properties of material adaptations. In other words, there are pieces of access, progress assessment, and sustainability properties in each of these outstretched components. The five components include (a) student-centeredness, (b) classroom instruction, (c) people support, (d) resources, and (e) familiar formats. These components, starting at the core and ending with familiar formats are explained in the following text.

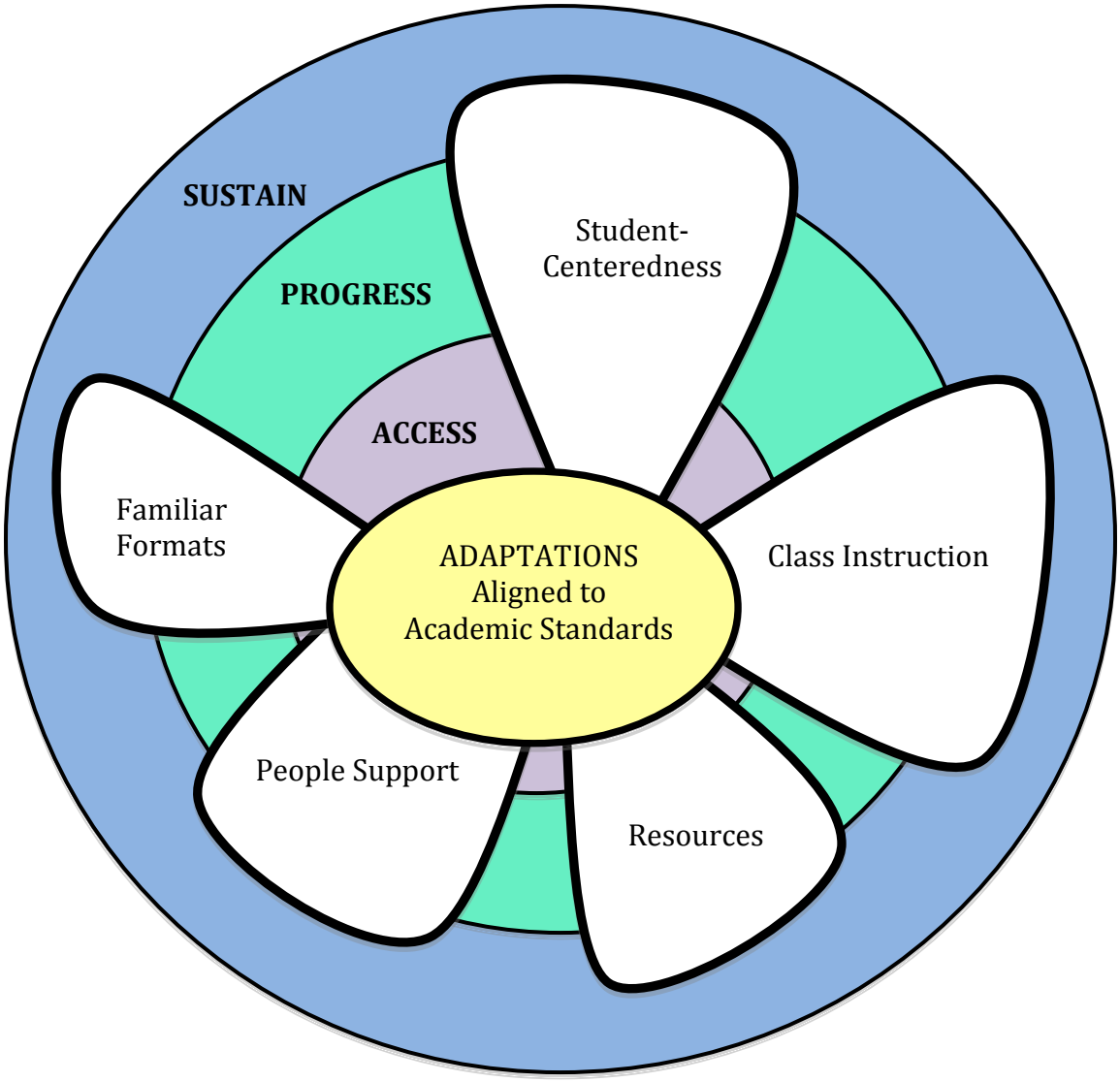

Figure 20. Educator teams' perceptions of essential components for the access, progress assessment, and sustainability properties of adaptations used across the general education curriculum and school days for students with significant disabilities in elementary school contexts.

Adaptations Aligned to Academic Standards

At the center of the visual model are the adaptations aligned to academic standards. They are the core in facilitating access, progress, and sustained use across the

general education curriculum and school days. Educator teams align IEP goals to grade-level state academic standards in: Reading, writing, and communicating;
Social studies; and Science. The grade-level state academic standards teachers' use also includes the alternate standards, designed for students with significant disabilities. Together these standards are referred to as the academic standards. Subsequently, adaptations that support the acquisition of students' IEP goals are also aligned to academic standards and blend well for fostering engagement and learning in the context of general education lessons.

Student-Centeredness

The first of the five primary components in the visual model, stresses that adaptations must be student-centered. Student-Centeredness in adaptations pays attention to students' learning support needs. Adaptations are designed at students' understanding and tolerance levels and enable academic and social communication. All this contributes to being able to show what students know and develop ownership of their learning. As students demonstrate successes and generate excitement, general and special educators commit to and extend student-centered adaptations across content areas and school days.

Classroom Instruction

The second of the five primary components in the visual model, stresses that adaptations must be connected to classroom instruction. Adaptations used in general education contexts should blend with classroom instruction. Same and/or related materials are incorporated into adaptations, often with different learning targets. Use of these adaptations occurs in unison with what peers are learning and compliment other forms of support, such as instructional prompts, cues, choices, and peer partnerships. The

intentional adaptation linkage to classroom instruction that follows the general education curriculum provokes a continual need for well-designed adaptations to be accessible for students with significant disabilities. This is a demand that educators must respond to, potentially creating a perpetual cycle.

Resources

The third component in the visual model emphasizes that adaptations require resources. Adaptations require resources in the form of materials, technology, time, and available people. Materials and technology were found in schools, classrooms, teachers' private collections, provided by families, or granted upon request made to building principals. Teachers are mainly challenged by time to plan for and create adaptations. Although, they have developed unique and practical means to address shortages, which need recognition and support from school administration, for example tactics to save examples and schedule team planning. This all helps ensure that adaptations are available to be used in classrooms. Resources are an essential 'glue' for sustaining adaptations.

People Support

The fourth component in the visual model refers to all the people, adults and children, who interact together in the planning and implementation of adaptations used in classrooms. Team collaboration is critical for the creation of adaptations and the task is too big to be accomplished separately. People support provides the nurturance for students with significant disabilities to actively use adaptations to access and progress in the general education curriculum. People support also contributes to positive classroom cultures conducive for all students to learn and form reciprocal relationships that offer

motivation, natural support, and perseverance. People support makes it all possible and is huge in sustaining the use of adaptations.

Familiar Formats

The fifth component in the visual model, stresses that adaptations must incorporate familiar formats. This includes adaptations that are familiar to the students themselves who use them and to the individuals who support their use. Students understand what they are suppose to do and can then attend better to academic content made meaningful in lessons. Moreover, when familiar adaptations are established for students with significant disabilities they serve as tools in developing a foundation for learning. For teachers, familiar formats can be readily used in planning for and implementing adaptations, including those that are delivered on-the-fly or a combination, hybrid approach. Familiar formats in adaptations provide an avenue for responding to the continuous introduction of new academic content associated with the general education curriculum over time.

Implications for Practice

This study has significant implications for practice. It provided examples of adaptations aligned to academic standards that were used in general education classrooms during language arts, social studies, and science lessons. Although the array of adaptations was limited to nineteen photographed examples from a fourth grade and two kindergarten classrooms, the educator teams and District special education coaches provided rich insights. Four implications for practice that may be beneficial for practitioners are discussed below.

First, the processes of creating and implementing adaptations require a collaborative team. This is not a new concept and has been repeatedly confirmed in the literature in terms of best-practices for students with significant disabilities (Heeden & Aryes, 2002; Kurth, 2013; McSheenhan et al., 2006). In this study, the collaboration that occurred amongst the three educator teams differed, although they all valued exchanging information about students learning needs and the learning activities planned in the general education classrooms. Educator teams had different experiences for arranging what collaborative mechanisms worked for them to ultimately serve students with significant disabilities and their families. However, there was intentionality for this to occur, and in one instance resulted in an educator team meeting regularly on a weekly basis.

Collaborative teams also included the invaluable assistance from others in the classroom. Paraeducators and at times peers and volunteers supported these students in using adaptations in the context of general education classrooms. Ample and competent people support is critical for implementing adaptations throughout academic lessons.

Second, this study demonstrated that educators do consider IEP goals and academic standards when planning for adaptations. Educators formulated IEP goals and objectives that aligned to academic standards and deliberately focused on applying these IEP goals in the context of lessons delivered in the general education classrooms, which were also aligned to those grade-level academic standards. Educators then designed and implemented adaptations to support students' engagement in those lessons with classmates and achievement of their IEP goals. These processes were used by

educator teams and described by a special educator as, “kind of friendly and built-in for us.”

Third, a rich description of material adaptations used by elementary students with significant disabilities was shared. Despite the variation amongst these examples, common elements were found. Many affirmed what is known in terms of adaptations being manipulative, tactile, and visual, as well as incorporating adaptive technology (Downing, 2010). They also supported quality indicators described by Janney and Snell (2006) and Kurth and Keegan (2012). In addition, this study expanded on the attention given to using familiar formats. Adaptations that are familiar to students with significant disabilities are more likely accepted, doable, and ultimately place lesson content at the forefront for these students. Furthermore, support persons also know how they work and can readily implement them for repeated use across content areas and school days.

Erickson (2015) suggested that practitioners shift gears from approaching mastery in terms of trials often utilized as criteria in IEP objectives and instead construct IEP goals and objectives that promote usage. For example, structuring practice for students with significant disabilities to use material adaptations and communication devices to achieve targeted skills in general education contexts. Moreover, with successes, students begin to develop a foundation for learning with the use of familiar adaptations.

Fourth and finally, the cultures in classrooms were conducive for learning for all students. Students with significant disabilities were welcomed and considered members of the classroom, also shown in the literature to be important (Bentley, 2008;

DeSchauwer et al., 2009; Thunder-McGuire, 1997). Their active participation in learning activities was facilitated by the use of adaptations. This included adaptations that incorporated same and related materials with different learning targets. Positive interactions and acceptance of differences was representative in how students and teachers carried on in classrooms where there was room for figuring out answers and celebrating successes. The perseverance demonstrated by both students and adults contributed to the gradual acquisition of skills educators observed in students with significant disabilities. Meeting classroom expectations in general education classrooms led to students' developing ownership of their learning, reported by educator teams who work daily toward such accomplishments.

Suggestions for Future Research

This study offered preliminary findings for descriptions of adaptations used in general education lessons for students with significant disabilities. More specifically, the investigation examined educator teams' perspectives in how adaptations supported students with access to and progress in the general education curriculum and how those adaptations were sustained across language arts, social studies, and science lessons in elementary schools. Rich information was obtained and further questions warrant additional research. This section presents four suggested areas to address in future research.

First, studies similar to this one would benefit from using a team approach. Multicase studies conducted by teams of researchers in other school districts and states would be valuable for (a) substantiating the findings that resulted from this study and (b) adding depth to these findings. Studies that include perspectives from additional roles

such as, paraeducators, related service providers, and family members would provide a broader view. Another study to consider would be to use a research team to study these processes at the secondary level, specifically in the context of hands-on-learning and service project opportunities with grade-level peers in schools and community settings. In addition, multi-year studies would offer insight into adaptation processes as students with significant disabilities transition and progress to subsequent grade levels. Again, I would stress the use of a research team as opposed to a single investigator so that richer insight can be gained about these processes.

Second, this study did not include students as participants. For future studies including students with significant disabilities in the inquiry is recommended. In such a study, researchers would be in the position to examine how best to use adaptations to support student learning. Consideration of cognitive science and connecting these concepts to the use of adaptations would provide deeper understanding of the access and progress assessment functions of adaptations used by students with significant disabilities. Furthermore, researchers could gain greater insight regarding how adaptations are revised as students with significant disabilities are challenged and progress in general education contexts.

Third, this study examined educator teams' perceptions and experiences with sustaining the use of adaptations across the curriculum and school days. Preliminary findings were obtained over a limited time period based from participants' perceptions. Additional research is needed to directly examine the sustainability issues of adaptation processes from the framework of implementation science. Implementation science

specifically looks at how best practices can be effectively implemented and scaled up (Klingner et al., 2013).

Fourth and finally, as the researcher, I am interested in learning more about the parallels that may exist between the uses of augmentative communication devices and material adaptations for students with significant disabilities in general education contexts. Both necessitate ongoing practice and use in order for students and support people to benefit from such tools for communicating and learning.

Conclusions

Educator teams shared their experiences and perspectives on adaptations aligned to academic standards that were used in elementary general education classrooms with students who had significant disabilities. Findings revealed interconnected themes related to the three research questions, pertaining to access, progress assessment, and sustained use. A visual model was created to take into account the relationships between themes that may be a better reference point for practitioners. The model displays adaptations aligned to academic standards at the core with an additional five components that transcend across access, progress, and sustained use: student-centeredness, classroom instruction, people support, resources, and familiar formats.

I believe the findings of this study will contribute to a better understanding of how adaptations aligned to academic standards support students with significant disabilities with access to and progress in the general education curriculum over time in elementary school classrooms. A well-designed adaptation can be viewed as a tool to enable students to expand their learning and show others their capabilities. Creating and transforming such adaptations is an important ongoing task that calls for a collective effort with others.

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APPENDIX A

IRB APPROVAL

UNIVERSITY of NORTHERN COLORADO

Institutional Review Board

DATE:	September 2, 2014
TO:	Megan Finnerty
FROM:	University of Northern Colorado (UNCO) IRB
PROJECT TITLE:	[616519-2] Adaptations aligned to academic standards for students with significant disabilities
SUBMISSION TYPE:	Amendment/Modification
ACTION:	APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE:	August 29, 2014

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Hello Megan,

Thank you for these thoughtful modifications. I appreciate the approach taken for your recruitment of team members and agree that this will work well and protect the potential participants.

You are approved to move forward with this important research. Good luck.

Sincerely,

Nancy White, PhD, IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX B

EDUCATOR-PARTICIPANT CONSENT LETTER

UNIVERSITY of NORTHERN COLORADO

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: Adaptations Aligned to Academic Standards for Students with Significant Disabilities in General Education Contexts

Researcher: Megan Finnerty, M.Ed.
School of Special Education
Email: finn5416@unco.bears.edu
Phone Number: (970) 310-1337

Research Advisor: Lewis Jackson, Ed.D.
School of Special Education
Email: lewis.jackson@unco.edu
Phone Number: (970) 351-1658

I am interested in knowing how adaptations support students in learning academic content across the school day(s). For this research project, I would like to collect photographic examples of adaptations used during language arts, social studies, and/or science lessons with your students who have significant disabilities. The photographs will serve as data in this study and as visual prompts during a scheduled team interview. Images of students should NOT appear in these photographs. Also, you are requested to participate in one 55-minute adaptation team interview and one follow-up interview. The interview will be digitally audiotaped with your permission to ensure information that you share is not lost. Lastly, I would like to observe three 20-minute intervals in the general education classroom using adaptations during language arts, social studies, and science lessons.

This will be an opportunity for you to collaborate and learn from one another with regard to using adaptations aligned to academic content with students who have significant disabilities. Collectively, it is an opportunity to contribute to expanding the knowledge base of adaptations used with students who have significant disabilities in general education contexts. I will protect the confidentiality of your responses and will not use your name, instead a team pseudonym will be created. All identifying information will be kept in secure computers and locked cabinets on the University of Northern Colorado's campus.

You may feel this adds additional expectations to your daily workload, however I am simply interested in seeing examples of adaptations that you typically create and use with your students. If taking photographs is a hardship, I will assist during scheduled observations. Another possible discomfort is feeling judged by teammate or researcher during interviews and/or observations. I will try to minimize these feelings by valuing individual perspectives and practices and providing time to check for understanding.

Initials (_____)

Furthermore, there is a risk that students might be accidently identified by name when discussing adaptations. I will minimize this risk be reminding you not to use student names and if a name is inadvertently said I will stop the recording and erase the name. After your participation is completed, I will compensate your efforts by (a) offering assistance in uploading the photographed adaptation examples to the district online Curricula Adaptation Resource Library, (b) writing an appreciation/recognition letter to your building principal, (c) granting you credit for the compiled adaptation guide or checklist, and (d) giving you a $25.00 Visa card.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored programs, Kepner Hall, University of Northern Colorado Greeley, CO. 80639; 970-351-2161.

_____

Participant's name

_____ _____

Participant's Signature Date

_____

Researcher's name

_____ _____

Researcher's Signature Date

APPENDIX C

DISTRICT SPECIAL EDUCATION COACH-

PARTICIPANT CONSENT LETTER

UNIVERSITY of NORTHERN COLORADO

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: Adaptations Aligned to Academic Standards for Students with Significant Disabilities in General Education Contexts

Researcher: Megan Finnerty, M.Ed.
School of Special Education
Email: finn5416@unco.bears.edu
Phone Number: (970) 310-1337

Research Advisor: Lewis Jackson, Ed.D.
School of Special Education
Email: lewis.jackson@unco.edu
Phone Number: (970) 351-1658

I am interested in knowing how adaptations support students with significant disabilities in learning academic content across the school day(s). For this research project, I collected photographed examples of adaptations used during language arts, social studies, and/or science lessons. The photographs serve as data in this study and as visual prompts during scheduled team interviews with a general and special educator in three elementary schools. Images of students do NOT appear in these photographs. Currently, I am seeking additional perspectives related to the functions of adaptations from Integrated Services Coaches who work with these teachers. Therefore, I am requesting your participation in a 35-minute interview. The interview will be digitally audiotaped with your permission to ensure information that you share is not lost.

This will be an opportunity for you to (a) provide feedback related to the general findings of this study and (b) offer your own perceptions of adaptations aligned to academic standards with students who have significant disabilities. Collectively, it is an opportunity to contribute to expanding the knowledge base of adaptations used with students who have significant disabilities in general education contexts. I will protect the confidentiality of your responses and will not use your name, instead a pseudonym will be created. All identifying information will be kept in secure computers and locked cabinets on the University of Northern Colorado's campus.

You may feel this adds additional expectations to your daily workload, however I am simply interested in hearing your perspective. Another possible discomfort is feeling judged by the researcher during the interviews. I will try to minimize these feelings by valuing your perspective and providing time to check for understanding. Furthermore, there is a risk that students might be accidently identified by name when discussing adaptations.

Initials (_____)

I will minimize this risk be reminding you not to use student names and if a name is inadvertently said I will stop the recording and erase the name.

After your participation is completed, I will compensate your efforts by (a) writing an appreciation/recognition letter to your supervisor, (b) granting you credit for a compiled adaptation guide or checklist, and (c) giving you a $25.00 Visa card.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado, 970-351-1910.

_____
Participant's name

_____ _____
Participant's Signature Date

_____
Researcher's name

_____ _____
Researcher's Signature Date

APPENDIX D

PHOTOGRAPHY SCRIPT

Date

Dear

I am interested in knowing how adaptations support students in learning academic content across the school day. Adaptations include accommodations and modifications (See table below). I would like to collect photographic examples of adaptations used during language arts, social studies, and/or science lessons with your students who have significant disabilities. The photographs will serve as visual prompts during the photo elicited interview and as a data source for this research project.

Adaptations	
Accommodations	**Modifications**
Alter instructional means without changing content or criteria.	Alter instructional means, content, and criteria based on a student's learning level and needs.
Example: Use of assistive technology with a student who has a physical or sensory challenge.	**Example:** Emphasize the main ideas in lessons with use of reduced text, visual or concrete representations, and adjusted criteria levels.

I am asking for your participation in the following ways:

- Photograph 3 examples of adaptations used during classroom lessons.
- Do NOT take images of students, only examples of the adaptations.
- Briefly describe the adaptation example using the template provided.
- Please send digital images or return the disposable camera prior to scheduled interview. I will print the images!

Have fun and I look forward to learning about the adaptations students are using. Thank you!

Megan Finnerty
970-310-1337
finn5416@bears.unco.edu

APPENDIX E

ADAPTIVE DESCRIPTIVE TEMPLATE

Adaptation name:	Date:	#
Grade level:		
Classroom Lesson:		
State academic standards:		
General description of student learning needs for the adaptation:		
If needed who supported the student? (i.e. general or special education teacher, paraeducator, peers, therapist, parent, or other adult in classroom) Provide description.		
Who made the adaptation? (i.e. general or special education teacher, paraeducator, peers, therapist, parent, or other adult in classroom)		

APPENDIX F

OBSERVATION GUIDE

Observation Guide

Date: Time:
School: Team:
Lesson: Grade level:

Descriptive notes	Reflective notes
I. Classroom Environment: (student seating, materials, instructional supports, range and distribution of adaptations) II. How do adaptations support: (a) Participation/Access: (b) Learning/Progress: (c) Social interactions: (d) Communication about lesson content: (e) Alignment to academic standards: III. How does familiarity of adaptations impact access and progress:	

APPENDIX G

EDUCATOR TEAM INTERVIEW SCHEDULE

Interview Schedule

Date:

Time and location:

Adaptation team (pseudonym):

Thank you for taking the time to meet with me and talk about the adaptations you are using in the Kindergarten classroom. With your permission, I would like to audiotape our conversation. Remember we will not use the names of students. Afterwards, I will transcribe the audio recording into text and send it to you. You will have the opportunity to review it and make sure it represents your perspectives.

1. I will start with a general question. Please tell me briefly what you like about these adaptations?

2. More specifically, how did these adaptations support students with significant disabilities' with **access** to language arts, social studies, or science lessons?

- How did the student participate in the lesson?
- How did classmates participate?
- Does familiarity of adaptations matter? If so why (for practitioners and students with and without disabilities)?

3. How did these adaptations support students with **learning** during language arts, social studies, or science lessons?

- How did the student demonstrate understanding of content in an observable way during the lesson?
- How did the student communicate during the lesson?
- How did the student interact with peers throughout the lesson?

- How did you connect the adaptation to academic standards?
- Are any of these adaptations similar to what the student would use during a test?

4. Describe anything about these adaptations that enable you to (a) use them day after day (b) in other content areas across the school day, and (b) with other students?

- How do these adaptations connect to afterschool activity?
- How do these adaptations connect to home life?

5. What kinds of resources and supports do you need to make adaptations available throughout the school day?

- Tell me about the materials and time that is needed to implement adaptations connected to lessons.
- How do the principal, your colleagues, and students' families impact your ability to provide adaptations?
- How do you manage challenges?

6. In addition to these material adaptations, what other adaptations do you use with students with significant disabilities (i.e. prompts, seating, questions)?

7. Is there anything else you would like to tell me related to adaptations connected to general education lessons?

Lastly, I would like to ask you about your professional training:

What teaching certification have you earned?

Number of years teaching?

Number of years teaching students with significant disabilities?

Thank you very much and it was a pleasure to spend this time with you.

APPENDIX H

INTERVIEW QUESTIONS LINKED

TO RESEARCH QUESTIONS

Research Questions	**Interview Questions and Probes**
	1. I will start with a general question. Please tell me what you like about these adaptations? • Why did you choose to share these?
Q 1: How do educator teams describe the access functions of adaptations aligned to the state academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?	2. How do these adaptations support students with significant disabilities' with access to language arts, social studies, or science lessons? • How did students participate in the lesson? • How did classmates participate? • Does the familiarity of adaptations matter? If so why (for practitioners and students with and without disabilities)?
Q 2: How do educators describe the progress assessment functions of adaptations aligned to the state academic standards (e.g. language arts, social studies, and science) that they use with students with significant disabilities?	3. How do these adaptations support students with significant disabilities' with learning during language arts, social studies, or science lessons? • How did students demonstrate understanding of content in an observable way during the lesson? • What did students communicate during the lesson? • How did the student interact with peers throughout the lesson? • How did you connect the adaptation to academic standards? • Are any of these adaptations similar to what the student would use during a test?
Q 3: How do educator teams account for sustaining adaptations aligned to academic state standards across the curriculum (e.g. language arts, social studies, and science) and school day?	4. Describe anything about these adaptations that enable you to (a) use them in other content areas across the school day and (b) with other students? • How do these adaptations connect to afterschool activity? • How do these adaptations connect to home life? 5. What kinds of resources and supports do you need to make adaptations available throughout the school day? • How do the principal, your colleagues, and students' families impact your ability to provide adaptations? • Tell me about the materials and time that is

	needed to implement adaptations connected to lessons. • How do you manage challenges? 6. In addition to these material adaptations, what other adaptations do you use with students with significant disabilities (i.e. prompts, seating, questions)? 7. Is there anything else you would like to tell me related to adaptations connected to general education lessons?

APPENDIX I

DISTRICT SPECIAL EDUCATION COACH

INTERVIEW SCHEDULE

Interview Schedule

Date and time:

Pseudonym:

Thank you for taking the time to meet with me. I really appreciate this opportunity to listen to your perspective and receive your feedback on the general findings of this study related to adaptations used with students who have significant disabilities during language arts, social studies, and science lessons in general education classrooms. With your permission I would like to audiotape our conversation and I want to remind you that we will not use names during the interview.

First, I will share with you the three research questions that guide this project.

Next, I would like to share the general findings related to these questions.

1. In terms of how teachers describe **access functions** of adaptations aligned to academic standards, the following themes were generated:

   - What are your thoughts about these themes?
   - What would you add from your perspective based on what you observe in the classrooms or are aware of based from working with these teachers?

2. The following themes relate to how teachers describe the **progress assessment (**how students demonstrate learning) functions of adaptations. These are the themes that emerged:

   - What are your thoughts related to these themes?
   - What would you add from your perspective based on your experiences with these teachers?

3. The final research question examined how adaptations aligned to academic standards are sustained across the curriculum and school days. Themes related to this RQ are:

- Tell me what you think of these findings?
- Again, what would you add based from your experiences supporting teachers in classrooms?

4. I have developed the following model that better represents how the adaptations relate to access, progress, and sustainability. I would like your comments.

5. How do you encourage teachers to create and use adaptations that are aligned to academic standards?

6. Is there anything else you would like to tell me related to adaptations aligned to standards used with students who have significant disabilities in general education lessons?

Background training:

Number of years teaching:

Number of years teaching students with significant disabilities:

Number of years as a coach:

Thank you very much and it was a pleasure to spend this time with you.