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Teaching Characteristics And Practices Which Affect Language And Literacy Development For Students With Complex Communication Needs

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TEACHING CHARACTERISTICS AND PRACTICES WHICH AFFECT
LANGUAGE AND LITERACY DEVELOPMENT FOR STUDENTS WITH
COMPLEX COMMUNICATION NEEDS.

by

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ABSTRACT

This study examined teacher characteristics and practices identified as effective through current research for teaching students with complex communication needs. For this population, communication issues are more complex than those typically encountered in other settings. Specifically, the researcher asked: what are the desired characteristics and practices for this population, and are the desired characteristics and practices present in current settings?

Working with six teachers in a large urban school district, this study utilized a multiple case study design. Criteria for participation included the teacher as the primary reading/language arts instructor for a student who used an augmentative and alternative communication system (AAC). This study builds on prior research and fills a gap in current research through a focus on the teacher.

This study was conducted through three phases: a survey of teacher characteristics, observations of teacher practices, and a semi-structured interview. Four instruments were utilized to ensure validity. Results suggest that teachers for this population require knowledge on language and literacy specific to the non-verbal child. AAC training is critical in regard to programming and navigation. The use of other technology supports which offer auditory, visual, and access options are essential. Strong collaborative teams (school and district) are also important. However, one of the most significant findings documents that success may lie with the teacher's 'choice' to embrace challenges with this population. This issue of 'choice' questions the teacher's willingness (personally or professionally) to accept this commitment. This finding also questions the degree to which teachers are willing to pursue opportunities.

Recommendations include the need for: training (teachers and paraprofessionals), pursuit of opportunities for supports, addressing parent issues, a district-based liaison between home and school, and to examine issues which prevent the recommended instructional time (90 minutes of reading instruction plus 45 minutes of supplemental instruction). Conclusions indicated that participants ranged from effective to ineffective. The identification of 'highly qualified' teachers through level of education and amount of experience did not correlate with participants' level of effectiveness. Given the limited research available, this study addresses a need in the field and lays the foundation for future research with this population.

Dedicated to:

Eugene William Howell

[1933-2003]

Your quiet strength, expansive heart, commitment to family, perseverance through

struggles, and unconditional love will always be my inspiration.

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"My search for knowledge still is made ~ thro' troubled times and bright.

A search that has forever paid ~ because I've always sought the light;

And out of everything I've sought ~ have always come new lines of thought….

The world has had some thinking men ~ to prove the joys that thought can send.

Although I am a crippled man ~ I prove my thoughts with skillful hand."

J.F. Howell, 1948   [My great-uncle]

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LIST OF ACRONYMS/ABBREVIATIONS

AAC   Augmentative and Alternative Communication

AT   Assistive Technology

ATEN   Assistive Technology Education Network

AYP   Adequate Yearly Progress

CBI   Computer-based Instruction

CEC   Council for Exceptional Children

CP   Cerebral Palsy

D/HH   Deaf/Hard of Hearing

ELL   English Language Learners

ESE   Exceptional Students Education

FAAST   Florida Alliance for Assistive Services Technology

FAPE   Free and Appropriate Education

FLDOE   Florida Department of Education

HOUSSE   High Objective Uniform State Standards Evaluation

IDEA   Individuals with Disabilities Education Act

IQ   Intelligence Quotient

L1/L2   Language 1 (Native language)/Language 2 (Language

       being learned)

NBPTS   National Board for Professional Teaching Standards

NCLB   No Child Left Behind Act of 2002

SB 364   Senate Bill 364 (Florida)

SLP   Speech Language Pathologist

TECH ACT   Technology Related Assistance for Individuals with

                Disabilities Act of 1988

TMH   Trainable Mentally Handicapped

CHAPTER ONE

INTRODUCTION

Educational legislation addresses the standard for accountability in education and mandates responsibility for the learning of all students. Additionally, special education legislation specifically addresses the need for accountability for learning for students who have been identified with a disability in the least restrictive environment. Students with disabilities are entitled to additional resources or supports to meet their learning needs. The role of technology is also addressed through legislation to provide protections and offer support for federal programs aimed at providing information and technical assistance, increasing public awareness and to showcase demonstration projects of assistive technology (AT). Despite the national focus on accountability and support, many students, particularly those with significant language impairments, continue to struggle with learning to read (Catts, Fey, Tomblin, & Zhang, 2002; Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Coyne, Kame'enui, & Simmons, 2001; Nation, Clark, Marshall, & Durand, 2004; Sheehy, 2003). Within the population of students identified with significant language impairments, there is a subpopulation of students who have complex communication needs requiring the use of an augmentative and alternative communication system (AAC) who also demonstrate difficulty with literacy development (Basil & Reyes, 2003; Zascavage & Keefe, 2004). Although accountability for the learning of all students is firmly rooted in legislation, meeting the educational needs for

students who use AT has not been adequately addressed through research (Edyburn, 2004; Ludlow, 2001)**.**

Legislation

No Child Left Behind

In 2002, Congress passed the *No Child Left Behind Act* (NCLB) as a compromise bill to address issues identified through a number of education reform proposals (IDEA, 2004). The law is intended to hold school districts accountable for the learning of *all* children. The key components of NCLB are based on standards-based reform movements and include annual testing for students in grades 3-8 in reading and math by the year 2005-2006, as well as in science by the year 2007-2008. While individual states are allowed to select and design testing instruments, a sample of students in each state will also take part in the National Assessment of Educational Progress (NAEP) to ensure rigor and accountability to federal standards. The law ensures accountability by requiring schools to demonstrate adequate yearly progress (AYP) towards a goal of 100% proficiency in reading, math, and science by the school year 2013-2014 (IDEA, 2004). If schools fail to demonstrate AYP for two consecutive years, states must offer parents the option to transfer their children to a higher performing school. The implication for students with disabilities include that the performance of students in special education will partly determine AYP status. Ninety-five percent of all students and all subgroups must participate in annual standardized testing in order for a school or district to make AYP (FLDOE, 2002). At present, 80% of the schools who reached AYP status in 2003-2004 did so without including special education students, placing them in noncompliance

with the law (West, 2005). Thus the stakes are high for teachers and school districts to meet the needs of *all* students in special education, not only those identified with mild disabilities.

One of the primary components for meeting the criteria of NCLB is the focus on teacher preparation and having a teacher who has been identified as 'highly qualified'. NCLB (2002) set forth the standards of having highly qualified personnel in every classroom (U.S Department of Education, Office of Postsecondary Education, Office of Policy Planning and Innovation, 2002). According to the law, teacher quality is to be defined by all teachers holding a bachelor's degree from four-year accredited institution, having a certification license from the state in which they teach, and demonstrating content knowledge in specific subject areas, including reading, math, and science. For the requirements for 'highly qualified' teachers in NCLB to come to fruition, teacher preparation programs, whether they are a traditional university-based program or an alternative certification program, must embrace effective components that lend to the development of 'highly qualified' teachers. These components include courses in pedagogy, clinical experiences in order to provide real life applications of course work, and an emphasis placed on research-based strategies and methods, while emphasizing reflective practices to determine what works with individual students or groups (Carlson, Lee, & Schroll, 2004; Darling-Hammond, 2000). The need for 'highly qualified' teachers to work with the subpopulation of students who require extensive support and resources through AAC systems reinforces the benefits of traditional programs since the need for experience, both in classroom instruction and application of technology, are of paramount importance. While benefits of alternative programs such as on the job training,

professional development opportunities, and mentoring may help address shortages of teachers in special education, it cannot be used to undermine effective instruction to low incidence populations.

IDEA

The Individuals with Disabilities Act (IDEA) was originally enacted in 1975 and recently reauthorized in 2004 as the Education for All Handicapped Children Act (P.L. 94-142). IDEA provides federal funding for the education of children with disabilities along with mandating the provision of a free and appropriate public education (FAPE). The law is designed to provide appropriate education to students with disabilities while meeting individual needs. In regards to teaching reading to students with disabilities, particularly those who use AAC systems for communication and require extensive accommodations to access the curriculum, two key features of IDEA are important: the emphasis on educational results and the provision of fiscal relief to local school districts serving students with disabilities. Both issues are covered under Part B of the Act. The stipulation in the law is that states must establish goals and objectives for students with disabilities, as well as include them in state standardized assessments or alternative assessments (IDEA, 2004). The cost of educating students with disabilities is estimated at approximately double the cost of educating students without disabilities (IDEA, 2004). Therefore the funding issue to meet the needs of students with complex communication issues becomes significant in regards to effective classroom instruction.

IDEA's most recent authorization faced resistance from both parties due to funding issues before being passed in 2004 under the House of Representatives bill, HR 1350. Representative John Boehner (R-Ohio), stated the federal government would, "…

no longer pump billions of dollars a year into education without insisting on results for the children those dollars are supposed to serve (p. 22)." Boehner went on to emphasize that the focus should be on educational results, rather than compliance to paperwork, and the need for full funding to support IDEA. Representative George Miller (D-California) acknowledged full funding is integral to the success of the reauthorization because "huge numbers of [children with disabilities] do not get services. They get put on the list for services. And there is a world of distinction between being on the list for services and getting services when your child is in an educational setting and you run the risk that they are going to fall further and further behind, and then you need additional services to have them catch up (p. 23)."

This focus on educational results and the provision of fiscal relief is integral to understanding the importance of applying 'highly qualified' principles, which are aligned both with the federal guidelines and the professional standards of Council for Exceptional Children (CEC), the largest professional organization for special education. CEC advocates for professional standards to include a continuum of professional preparation beginning with the initial education pedagogy preparation, followed by induction and mentoring as teachers begin professional practice, and then demonstration of continuous professional growth throughout their education careers (CEC Policy Update, 2004). CEC also advocates for candidates to demonstrate knowledge and skills in special education core areas as well as an appropriate area of specialization (CEC Policy Update, 2004). In regards to working with students with complex communication needs, demonstration of educational results will only be possible through the efforts of teachers who have the knowledge, skills, resources, and support needed to serve this population. While certainly

those having a reading endorsement certification will be qualified to address reading concerns, those without knowledge and experience with AAC systems, integration of technology with curriculum, and curriculum adaptation will likely find it difficult to meet the needs of these students. Again, CEC addresses this issue concluding, "the language of IDEA attempts to tie special educators' "highly qualified" requirements to the subject matter requirements for general educators in NCLB with little recognition for the integrity of special educators, special education licensure, the multiple settings in which special educators deliver services, the diverse roles within which special educators function, and the very diversity of the individuals for whom they work. This insensitivity will make implementation practically impossible" (p.5) (CEC, 2004). CEC acknowledges the diversity of skills that are required to effectively meet the learning needs of students with complex communication needs by referencing the diverse settings that special education teachers serve, the range of goals they are required to address, and the diversity within the disability categories in relation to student abilities and needs.

Assistive Technology

While assistive technology can be traced in the literature through several decades, more recent legislation addresses the current needs and issues faced by school districts today. In 1988, the Technology Related Assistance for Individuals with Disabilities Act (TECH Act) was passed. Amended in 1992, the TECH ACT focuses on providing financial support and assistance to states to support system change and advocacy for AT. It also helped fund federal programs aimed at providing technical assistance, information on AT, training, and public awareness through demonstration projects. The use of AT is increasingly prevalent among students being served in special education populations.

Assistive technology is defined in the IDEA as "….any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities [20 U.S.C. Chapter 33, Section 1401 (250)]. An AT device is typically used to improve the functional capability of the student, often in the area of communication. The product may be considered high technology or low technology depending on electronic components. AT products and services can be costly to parents, schools, and service providers. To better serve school districts, the U.S. Department of Education and the Office of Assistant Secretary for Special Education and Rehabilitation Services offers both lending programs and support in the form of project grants (U.S. Department of Education, 2002). These grants increase availability of funding, access, and provision of AT to students and schools. With these benefits comes the responsibility of proving successful AT outcomes for accountability.

Legislation which effects the implementation of AT, including AAC as a subcategory of AT, began to gain prominence as early as only 20 years ago. The TECH Act set the foundation for supporting the use of AT in schools. The Rehabilitation Act of 1986, Telecommunications Accessibility Enhancement Act of 1988, and the Americans with Disabilities Act of 1990 all support inclusion through the use of technology in both school and work settings for people with disabilities (Mondak, 2000). While it is critical in postsecondary settings to improve the outlook of success in the workforce, the foundation for success begins in early intervention and elementary settings (Mull & Sitlington, 2003).

The laws are in place for support of the integration of AT, however the reality in the classrooms does not currently meet the standard (Edyburn, 2004; Fallon, Light, McNaughton, Drager, & Hammer, 2004). There is little empirical research on the efficacy of AT in school settings (Edyburn, 2004). Research demonstrating AT effectiveness is critical across all settings for both learning and budgetary concerns. Aside from academic accountability, budget concerns are increasing scrutiny on technology expenditures and outcomes. Although having access to technology remains an area of concern and research, it is important for the field to begin to step beyond the issue of providing access to AT and begin to provide empirical evidence on why a particular product or system of AT was successful or unsuccessful. There is a need for systematic research to be conducted on how to incorporate AT into a variety of educational areas (Forgrave, 2002; Langone, Clees, Rieber, & Matzko, 2003). The current consensus in the field is that there is not adequate information about effective practices with AT (Edyburn, 2003; Fallon, Light, McNaughton, Drager, & Hammer, 2004; Hasselbring, Goin, Taylor, Bottge, & Daley, 1997; Ludlow, 2001). It is by providing this information that the profession can grow through analysis of what has happened in past experiences. For these reasons, the push for accountability regarding the use of AT is mounting.

AT offers increased opportunities for access by working with individual needs through resources which include an array of instructional materials and supports to help students with disabilities accomplish goals and enhance functional capabilities (Ludlow, 2001). Working with educators who currently use AT in the classroom increases the likelihood that assistive technology and educational strategies will be used appropriately to help students learn (Ludlow, 2001). To be most effective, teachers need to implement

AT through research-based practices, whether services are in regards to assessment, infusion with the curriculum, or access to the environment. While a research base is being established on the efficacy of using AT with early intervention populations to enhance communication and early literacy, this is difficult to document through quantitative means (Weikle & Hadadian, 2003). Reporting of successful outcomes has increased in high incidence populations (Blischak & Schlosser, 2003; Hetzroni & Shrieber, 2004). For example, the use of word prediction programs and other products aimed at written output interventions have been shown to be successful (Blischak & Schlosser, 2003; Hetzroni & Shrieber, 2004). However, research outcomes on low incidence populations are less prevalent. The use of AT with these populations may sometimes lead to device abandonment (Huang, Long, Minkel, Woodbridge, & Woolverton, 2003; Parette & Brotherson, 2004). The reason for abandonment is typically lack of use by the family and the educator. If the family or classroom provider finds it difficult to implement the technology, it is unlikely the device will be used (Bryant & O'Connell, 1998; Parette & Brotherson, 2004). Other factors, such as comfort with technology, appropriateness of the selected device, or financial concerns, may also play a role.

In exploring the efficacy of AT in the school environments, research methods are needed which are designed to reflectively explore why the system or product was considered effective or difficult to implement. The factors that contribute to its success or failure need to be successfully identified, not only for classroom-based decisions, but for implications in the field as well. A number of factors could contribute to its success or failure: lack of training for the family or teacher, technology glitches that are not easily resolved by the family or teacher, lack of adequate planning time for instruction or

programming, lack of resources in the classroom (either instructional or physical), or inappropriate teaching methodology for training on the device (Edyburn, 2003; Hasselbring, 2004; Kent-Walsh & Light, 2003; Parette & McMahon, 2002). By reflecting on the diversity of factors that may lend themselves to successful or unsuccessful assistive technology outcomes, the researcher offers an in-depth look at what has happened to provide recommendations for future use.

Legislation Pertinent to Speech and/or Language Concerns

Several states are addressing the needs of students with disabilities who continue to struggle with learning to read due to speech or language impairments through specific legislation. For example, in Florida, Senate Bill 364 (SB 364) Section 8.e identifies the need for specific training in language development in order to adequately meet the needs of students with language impairments. The speech language pathologist (SLP) has been identified as a key member of an educational planning team serving students with disabilities, specifically as it applies to language and literacy development (FLDOE, 2004; Silliman & Wilkinson, 2004). While the exact role of the SLP may not be defined, as experts in the area of language impairments, the role is anticipated to be a vital one in order to effectively meet the needs of students within the school environment when providing effective reading instruction. There is a growing emphasis for speech language pathologists to work within the classroom setting to meet the needs for students who qualify for intensive interventions (Silliman & Wilkinson, 2004). Given the specialized skills and expertise of speech language pathologists in the components of language development, this knowledge is critical when considering the language and reading

development of students experiencing difficulty in reading, particularly those who have complex communication needs.

<div align="center">Effective Practices</div>

Teaching Characteristics and Practices

A review of the research literature identified a number of effective teaching characteristics and practices in a variety of categories. A sampling of effective practices from various categories include effective literacy development strategies such as having highly qualified personnel who demonstrate knowledge of reading development, the use of a research-based curriculum, and implementation of individualized supports for reading remediation. Additionally, environmental supports include implementing a 90-minute uninterrupted reading block with an additional 45 minutes of small group or individualized instruction, use of computer-based technology supports to meet individual learning needs and styles, and offering a wide range of literacy supports at home and school (Catts, et al, 2003; Coyne, et al, 2001; Gersten & Geva, 2003; Nation, et al, 2004). Practices specific to the needs of students with complex communication needs are also integral for successful learning (McCarthy & Light, 2005; Zascavage & Keefe, 2004). These practices include effective and functional access to curriculum, use of the AAC and/or AT in the home environment, integration of the technology within instructional time, and trained support personnel, such as paraprofessionals (Atkinson, Wilhite, Frey, & Williams, 2002; Downing 2000; Kent-Walsh & Light, 2003; Kent-Walsh & McNaugton, 2005; Light & McNaughton, 1993; Weikle & Hadadian, 2003; Wepner & Bowes, 2004).

Students with complex communication needs face numerous challenges in their development of language and literacy. For those students who require the use of a communication system, either aided (supporting communication through the use of graphic or picture symbols) or unaided (without the use of graphic or picture symbols), those challenges are compounded (Alant & Lloyd, 2005). AAC can provide the means to success for increased communication with students with significant language impairments (Light & Kelford Smith, 2003). However, research is clear that literacy development for this population lags significantly behind typically developing peers (Hourcade, Pilotte, West, & Parette, 2004; Light & Kent-Walsh, 2003). There are a number of challenges which may affect literacy development. These challenges include access to the curriculum, teacher training, support in the home environment, access to technology, technology support, fatigue (both physical and cognitive), and expectations (Hourcade, et al, 2004; McCarthy & Light, 2005; Zascavage & Keefe, 2004).

Literacy Development

Research suggests that the lack of oral speech is not a defining characteristic inhibiting the development of phonological skills and that these students can learn to decode words to discern meaning (Fallon, Light, McNaughton, Drager, & Hammer, 2004; Light & McNaughton, 1993; Light & Kent-Walsh, 2003). Students who rely on AAC systems for communication are at risk for problems with the acquisition of reading skills (Basil & Reyes, 2003; Fallon, Light, McNaughton, Drager, & Hammer, 2004; Light & Kent-Walsh, 2003). A number of factors which affect literacy development have been identified in the literature including difficulty developing phonological/phonemic awareness skills due to lack of speech ability, fewer opportunities in early emergent

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literacy experiences in the home and preschool environment, less interaction with print,

lack of training of communication partners, lack of acceptance of the system by family,

and lack of access to the AAC system during literacy experiences (Basil & Reyes, 2003;

Fallon, Light, & Paige, 2001; Hourcade, et al, 2004; Kent-Walsh, 2004; Kent-Walsh &

McNaughton, 2005, Light & Kent-Walsh, 2003).

Attitudes and Expectations

Expectations and attitudes play a significant role in learning for all students (Light

& Kelford Smith, 1993; Light & McNaughton, 1993, McCarthy & Light, 2005). For

students who require additional supports and resources to learn and demonstrate

knowledge, the effect of expectations and attitudes becomes increasingly important

(Zascavage & Keefe, 2004). The level of training, support, and resources required to

effectively teach a child with complex communication needs in elementary school

settings, particularly in the joint area of communication and literacy development during

early developmental years, may exceed what is generally available in public school

settings (Tetzchner & Grove, 2003; Zascavage & Keefe, 2004). To effectively teach a

child who relies on a communication system for both functional communication and

academic instruction, it is imperative to understand the difference between teaching a

child who can function independently in a general education setting and one who is

dependent on adults for meeting functional communication needs and most (if not all)

physical care. While working with students with complex communication and physical

needs, educators may at times assist the child with tasks, either functional or academic,

that the child could perform him/herself. They may make the appearance of supporting

the child without allowing the child the time and resources needed to perform the task

independently (Light & Kelford Smith, 1993; Zascavage & Keefe, 2004). This behavior could reflect a bias on the part of the educator indicating the belief that the child is unable to perform the task independently. While they may require a significant level of support physically, their cognitive functions may be unimpaired. By having significant language impairment and physical characteristics that visually identify them as having a disability, these students are often thought to be cognitively impaired as well (Hourcade, et al, 2004; McCarthy & Light, 2005). Characteristics that impact expectations include the competency level of the user and the length of message produced on the system (Parette & Brotherson, 2004). Understanding the learning needs of a child with complex communication needs who require extensive supports will create a paradigm shift in regards to seeing past the immediate physical needs of the child (while addressing them) and seeing the opportunities for learning in order to glimpse the possibilities of the child's future.

Students with these characteristics are typically those with the medical diagnosis of cerebral palsy or spina bifida and may be identified in low prevalence categories, such as Other Health Impaired, since the diagnosis occurs in low numbers statistically. Typical characteristics include the use of a wheelchair, have little or no fine motor ability, and have little or no speech capability. Caregivers often rely on a physical yes/no response and/or gross motor movements for communication. Typically, the more physically involved the child, the stronger the assumption about cognitive impairment, thus creating lowered expectations and negative attitudes towards the child's ability to learn academic material (Cavanaugh, et al, 2003; McCarthy & Light, 2005; Zascavage & Keefe, 2004). Through lowered expectations, teachers and caregivers may shortchange the child's

potential. By becoming the child's voice and hands for communication and taking care of physical needs without supporting functional independence, educators, perhaps unwittingly, contribute to a learned helplessness effect that affects the child's learning. Greer and Wethered (1984) define learned helplessness as a phenomenon where the child is repeatedly placed in situations in which they have limited or no control. By constantly doing things for the child, rather than teaching the child to do things independently, the child may become passive, hold negative beliefs about his/herself, become depressed, and/or demonstrate a decrease in the initiation of responses (Greer & Wethered, 1984).

Other obstacles to literacy for individuals who use AAC include segregation of students in self-contained environments, use of a life skills curriculum as opposed to an academically oriented curriculum in the elementary settings, and having a teacher who may lack certification preparation and training in methods and assistive technology (Downing, 2000; Light & McNaughton, 1993; Zascavage & Keefe, 2004).

Conceptual Framework: Topic and Statement of the Problem

As special educators strive to meet the multifaceted needs of students, it is important to determine teaching characteristics and practices that are integral to the success of language and literacy development for students with complex communication needs. Algozzine (2005) calls for the special education field to meet the needs of all students in special education now. He charges, "Monitor the effects of teaching and when regressing replaces progressing, check the fidelity, change the intensity, and/or increase the rewards of instruction… (p.69)". Algozzine (2005) suggests that assumptions should not be made about the child's abilities, but rather teachers should address issues specific

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to the child once "… it is abundantly clear that high quality teaching, over a reasonable period of time, has been ineffective (p. 69)." This need is heightened when teaching students with diverse needs such as those who use AAC systems.

A number of teaching practices were identified in the literature to be effective supports for reading achievement across the spectrum of typically developing students to students with complex communication needs. Categories for these characteristics and practices include teacher characteristics, effective reading instruction, effective reading strategies, strategies to support special populations who have communicative issues (i.e. English Language Learners, students who are Deaf/Hard of Hearing, and students with complex communication needs) and the use of instructional and assistive technology.

Statement of the Problem.

This research study seeks to document teaching characteristics and practices which support language and literacy development for students with complex communication needs. By using a case study methodology, it will seek to identify teacher characteristics (including attitudes and expectations), effective instructional practices, and supports and resources for effectively teaching students with significant language and technology needs. Knowledge of effective teaching characteristics and practices for this population may be used to clarify educational needs for policy implications, as well as enhance effective instructional practices for classroom implementation.

Language and literacy development presents considerable challenges for the student with complex communication needs (Basil & Reyes, 2003). Effective classroom practices for language and reading achievement identified in the literature may not be

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consistent across settings which serve this population. If the child is unable to effectively

use natural speech, it is difficult to assess their grasp of phonological awareness skills,

ability to understand phonics, vocabulary development (both receptive and expressive),

and comprehension. Because of the speech impairments, parents, teachers, therapists, and

caregivers may make assumptions about a child's abilities based on the extent of the

physical characteristics (McCarthy & Light, 2005). Lowered expectations may affect the

type and level of instruction that the child receives and may be passed on to the child,

which will have a significant influence on the child's learning, as well as lifelong

implications. Additionally, the setting itself may present challenges that preclude it from

being able to maximally meet the diversity of needs for this population.

Purpose and Significance

The purpose of this study is to gain insight on effective teaching characteristics

and practices, as well as the possible effects of expectations and attitudes, which affect

literacy development for students with complex communication needs. Through analysis

of case studies using surveys, observations, and interviews, insight on current issues and

possible solutions may be identified allowing the needs of students with complex

communication issues to be more effectively served in elementary school settings,

particularly in the area of language and literacy development. The participants will

include five students who use aided communication through an electronic AAC system

and the teacher primarily responsible for language and literacy instruction. The students

in this study have complex communication and physical needs, while they 'appear' to

have normal intelligence. The word 'appear' is used because it is virtually impossible to

get a valid IQ score on a student that has limited communication ability and little fine motor control. Yet they demonstrate their intelligence through yes/no answers, multiple-choice questioning, and the use of body language and gestures. It is essential to explore the impact this level of communication impairment has on literacy development and the school environment in order to identify evidence-based practices for this population (Hourcade, et al, 2004; Light & Kent-Walsh, 2003).

Two powerful and compelling reasons for educators to explore factors which help or hinder the acquisition of language and reading skills lie in the desire to learn how to meet the needs of this unique population in more effective school settings and to meet the needs of increased federal accountability for demonstrating positive student outcomes for all students. Identifying factors which support language and literacy development is essential for educators to learn to better serve students with complex communication needs, work toward better student outcomes, and indeed, increase the reading ability for *all* students.

<div align="center">Overview Questions and Subquestions</div>

This study seeks to address the following research questions: What are teaching characteristics and practices which support language and literacy development for students with complex communication needs? Are these characteristics and practices present in the observed educational settings which serve students with complex communication needs? If they are not present in the observed educational settings, what are the participant's explanations as to why? To meet the needs of students with complex communication needs, it is imperative that these questions be addressed for this

population. By seeking the answer we may identify effective practices towards successful language and literacy development for students with complex communication needs.

Personal Biography

The experiences of the researcher affect the perspective through which the research environment is viewed (Preissle, 2002; Miles & Huberman, 1994; Rossman & Rallis, 2003). It is critical to examine the role of the researcher in terms of past experiences and perceptions as the researcher engages with participants and interacts within the environment of the study. As a teacher of children with multiple physical disabilities and severe communication deficits, I have had extensive experience working with students with complex communication needs, as well as their families and other members of the educational team. Some of the concerns which I felt impacted the ability to teach effectively included inadequate teaching preparation for this unique population, both in addressing reading and AAC instruction. In addition, the interruptions to instruction due to the physical needs within the classroom environment were pervasive enough to negatively impact instruction. I have observed the effect of administrators, teachers, and other adults not allowing the child the time, support, or resources to independently perform a task. I have observed that parents, caregivers, teachers, and therapists will assist the child with tasks and speech that the child could perform him/herself through the use of AT/AAC. To see a child work for 3-4 minutes to build a response using AAC to a principal's asked question only to be cut off in the middle by the statement, "I'm in a hurry so I'll have to try to come back later" is heart-wrenching.

My own experiences as a teacher of students with multiple physical impairments in a self-contained setting offer knowledge and experiences that will aid in observations about what may be happening in the classroom. It will be important to guard against preconceptions about observations based prior experiences during analysis. As a special educator serving students with complex communication needs, I have seen a student's look of triumph and satisfaction as they comprehended the material or question and were able to communicate their response independently. To offer an effective classroom environment which support students with complex communication needs allows educators to see the broad smile and eyes light up as the student is able to effectively participate in the classroom instructional process.

Limitations

There are several limitations to this study. One is the small sampling size of the students and the participants. The focus of the study is on students in low prevalence programs which have small populations and dictate a small sample for the study. Also, student and adult behavior often changes with observers or video cameras present in a dynamic observed in past studies, which has been coined the Hawthorne Effect (Jamieson, Lydon, Stewart, & Zanna, 1987; Wertz, 2003). Depending on the person's personality, they may become either more or less responsive during sessions in which an outside observer or video camera is present. Changes will be noted and discussed with participants if they appear uncomfortable. Care will be taken to insure that observers and video cameras are unobtrusive.

Another limitation would be guarding against personal biases while interpreting and analyzing the data. As a safeguard against this, there will be an external consultant with experience with students with similar physical characteristics to analyze the videos and observational findings. Also, the participants will have the opportunity to discuss the findings and reflect on the study.

An aim of this study is to serve as a starting point for researching the effect teaching characteristics and practices may have on students with complex communication and/or physical needs. Certainly, further research will be needed with student samples in other areas of the district, region, or country.

Definition of Terms

AAC System – Aided or unaided communication modes used as a supplement to or as an alternative to oral language, including gestures, sign language, picture symbols, the alphabet, and computers with synthetic speech.

Alphasmart – A portable laptop for writing, keyboarding, and quizzing.

Aided communication – Communication modes that require equipment in addition to the communicator's body. Examples include pencil and paper, communication boards, and augmentative communication systems.

Assistive Technology (AT) – Commercially available, adaptive, or custom designed equipment that is used to enhance the functional capabilities of individuals with disabilities.

Autism – Brain disorder that begins in early childhood and persists throughout adulthood; affects three crucial areas of development: communication, social interaction, and creative or imaginative play.

Cerebral Palsy (CP) – Spectrum of congenital (from birth) brain injuries or developmental problems. Cerebral palsy may occur after a brain hemorrhage, or in a premature infant. Cerebral palsy often leads to problems with motor control of the arms or legs leading to chronic weakness or spasticity.

Cystic Hygroma – A thin-walled, sac-like structure filled with lymph. It occurs most commonly in the head and neck area and often appears as a soft bulge under the skin.

Deaf or Hard of Hearing (D/HH)- Students identified as deaf or hard of hearing as a disability category in special education.

DynaMyte – DynaVox brand dedicated speech-output device features hardware and software developed in tandem to meet the unique communication and physical needs of augmented communicators. A portable, lightweight touch screen communicator for people with speech, language and learning disabilities.

DynaVox – DynaVox brand dedicated speech-output device features hardware and software developed in tandem to meet the unique communication and physical needs of augmented communicators. Typically refers to the 3100 model which has been upgraded to the DV4.

DV4 – DynaVox brand dedicated speech-output device features hardware and software developed in tandem to meet the communication and physical needs of augmented communicators. The DV4 is the newest version of DynaVox 3100.

English Language Learners (ELL)- Students who are learning English as a second language.

Descriptive Information-   Any information that addresses the description of a student's demographics, teacher's demographics, disability, educational program, AAC system, access methods to the AAC and/or curriculum, classroom environment, home environment, class, family situation, and physical status.

Functional communication – The ability to use communication in a functional manner such as making choices or requests.

Hawthorne Effect – Effect noted by a Harvard research team during the 1930's in which participants' behavior in a research study changes simply due to involvement in the study, as opposed to being an outcome to an intervention.

Highly Qualified – Term coined in the *No Child Left Behind* Act (2001) to designate if a teacher is qualified for licensure.

Houghton Mifflin – Scientifically-based, explicit reading instruction which offers intervention resources combined with built-in assessment tools and leveled literature books.

Inclusion – *For purposes of this study:* Educational environments which integrate a student with a disability into an environment which includes typically developing peers.

Initiation of responses – The communicator's ability to start or extend a conversation independently.

Learned helplessness – Phenomenon that occurs when students learn to give up easily when faced with a difficult task. It is more likely to occur in situations where the

student has little control over circumstances. If the student continuously experiences failure, it is unlikely that they will continue to try at the same level of motivation.

Multiple Sclerosis – A chronic degenerative disease of the central nervous system in which gradual destruction of myelin occurs in patches throughout the brain or spinal cord (or both), interfering with the nerve pathways and causing muscular weakness, loss of coordination and speech and visual disturbances. It occurs chiefly in young adults and is thought to be a defect in the immune system that may be of genetic or viral origin.

No Child Left Behind (NCLB) – Legislation which outlines accountability outcomes required by school districts to support documentation of student achievement.

Pathfinder – A lightweight, powerful communications tool that features both a static keyboard plus a color dynamic display for augmentative communication users. It offers various modes of access and adjustable parameters for speech output.

Phonemic Awareness – Ability to identify and manipulate phonemes (the smallest units of speech sounds).

Physically Impaired – A category of special education defined by students with physical impairments who require additional supports and services.

Pygmalion effect – Coined from the legend of Pygmalion, the king of Cyprus, who carved and fell in love with a statue of a woman and then brought her to life according to his expectations, the term has come to describe an experimenter effect in which participants in a study improve because they are expected to improve. The expectation of behavior by a teacher (or other position of authority) may act as a self-fulfilling prophecy. In educational studies done by Rosenthal and Jacobson (1968), teachers were led to expect enhanced performances from students by being told that the

students in the class were high achievers. In reality, the class was a mix of students with varying ability, yet the expectations came true. While the Rosenthal and Jacobson study was the largest one done, the effect has also been noted in other studies with both university and military academy students as participants.

Reading Mastery – Reading Mastery reading curriculum involves a three-step process that ensures that students make smooth transitions from decoding to comprehension. The first step, decoding, is later combined with comprehension strategies, and the final step assists students in acquiring an appreciation and understanding of literature. The program utilizes ongoing assessment, enabling teachers to adjust pacing, provides immediate feedback, and gives meaningful reinforcement.

Recommendations – Any suggestion for other teachers, school districts, and families regarding ways of overcoming negative conditions to meet the needs for AAC students in regards to literacy development.

Research-based programs and interventions – Curriculum programs and materials that have a theoretical foundation grounded in research which have been identified and found to be effective in supporting literacy development.

Self-contained environments – Special education classrooms which focus primarily as separate classroom offering the majority of academic instruction to students with disabilities.

Spina Bifida – A congenital defect in which the spinal column is imperfectly closed so that part of the meninges or spinal cord protrudes, often resulting in hydrocephalus and other neurological disorders. It is a condition that is present at birth

and can affect the development of the back bones, spinal cord, surrounding nerves, and the fluid-filled sac that surrounds the spinal cord.

Teaching characteristics – Characteristics and attributes of teaching identified in the literature in regards to having an effect of the teacher, student, classroom, and school environments which may affect outcomes in language development and/or reading achievement (i.e. teacher preparation and training).

Teaching practices – Classroom behaviors, routines, and other variables identified in the literature in regards to having an effect of the teacher, student, classroom, and school environments which may affect outcomes in language development and/or reading achievement.

Trainable Mentally Handicapped – A category of special education in which students are qualified for services based on psychoeducational testing results.

Unaided communication – Communication modes that use only the communicator's body. Examples include vocalizations, gestures, facial expressions, manual sign language, and head nods.

With-it-ness – A term used in education literature to describe a teacher's capability to manage classroom dynamics through the ability to multitask.

Ethical Considerations

Among the ethical considerations of this study is to ensure the confidentiality of each of the participants, including the identification of the child (Rossman & Rallis, 2003). Working with students with disabilities, the issue of confidentiality is magnified. In addition, it is important to be respectful of any cultural considerations that may play a

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role in family facilitation of the AAC system (Parette & Brotherson, 2004). Insuring

parent and administrative support is also crucial. The importance of guarding against bias

based on prior professional experiences is an ethical concern as well. Other

considerations are likely to arise throughout the course of the study and will be addressed

accordingly.

Summary and Contribution to the Field

Present teaching characteristics and practices in regards to teaching students with

complex communication needs may not be adequately meeting the needs of these

students. Language and literacy development is the cornerstone of education and integral

to academic and vocational success. While technology continues to open new doors for

vocational opportunities for people with severe or multiple disabilities, it is important to

effectively serve students in elementary settings to enhance early language and literacy

development. We owe it not only to the child, but the community as well, to help each

child reach his/her true potential. This study offers the opportunity to identify and address

these concerns so that teachers and schools may more effectively serve *all* students.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The focus on reading achievement continues to be a cornerstone of educational

evaluation and accountability. As districts strive to meet federal standards and

demonstrate increases in reading achievement, there is a population of students who

continue to struggle with learning to read despite exposure to research-based curriculum

and evidence-based practices. Many of these students have moderate to significant

communication or language impairments which impact achievement in this area. Typical

populations include English Language Learners (ELL), students who are deaf or hard of

hearing (D/HH), and students who have severe language impairments. A subpopulation

of students with severe language impairments includes those who require the use of

augmentative and alternative communication systems (AAC). Koppenhaver and Yoder

(1992) concluded that well over 50% of students who use AAC systems for

communication cannot read. Given the increase in accountability, particularly in the area

of literacy development, it is important to examine teaching characteristics and practices

for this population both in terms of the legislation and current conditions in classrooms to

ensure that the educational needs for all students are being addressed.

<div align="center"><u>Legislation</u></div>

Summary

   As the primary mandate of NCLB and IDEA is for all educators to be 'highly qualified', accountable for learning outcomes, and proficient in utilizing technology to meet the needs of all students, it is vital that these characteristics be present in classrooms serving students with complex communication needs (Pascopella, 2003). Currently, teachers and service providers have insufficient training in how to implement AT effectively to meet the needs of students with disabilities (Ludlow, 2001). Those entering the profession need to be prepared prior to entering the classroom in order to support the needs of identified students (Duhaney & Duhaney, 2000; Forgrave, 2002; Ludlow, 2001).

"Highly Qualified"

   One of the primary components for meeting the criteria of NCLB is the focus on teacher preparation and having a teacher who has been identified as 'highly qualified'. NCLB (2002) set forth the standards of having highly qualified personnel in every classroom (U.S Department of Education, Office of Postsecondary Education, Office of Policy Planning and Innovation, 2002). According to the law, teacher quality is to be defined by all teachers holding a bachelor's degree from a four-year accredited institution, having a certification license from the state in which they teach, and demonstrating content knowledge in specific subject areas, including reading, math, and science.

   Each state has been allowed to set criteria for meeting these qualifications (NCLB, 2002). States can use alternative methods (High Objective Uniform State

Standard of Evaluation, HOUSSE) to ensure compliance with the law. These methods allow current teachers to demonstrate subject-matter competency and meet highly qualified teacher requirements in different ways than teachers entering the field through traditional means. For general education, new teachers working in core subject areas must pass a test of subject knowledge, as well as on instructional methods in reading, math, and writing. Veteran teachers are required to show proof of teaching experience (years of teaching), professional development in-service points or university credit, and demonstration of the knowledge they have gained over time (U.S Department of Education, The Achiever, 2004). For exceptional education teachers (ESE), the requirements are different. Those who are not directly teaching core subject areas (i.e., providing consultation for learning strategies, accommodations, behavioral supports, etc.) do not have to demonstrate competence in those subjects. In addition, ESE teachers who are not teaching curriculum aimed at a standard diploma do not have to pass subject area exams (U.S. Department of Education, The Achiever, 2004). However they must have a four-year degree and pass a test in special education to be considered qualified to teach (SPeNSE, a2002). The designation of 'highly qualified' determined by state criteria aligns with federal benchmarks in teaching preparation, training, and retention of those who teach core academic subjects, including reading.

CEC advocates for professional standards within the field to be addressed in addition to the federal requirements. As stated before, these professional standards include a continuum of professional preparation beginning with the initial education pedagogy preparation, followed by induction and mentoring as teachers begin professional practice, and then demonstration of continuous professional growth

throughout their education careers (CEC Policy Update, 2004). Additionally, CEC

advocates for candidates to demonstrate knowledge and skills in special education core

areas as well as an appropriate area of specialization (CEC Policy Update, 2004). CEC

focuses on the following standards of preparation to teach in special education:

Foundations, Development and Characteristics of Learners, Individual Learning

Differences, Instructional Strategies, Learning Environments and Social Interventions,

Communication, Instructional Planning, Assessment, Professional and Ethical Practice,

and Collaboration (CEC, 2004). Most states approach licensing for special education

within a multi-categorical framework which has a focus on both high and low incidence

populations. While typical terms to illustrate the multi-categorical license include

Teachers of Varying Exceptionalities, Teachers of Mild/Moderate Exceptionalities, or

Teachers of Severe/Profound Exceptionalities, it is with the acknowledgement of CEC

that these terms are broad and do not insure that those who hold the license are indeed

qualified to teach all students who may fall into the category (CEC Policy Update, 2004).

The National Board for Professional Teaching Standards (NBPTS) further aligns

specialization needs into five categories: Mild/Moderate Disabilities, Severe and Multiple

Disabilities, Early Childhood, Visual Impairments, and Deaf/Hard of Hearing as areas of

specialization which require knowledge and skills beyond entry level qualifications

(CEC, 2004). Students with complex communication needs requiring the use of an AAC

system would likely fall into any of these category designations, if not more than one.

Professional training for these areas may or may not cover the in-depth language and

communication needs, as well as the unique technology demands of these students.

CEC identified a number of concerns for professionals in the field of special

education in the Summary of Significant Issues published in 2004. One of the main

concerns regards the criteria for "highly qualified" teachers and how the designation is

determined. CEC questions the validity of the state criteria for 'highly qualified' which

typically only requires the teacher to have obtained a state certificate, if only by way of a

licensing exam. The teacher need only possess a bachelor's degree (in any field) and pass

the state test in order to be considered 'highly qualified'. In addition, a teacher may be

considered 'highly qualified' the day they enter an alternative preparation program, rather

than at the successful culmination of the program. CEC believes that this practice is

"technically unsound and flies in the face of literally every professional society's

standards (p.5)." When teaching students with complex communication needs who

require the use of highly specialized communication systems, the question arises on how

to define 'highly qualified' as it applies for teachers within settings which require

specialized needs. Aside from needing a solid understanding of reading development,

teachers working with students with complex communication needs are dealing with

technology and communication issues of a much higher level than those typically

encountered in general education and special education settings which serve mild

populations. The concern must be addressed as to whether we are currently truly meeting

the needs of students with complex communication issues and holding true to the federal

and state standards for accountability for the learning of all students. Only by preparing

teachers in the areas of assessment, programming, implementation and application can

students with disabilities gain meaningful access to the curriculum through the use of AT.

However, research is needed to support the successful implementation of AT in order to

meet current accountability requirements in education (Edyburn, 2003). While addressing the issue of 'highly qualified' as it pertains to teachers of low incidence populations is critical, other teaching characteristics, including implementation of effective practices in teaching reading and language, classroom and environmental supports, professional development and support in the area of assistive technology products, and attitudes and expectations, play a significant role to enhancing the accountability to low incidence populations.

<div align="center">Teacher Preparation</div>

To reiterate, NCLB mandates that every classroom shall have a 'highly qualified' teacher. Students and families in special education have the same rights of having a qualified teacher as those in general education settings (Lashley & Boscardin, 2003). School districts and universities offering teacher preparation programs need to rise to the challenge and support those measures that will enhance education for all, whether it demonstrates support for traditional or alternative teacher preparation programs. Due to the high demand for teachers and critical shortage areas in some settings, traditional programs are having a difficult time meeting the growing need. Currently, universities are graduating an average of 100,000 new teachers every year (Barnett, 2001). However the need for special education teachers continues to expand. In 2003, the Council for Exceptional Children predicted that an additional 200,000 teachers would be needed by the end of 2005 in exceptional education (Menlove, Garnes, & Salzberg, 2004). Clearly, the need for teachers is overwhelming and universities will not be able to keep up with the need. As a result, school districts are left to fill those positions with uncertified,

unqualified personnel through the use of alternate methods (McLeskey, Tyler, &

Saunders, 2004).

Traditional Teacher Preparation

Teacher preparation programs vary greatly in design and implementation.

Traditional programs typically provide a four-year degree in teaching with a strong

emphasis on courses in pedagogy and clinical experiences in order to provide real life

applications to course work (Darling-Hammond, 2000). In addition, an emphasis is

placed on research-based strategies and methods, while emphasizing reflective practices

to determine what works with individual students or groups (Carlson, Lee, & Schroll,

2004; Darling-Hammond, 2000). Based on evidence that traditional teacher preparation

and certification have a strong correlation with student achievement, these programs

provide desirable characteristics needed to produce 'highly qualified' teachers (Carlson,

Lee, & Schroll, 2004; Cegelka & Alvarado, 2000; Darling-Hammond, 2000; Darling-

Hammond & Sykes, 2003; Lovingfoss, Harris, & Graham, 2001, Mastopieri, 2001).

Since traditional programs are not able to keep up with the growing demand for more

highly qualified teachers in schools, alternative programs will be required to meet the

need.

Alternative Certification

Due to critical shortages of teachers in exceptional education, as well as in general

education content areas, many states are embracing alternatives to traditional teacher

preparation programs, typically known as alternative certification, in order to meet the

demand for teachers. Alternative certification programs offer unique routes for receiving

teaching licensure and the requirements vary by state. While meeting a valid need in

education to support demand, these programs must also take into account the criteria of 'highly qualified' teachers. They cannot ignore or underestimate the accountability expected of all teachers the day they enter the classroom.

Alternate certification programs give school districts options between hiring teachers from traditional teacher preparation programs or a person who has completed a college degree and either has passed (or will be taking) a certification exam. The law allows school districts to hire an unlicensed teacher and allows for that person to work for a period of years while working towards certification if there are no licensed teachers available (Feistritzer, 2002) While alternate certification programs began as an emergency solution to meet critical teacher shortages, they are increasingly becoming more accepted as viable alternatives to traditional teacher preparation programs (Darling-Hammond, 2000). The main difference between the two approaches is typically the context and focus of the training. Some require a certain amount of professional course hours while others incorporate mentoring, coaching and induction programs (Stoddart & Flodden, 1995).

There are several assumptions about teaching which apply to the current push towards alternative programs (Stoddart & Flodden, 1995). The first assumption is that if a person knows a subject well, then they can teach it. However, it is clear from previous studies that personal knowledge of content is not the same as knowing how to teach it (Darling-Hammond, 2000). The second assumption is that people can learn to teach through on the job training (Stoddart & Flodden, 1995). Practical experiences in isolation of reinforcement of professional knowledge may lead to the teacher embracing strategies and methods currently being used in the school setting, regardless of their effectiveness.

It is important for new teachers to expand their awareness and application of research-based teaching practices rather than relying on the prevailing school culture. The third assumption is that older, more mature students with prior work experiences will make better teachers (Stoddart & Flodden, 1995). This assumption is reinforced through Haberman (1990) who has argued for recruiting older individuals into the field (Voorhees & Barnes, 2003). Klagholz (2001) agrees suggesting that the alternate certification programs are successful because they pull in candidates that are older, more experienced, and extremely knowledgeable about subject matter. While the impact of maturity and prior work experience on effective teaching practices are important issues to explore, current research does not adequately support this assumption (Stoddart & Flodden, 1995; Barnett, 2004). To be effective, teachers need to be exposed to evidence-based teaching and behavioral practices.

Traditional and alternative teacher preparation programs both have positive elements and issues which need to be addressed. While the reauthorization of IDEA (2004) and the current focus on NCLB bring the issue of 'highly qualified' teachers to the forefront, the research that has been used to support alternative certification programs and the effectiveness of teachers within those programs is flawed (Barnett, 2004; Stoddart & Flodden, 1995). Although there are well accepted benefits to alternate certification programs such as cost effectiveness and attracting a diverse group of candidates to the field, there is adequate empirical research which demonstrates a negative correlation between achievement and teacher training (Darling-Hammond, 2002; Laczko-Kerr & Berliner, 2003).

Defining effective components of both programs is essential in order to ensure highly qualified graduates of these programs (Feistritzer, 2002). These components include professional coursework providing a foundation in pedagogy, recruitment options to diversify the field, scheduling options for adult learners, and partnerships between universities and districts for strong mentoring and induction programs. Alternative certification programs need to be well planned, organized and research-based while offering more foundational support in pedagogy (Whiting & Klotz, 2000). Traditional programs need to offer more continuing support after graduation as well as options for scheduling coursework and completing clinical experiences. By infusing program requirements with coursework aligned through university partnerships, traditional and alternative programs can work together to offer support to districts. The need for effective teachers to work with the subpopulation of students who require extensive support and resources through AAC systems reinforces the benefits of traditional programs since the need for experience, both in classroom instruction and application of technology, are of paramount importance.

Effective Characteristics and Practices

A number of teaching characteristics and practices have been identified through a review of the literature. They fall into broad categories including teacher preparation and training, effective reading instruction, effective reading strategies, populations with language and communication issues, students with complex communication needs, and the use of assistive technology and educational technology.

Teacher Preparation and Training

Teacher preparation and training specifically target the issues of a teacher being 'highly qualified' and how that applies when working with students with complex communication needs. Having the licensure which allows individuals to teach without a foundation in educational pedagogy and special education does not mean these teachers are able to sufficiently meet the specialized needs of students with complex communication needs. Examination into the type of qualifications and training in regards to licensure is necessary to help determine the effect on learning for students.

In addition to qualifications, there are other variables which may affect a teacher's ability to offer high quality teaching. One variable is whether there is a sense of professionalism and collegiality in the workplace (Coleman, 2001). Teachers often feel isolated on the school campus (Caro-Bruce & McCreadie, 1994). The perceptions and reality of an environment which fosters communication and support, offers needed resources to be successful, and has a clarity regarding roles and responsibilities creates a successful work and learning environment (Coleman, 2001). Several barriers to a successful work climate in special education have been identified as large caseloads, overwhelming paperwork, and lack of consultation and collaboration time (Black, 2003; Coleman, 2001).

Effective Classrooms

Research on effective classrooms has found specific characteristics to be consistent across time (Good & Brophy, 2000). The characteristics include teacher awareness of the environment (also called 'with-it-ness'), teacher expectations, use of modeling through both social and academic skills, positive attitudes, effective classroom

management skills, use of positive language, instructional pacing, use of specific praise, motivational strategies, use of differentiated instruction, monitoring comprehension through a hierarchy of questions that draws on higher level thinking skills, flexibility, and reflective practices (Good & Brophy, 2000). Guthrie and Cox (2001) affirm and expand many of the cited characteristics through studies on increasing long term engagement in reading for elementary age students. Results indicate that effective characteristics to engage students in instructional activities in reading include having specific goals for learning, using real world contexts, using a variety of texts for information, having student directed learning with supports and scaffolds in place, teaching the use of strategies, offering collaborative support through cooperative learning, and providing meaningful evaluations of their work (Guthrie & Cox, 2001). Additionally, Cambourne (2001) explores effective practices for literacy learning through examination of four broad categories. The first is 'paraphernalia' which includes all of the curriculum resources and support materials which will be used in instruction. The second category is 'inhabitants' who include the teachers, students, paraprofessionals, and special area teachers who may be supporting curriculum. The third category includes the 'programs' (the routines, roles, and relationships) which will become the classroom ethos as it remains fluid and ever-changing according to changing needs. The fourth category is 'episodes' which refers to the instructional lessons themselves. While the terminology is based on Cambourne's educational psychology background, the tenets he explores remain consistent with those of other researchers looking at effective practices of learning. The presence of identified effective practices of learning affects student achievement.

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Effective Reading Instruction

The drive for effective instructional practices in general education continues to move forward through national programs such as Reading First, district-wide implementation of phonemic awareness assessments, and the use of research-based curriculum and practices. While these interventions have been found to be effective with many students, they fall short of meeting the needs of *all* students, specifically those with significant communication deficits. Knowing effective practices does not equate to understanding the conditions under which those practices are needed to meet the needs of students who continue to struggle with reading (Coyne, Kame'enui, & Simmons, 2001; Torgesen, 2000).

For effective reading instruction within all educational settings, current research cites the need to focus on grades K-3 using interventions which address each of the five major components of reading acquisition: phonological awareness, phonics, vocabulary, fluency, and comprehension (Cavanaugh, Kim, Wanzek, & Vaughn, 2004; National Reading Panel, 2000). Appropriate interventions should be research-based, implemented systematically and explicitly, and presented in a manner designed to increase motivation. Effective teachers reflect on methods that were not successful and learn to challenge students, particularly older readers in order to remediate deficits and improve reading skills (Salinger, 2003).

Effective Reading Strategies

Research on students who struggle with learning to read indicates that they often have difficulty with understanding and using oral language and have been previously identified with language deficits (Catts, Fey, Tomblin, & Zhang,1999). Effective

assessment for students with language impairments includes using a combination of both task-specific and authentic measures of language and reading ability which will provide vital information about the student's needs (Silliman & Wilkinson, 2004). Effective reading development for struggling readers, including those with complex communication needs, includes an intensive focus on phonological awareness skills, fostering a deeper understanding of alphabetic principles, and working towards automaticity with the reading code (Cavenaugh, et al, 2004; Coyne, Kame'enui, & Simmons, 2001; Wagner, Torgesen, & Rashotte, 1994). Effective teachers systematically build skills in phonological awareness and decoding throughout lessons. They emphasize vocabulary and language within other lessons and ask students to define words, to use in sentences, and to answer sophisticated questions (, Francis, Shaywitz, & Shaywitz,, 1997; Gersten & Geva, 2003; National Reading Panel, 2000). Research has shown that phonological awareness skills can and should be taught to students at risk of reading failure (Cavenaugh, et al, 2004; Wagner, Torgesen, & Rashotte, 1994). Interventions must begin as early as possible and focus on two critical reading skills: blending and segmenting words (Coyne, Kame'enui, & Simmons, 2001). If a reader expends too much time and energy decoding the word, they are unable to focus on word meaning which negatively impacts comprehension.

Silliman & Wilkinson (2004) recommend a four part approach to literacy interventions for students who struggle with reading. The four components include delivery of reading instruction in small group sessions of no more than 3:1 in which the focus of instruction is on specific skills based on the group needs, practice using those skills within the instructional block, teach explicit strategies for applying the skills to new

material, and offer supported opportunities for the students to transfer the strategies and skills to unfamiliar text (Silliman & Wilkinson, 2004).

Using a focused language study approach gives insight into word construction to increase language awareness (Atkinson, Wilhite, Frey, & Williams, 2002; Nagy, Berninger, Abbott, Vaughn, & Vermeulen, 2003). By approaching new information systematically while drawing on prior knowledge, struggling readers will retain more information. In addition, using effective practices such as direct instruction, modeling think alouds, use of graphic organizers, paced silent reading, and regular comprehension checks all support reading development across the five areas (Salinger, 2003). Other effective strategies include effective curricular integration, thematic teaching, cooperative grouping, and use of culturally relevant curriculum materials, hands-on activities (Barrera & Jimenez, 1999).

The use of instructional strategies has also shown to be effective with students who continue to struggle with learning to read (Howell & Luckner, 2003). Al-Hilawani (2003) did a clinical examination of three instructional strategies: the key word strategy, the modified reciprocal teaching approach, and the basic reading approach. In the study, the key word strategy and the modified reciprocal approach significantly outperformed the basic reading approach (Al-Hilawani, 2003). The basic reading approach consisted of the teacher discussing content, presenting the passage visually, orally and through signing, and discussing new vocabulary. Next, the students read and signed 2-3 sentences with discussion on pronouns and verbs. Then, the teacher distributed reading passages and read aloud while students followed along. Finally, the teacher would ask students to take turns reading aloud and facilitate discussion for comprehension. The modified

reciprocal approach incorporates the above elements and adds the steps of students

reading silently, discussion after each sentence, prediction, and answering teacher

formulated questions. The key word strategy incorporates the above components, plus the

students identify key words and use prediction strategies around the key words. The

students then prepare questions and summarize the passage (Al-Hilawani, 2003). The

explicit components of the key word and reciprocal approaches significantly increased

comprehension.

For struggling readers, the collaborative relationship between the SLP, special

education teacher, and/or the general education teacher is critical for success. Research

has shown that students being served in collaborative classrooms being taught reading by

both the teacher and SLP demonstrate higher achievement on reading tests (Farber &

Klein, 1999; Hadley, Simmerman, Long, & Luna, 2000; Schumm, Moody, and Vaughn,

2000). Components for effective collaborative partnerships between the teacher and SLP

include experience teaching reading and language, joint curriculum planning, weekly

reflective meetings, and natural language integration into classroom activities (Fallon,

Light, McNaughton, Drager, & Hammer, 2004; Light, Binger, Agate, & Ramsay, 1999;

Silliman & Wilkinson, 2004).

Populations with Language and Communication Issues

Due to the critical impact of language on literacy development, research

identifying successful strategies which addresses the ELL and D/HH populations is

pertinent to application for students with complex communication needs. There are

several instructional approaches which show promise in promoting reading achievement

for students with communication issues. One approach is the use of a bilingual model of

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instruction to teach literacy. This model uses the native language as language one (L1) and English as language two (L2) (Brice, 2003, Mayer & Akamatsu, 1999). This approach has also been successfully implemented in deaf/hard of hearing (D/HH) settings, using signed language as L1 and literacy as L2 (Mayer & Akamatsu, 1999). The question then arises by association for the students using AAC systems: Can an aided augmentative system and a written form of a spoken language provide a direct link to literacy (i.e. the AAC system is L1 and literacy is L2)? The research supporting the use of visual cues implies that this model may have an advantage when used with students with complex communication needs.

Paul (1997) reports reading instruction should be presented with respect to a reciprocity framework explicitly showing the reciprocal relationship between orality (conversational-based language such as speech or signing) and literacy (text-based language). Paul (1997) emphasizes it is important for teachers to spend more time building and activating prior knowledge and enhancing metacognitive skills to enhance reading instruction. Basal reading programs with a whole language approach are preferred for this reason (LaSasso & Mobley, 1997).

Factors critical to the successful acquisition of reading skills for ELL populations include supporting native language, building collaborative relationships, the use of academically rich programs which support both languages, effective assessments, and the opportunity to self-select books (Brice, 2003; Mohr, 2003; Valdes & Figueroa, 1996). According to Mohr (2003), both boys and girls (Hispanic and nonHispanic) evidenced an overwhelming preference for nonfiction books of various types. While narratives tend to

use a greater proportion of high frequency words, but fewer words overall, students are exposed to more specialized vocabulary through expository texts (Gardner, 2004).

Issues which affect language transfer also affect students with complex communication needs. AAC users typically have a much stronger receptive vocabulary than expressive vocabulary (Tetzchner & Grove, 2003). Therefore teachers need to teach communication and literacy on the AAC system directly and explicitly in tandem with receptive vocabulary (Fallon, Light, & Paige, 2001). If language through the AAC is rarely integrated into reading instruction and limits the students' ability to respond or initiate conversation, the student has no motivation to independently engage themselves in the instruction.

Family involvement and a high level of support in the home environment have also been found to be a key component to literacy development for students with complex communication needs. Having family members embrace the use of the AAC system, family support of language development, numerous opportunities for exposure to print in the home, and involvement with early intervention services are all indicators for positive literacy development (Downing, 2000; Light & Kelford Smith, 2003; Moeller, 2000; Zascavage & Keefe, 2004).

Early intervention programs have been found to be central to the child's learning (Moeller, 2000). Additionally, length of exposure (5+ years) to the language system has been found to increase success for students more than those with short exposure (2 years or less) (Luetke-Stahlman, & Nielsen, 2003). This may correlate with the child's exposure to using an AAC system, demonstrating that length of exposure to the communication system plays a significant factor. Other factors such as age, gender,

ethnicity, etc, have not shown a correlation to effective reading development (Gausted & Kelly, 2004).

Children with communication impairments who are served in inclusive classroom environments typically choose to participate in literacy-based activities (Williams, 2004). In addition, their participation and early understandings about print are similar to typically developing peers (Williams, 2004). When participating in inclusive settings, severe language delays did not prevent them from engaging in the activities or learning emergent literacy concepts. Strategies for successful inclusion in reading instruction include the use of interactive storybooks and the use of visual supports. By using a variety of visual supports, students build self-confidence and independence (Williams, 2004). Several strategies incorporate visual supports to enhance reading comprehension. Using print with pictures has been shown to be the most effective as demonstrated by the retelling of the story (Gentry, Chinn, & Moulton, 2004). Visuals may be provided through picture to text software programs such as BoardMaker, Writing with Symbols, or other digital media approaches. Another method involves the student drawing illustrations for the sight words that are personally meaningful. The illustrations are progressively faded by reducing their size and intensity. By using a multisensory approach, students are engaged in learning on multiple levels (Rivera, Koorland, & Fueyo, 2002). Two other visual methods are integrated picture cueing and the "handle" technique (Sheehy, 2003; Wu & Solman, 1995). Integrated picture cueing uses a rebus (picture symbol) and superimposes it on the sight word itself. The picture cue is faded to provide a smooth transfer of learning. The handle technique allows the student to express their individual meaning of the word through a simple line drawing. The line drawing is

then faded leaving the word alone. This type of feedback cueing was found to be significantly better than using a 'word alone' technique (Sheehy, 2003; Wu & Solman, 1995). Research on the effectiveness of picture cues on literacy development is emerging and requires further study (Sheehy, 2003; Wu & Solman, 1995).

Another reading strategy utilizes a dialogue approach to reading. This strategy demonstrated reading gains, specifically in the area of vocabulary (Fung, Chow, & McBride-Chang, 2005). Two key variables of the dialogue approach include parent participation and the use of visual supports. By using parent-child interactions through language, feedback, and a scaffolding of prompts, literacy skills are developed through role alternation in the context of picture book reading (Fung, Chow, & McBride-Chang, 2005). Both research and practice suggest many benefits from using storybook-reading interactions as a means for teaching language and reading (Kaderavek, & Justice, 2002).

Homogeneous grouping also plays a role in effective literacy development with students who struggle with learning to read (Cawthorn, 2004). While teachers working with heterogeneous populations felt that their students received opportunities to learn, those who work with more homogeneous populations reported feeling that they had a better alignment of the curriculum than those of mixed classes (Cawthon, 2004). It is difficult to meet all the needs of diverse classrooms (Cawthon, 2004).

Students with Complex Communication Needs

Developing language in children who have complex communication needs requires the use of a shared language just as it does in children who are verbal and without the need for alternative forms of language (Renner, 2003). The shared cultural approach, which stems from the cultural-historical perspective discussed by Vygotsky

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(1962), emphasizes the use of social language. Using this approach children develop language by solving communication challenges with more competent members of those that use the shared language (Renner, 2003). This theory sheds light on the need for teachers and families to be proficient at using the AAC system in order to support language development that occurs naturally through social interactions in both the home and school environments.

Language learning for students who use aided communication systems often follows a social constructivist theory which places the focus of language learning on social situations and settings (Tetzchner & Grove, 2003). The social interactions with family and knowledgeable others provide the main avenue for language acquisition (Tetzchner & Grove, 2003). The integration of the social constructivist theory into the classroom environment involves scaffolding by adults and peers through direct instruction, modeling, expansion, and implicit direction for conversational language (Tetzchner & Grove, 2003). Within the classroom, cooperative learning groups facilitate natural scaffolding environments which support students with complex communication needs (Merritt & Culatta, 1998; Tetzchner & Grove, 2003).

Numerous studies underscore the impact that communication deficits have on the acquisition of reading skills. Children with language impairments in kindergarten are at a high risk for reading disabilities in later grades (Catts, et al, 2002). Additionally, the risk for reading difficulties is higher for children with a nonspecific language impairment (nonverbal and language deficits) than for those with a specific language impairment (deficits in language alone) (Catts, et al, 2002). Children who have limited verbal ability rely on the use of written forms of language, whether through pictorial representation or

orthographic writing, to be able to access print for more than receiving information. They require written forms of communication (pictorial or orthographic) in order to express themselves for communication as well (Tetzchner & Grove, 2003). Moreover, even if a student is fluent and accurate in reading, they may demonstrate poor understanding of what they have read. Through reading assessments, Nation, Clarke, Marshall, & Durand (2004) demonstrated that participants who were identified with poor comprehension could also be impaired across all measures, except phonological skills. In this study, several participants, despite being able to word call with fluency, showed marked language impairments, in addition to low oral language ability which characterized the group as a whole. However, none of the participants had been previously recognized as having a language or reading impairment. The findings demonstrate that serious reading and language impairments are not always obvious in children who have good phonological ability and appear to read well (Nation, Clarke, Marshall, & Durand, 2004). Students with severe language impairments are at higher risk due to the inability to voice phonemes (Basil & Reyes, 2003). Fluent readers apply prior knowledge of letters, sounds, sequences, words, and grammar to new material.

One teaching practice specific to working with students with complex communication needs is the integral role that the teacher plays in providing and supporting communication interactions in which language, both spoken and written, will be supported and expanded upon in a natural manner (Alant & Lloyd, 2003). The use of individualized supports within the context of small group didactic approach must take place within the larger classroom environment facilitated by the teacher (Alant & Lloyd, 2003). This requires higher level teaching skills that come with experience and training as

it becomes more natural for the teacher to provide this level of scaffolding support (Alant & Lloyd, 2003). In addition, it is important for teachers and other professionals to have a clear understanding of cognitive and physical taxation the use of AT and AAC may have on the child, effective access to the curriculum, general health of the child, and technology support for training and service (Zascavage & Keefe, 2004). Many more demands are made on cognitive processes for those learning language and literacy receptively. Tetzchner & Grove (2003) explain, "Cognitive ability, skills, and motivation can influence self-monitoring, memory skill, level of representation, susceptibility to distraction, tolerance of frustration, constraints of fatigue, and so forth (p. 64)." Effective integration of the AAC system may also be impacted by being introduced to children not developmentally ready for this type of packaged communication system.

For students with complex communication needs these factors may negatively impact their language and literacy development (Silliman & Wilkinson, 2004). As the role of communication is vital in our society, it is important that educators and professionals support the complex needs of these individuals including offering effective supports. AAC systems can make a huge difference in the quality of life that these individuals experience and is limited only by our imagination and dedication (Downing, 2000). However, it is essential to recognize factors which may inhibit language and reading development in children who are learning through an aided communication system.

Practices used with typically developing children such as print-rich environments and increased natural learning opportunities gain significance with this population which also requires accessibility to those resources (Koppenhaver & Erickson, 2003). Strategies

to meet the needs of students with complex communication needs for development of expressive language, both spoken and written, continue to focus on explicit phonics instruction despite the possibility of the child's being unable to voice sounds (Fallon, Light, McNaughton, Drager, & Hammer, 2004). In addition, vocabulary selection and organization on the AAC system may affect the child's ability to successfully build vocabulary (Fallon, Light, & Achenbach, 2003). Explicit instruction in narrative discourse is necessary to facilitate learning aided language development (Tetzchner & Grove, 2003). Successful communication interactions center around the use of scripts, narratives, and conversations (Tetzchner & Grove, 2003). In addition, the use of partner-focused questions to enhance communication interactions has been shown to be effective (Light, Binger, Agate, & Ramsay, 1999). Just as teachers and families guide verbal language development in typically developing children, students with complex communication needs require guidance and modeling of language and literacy on the AAC system (Tetzchner & Grove, 2003). This is facilitated through scaffolding and co-constructing narrative discourse (Waller & O'Mara, 2003). In order to support the child's use of narrative discourse, inclusive environments are integral for successful transfer of skills (Tetzchner & Grove, 2003). This environment should provide communication opportunities which are consistent with partners and allow the time for peers and communication partners to become comfortable with each other as well as individual needs. Students with complex communication needs are more dependent on school settings to provide this structure than typically developing peers, therefore the absence of these opportunities may have a stronger negative impact (Tetzchner & Grove, 2003). The role of the teacher as model and guide strengthens as peer interactions become stronger.

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Effective Technology Strategies

In the area of using assistive and educational technology to meet the learning needs of diverse populations, addressing computer-based instruction (CBI) in addition to access to the curriculum is also important. CBI programs which use strategies such as repeated reading, modeling, progress monitoring, and native language are effective in improving the oral reading fluency, and to a lesser degree, reading comprehension for struggling readers and should be incorporated to enhance a multisensory approach to literacy (Hasselbring, Goin, Taylor, Bottge, & Daley, 1997). While there are a number of computer based instructional programs available to schools, research is slim and contradictive on the effectiveness of different programs and populations. Three popular programs, Earobics, Lindamood Bell (LiPS), and Fast ForWord (FFW) used in schools and clinical settings show mixed results in regards to their effectiveness. Both Earobics and LiPS were found to be associated with phonological awareness gains but no group effects were found on language or reading measures. However, the results of the above study do not replicate the gains found in a remedial study by Torgesen in 2001. Differences between the studies include the length of intervention, increased application to reading (spelling and decoding), and the implementation of one-to-one instruction (Pokorni, Worthington, & Jamison, 2004).

The use of CBI is motivating to students and encouraged as a supplemental program to augment core curriculum. With the guidance of skillful teachers and innovative computer software, middle school students who had never learned to read are moving beyond feelings of shame to conquer literacy problems (Hasselbring & Goin, 2004). Studies implemented through the Peabody Learning Lab in Kentucky show the

effectiveness of incorporating computer-based instruction to enhance research-based

curriculum (Hasselbring & Goin, 2004)

Role of Expectations and Attitudes

Rosenthal and Jacobson (1968/1992) reported the effects of teacher expectations

in *Pygmalion in the Classroom*. The study demonstrated that if teachers had high

expectations, students' demonstrated higher achievement in learning. The effect of

teacher attitudes and expectations is an important one, although it is not explicitly clear

why the effect of the teacher is often bigger than the effect of the treatments or

interventions (Jamison, Lydon, Stewart, & Zanna, 1987). While the research is slim in the

area of acquisition of literacy skills by children who use AAC, it does suggest that

expectations play a large role in the level of reading that the user may achieve (Light &

Kelford Smith, 1993, Light & McNaughton, 1993). Even with a non-disabled population,

expectations are known the affect achievement of students (Basil & Reyes, 2003; Parette

& Brotherson 2004; Zascavage & Keefe, 2004). Students who have parents and teachers

with high expectations will demonstrate more progress throughout the year (Basil &

Reyes, 2003; Parette & Brotherson 2004; Zascavage & Keefe, 2004).

Attitudes and expectations may be more critical for students who use aided

communication systems due to the fact that they are dependent on the adults and

professionals in their environment providing ample opportunities for instruction and

practice (Tetzchner & Grove, 2003). Teacher expectations appear to be formed by their

own experiences, such as reaction to labels, and thus create a self-fulfilling prophecy

when it comes to how well a particular child achieves (Basil & Reyes, 2003).

Expectations impact how the teacher directs the classroom instructional flow, including the time and importance placed on literacy activities. They are communicated either directly or indirectly to the child through actions and impact motivation. When you add the use of AAC systems (which involves a low incidence population) into the equation, the expectations for success are typically lower (Parette & McMahon, 2002). Teachers may demonstrate excitement at seeing the children initiate and engage in conversations with the system either due to pride at seeing the child able to apply a strategy successfully or it may be due to low expectations or surprise that the student was able to respond (Tetzchner & Grove, 2003). The assumptions and attitudes about technology of those who work with the child play a critical role as well in regards to their development of expressive language (Tetzchner & Grove, 2003). It is vital that the role of technology be seen as a means to the end, which is communication (Tetzchner & Grove, 2003).

Parent expectations also play a significant role in a child's learning. For parents, expectations appear to be formed by the parents' aspirations, the school's feedback, and parental knowledge on their child's development and performance. Often the parent has had little or no exposure to the disability prior to the birth of their child, much less to AAC systems. When asked through a questionnaire to rate their goals for the child who uses AAC, parents rated learning to communicate effectively first, followed by learning functional life skills such as mobility, feeding, toileting, and social skills (Light & McNaughton, 1993). The lowest priority for the parents was learning to read and write (Light & McNaughton, 1993). This focus shows that they value functional communication over emergent literacy skills. Teachers also rated communication first but placed learning to read and write as second (Light & McNaughton, 1993).

Teachers and parents need to work in tandem to foster similar expectations in relation to goals for the child. It is the teachers' role to demonstrate the importance of literacy and literacy based activities both at school and at home (Light & Kent-Walsh, 2003). Parent training in literacy development should be provided for support (Zhang & Bennette, 2003). Teaching children literacy on an AAC system requires a different approach than typical early literacy experiences. It is important to integrate literacy with other activities while using the system throughout the school day (Light & Kent-Walsh, 2003). For example, reading, writing, communication, and functional skills should all be taught throughout the school day rather than during isolated sessions (Light & McNaughton, 1993)

Research has shown that professionals working with families on structural changes in the area of providing increased communication opportunities in both home and community to support AAC interventions often leave the professionals feeling burned out, overwhelmed, and even cynical due to the high demand for time and energy with little visible results (Alant & Lloyd, 2005). Another issue identified as a stressor is if the professionals are focusing on the individual without meeting the needs of the family. While the focus is on the child and family, it is not family-centered (Alant & Lloyd, 2005).

In the absence of high teacher and parent expectations, a phenomenon known as learned helpless may occur. Learned helplessness occurs when students tend to give up easily when faced with a difficult task (Firmin, Hwang, Copella, & Clark, 2004). The phenomenon is more likely to occur in situations where the student has little control over

circumstances (Firmin, et al, 2004). If the student continuously experiences failure, it is unlikely that they will continue to try at the same level of motivation.

The understanding of student motivation typically falls into one (or more) of four theories (Seifert, 2004). Seifert (2004) describes the first theory as one of self-efficacy in which the student's belief about their capability is correlated with their behavior. The second theory is attribution theory in which the student believes there are specific attributes about the situation which led to success or failure. Such attributes include knowledge of skills, ability, luck, and/or teacher attitudes and moods (Seifert, 2004). The third motivational theory is one of self-worth. The student's sense of self-worth is correlated to their functioning. According to Seifert (2004), the critical issue in self-worth theory is that "high effort which results in failure implies low ability, leading to feelings of shame and humiliation" (p.141). The fourth theory is achievement goal theory. The premise is based on students' believing that effort is the main cause of achievement (Seifert, 2004).

<div align="center">Conclusion</div>

To effectively meet the needs of students who have complex communication needs in the area of language and reading instruction will require teachers who have a strong foundation in both language and reading instruction. Moreover, ongoing collaboration and support of a qualified speech language pathologist is critical to effectively address the unique needs of this population. Additionally, an integrative and comprehensive research-based reading program as the core curriculum plus additional programs to augment instruction for students at risk is important to meet the diverse

learning and access needs for students who struggle with learning to read (Torgesen, 2000). The programs should be selected based on strong supportive research and teachers should receive training in both core and supplemental programs. Other recommendations for effective instruction include non-interrupted reading blocks, with increased time available for struggling readers (bringing the direct reading instruction time to average 45-60 for regular reading blocks and an additional 45 minutes for struggling readers increasing reading block to 90 minutes per day), grouping options (within the class, across classes, and across grades), time of collaborative planning with an SLP who has experience in AAC systems, and the explicit use of research-based strategies (Foorman et al., 1997; Torgesen, 2000).

Other research-based recommendations include having access to books in the home, using repeated readings, incorporating mediated scaffolding with explicit guidance and supports, and activating prior knowledge. Interventions should be individualized and gradually withdrawn as mastery is demonstrated (Golova, Alario, Vivier, Rodriguez, & High, 1999). It is important that the level and duration of support match the requirements of each learner (Coyne, Kame'enui, & Simmons, 2001; Torgesen, 2000).

A balanced use of interventions which ensure each student's consistent participation in literacy interactions will promote positive regard toward literacy. With the use of direct, explicit activities (phonological awareness, print concepts, alphabet knowledge, & literate language) developmental changes will result (Justice & Kaderavek, 2004). Critical features of effective interventions that have been found to be successful components include PA instruction (with or without print), small group format, frequency of 2-3 times a week or daily intervention, intensity of 15-30 minutes per session, duration

of 6-8 weeks, and researcher implemented or researcher trained instructors. To become proficient readers, students must have repeated opportunities to read. Multiple reading opportunities are essential to build fluency and motivate students to improve and succeed (Atkinson, Wilhite, Frey, & Williams, 2002). The consistent use of interventions in both home and school settings will affect positive change in reading achievement for struggling readers.

Students with complex communication needs encounter a host of issues which affect their development of functional communication skills. This may then negatively effect the development of literacy skills. Those students who require the use of AAC systems are specifically impacted by these factors. Consistent parent and teacher use of the AAC can be powerful influence in determining students' perceptions of their own capabilities, as well as raising expectations for academic and functional success. However, research is clear that literacy development for this population lags significantly behind typically developing peers (Hourcade, Pilotte, West, & Parette, 2004; Light & Kent-Walsh, 2003). Eighty (80) characteristics and practices have been identified which affect language and literacy development with students who have complex communication needs (Appendix L). The practices are categorized in the areas of effective classrooms, reading instruction, reading strategies, populations with communication issues, strategies for students with complex communication needs, and technology. These categories provided the framework for best practices for all populations as well as for a narrower focus on populations with complex communication needs. They also provide the framework for observable practices under the umbrella

terms of instructional practices and reading instruction for the data collection phase of this study.

Identifying and exploring those practices which are either significant and/or specific to this population in order to effectively teach language and reading will allow recommendations and/or changes to occur to better meet the diverse needs of these students. Through a qualitative research methodology, insights may be gained regarding the practices which support or inhibit successful language and literacy development of students who rely on AAC systems for functional communication.

Conceptual Framework

Topic/Statement of the Problem.

Literacy development presents significant challenges for the student with severe communication deficits (Basil & Reyes, 2003). If the child is unable to communicate in a functional manner, it is difficult to assess their grasp of phonological awareness skills, ability to understand phonics, vocabulary development (both receptive and expressive), and comprehension. Parents, teachers, therapists, and caregivers may make assumptions about a child's abilities based on the extent of the physical characteristics (McCarthy & Light, 2005). In addition, these expectations may be passed on to the child. If the expectations are low, the impact on the child may have significant influence on the child's learning, as well as lifelong implications.

Purpose and Significance

The students in this particular population are typically students with Cerebral Palsy and may be identified as Other Health Impaired in disability categories. This

category is considered low prevalence as the disability occurs in lower numbers statistically. Students which fit the criteria for this particular study are typically wheelchair bound, have little or no fine motor ability, and have little or no speech capability. Caregivers often rely on a physical yes/no response and/or gross motor movements for communication. Unfortunately, many people look at the physical impairments and assume cognitive impairments as well. Typically the more physically involved of a disability, the stronger the assumption may be that the child is cognitively impaired as well (McCarthy & Light, 2005; Parette & Brotherson, 2004).

The selected participants for this study demonstrate signs of normal intelligence. This phrasing is used because it is virtually impossible to get a valid intelligence quotient (IQ) score for a child that has no speech capability, little fine motor control, and limited communication ability (McCarthy & Light, 2005). However, their receptive listening skills are high. They demonstrate their intelligence through yes/no answers, multiple choice questions, and the use of body language and gestures. For the person who takes the time to work with the child comprehensively, the potential that the child can demonstrate can be astounding. Indeed, they may have an inquisitive, humorous, intelligent mind literally trapped in a body that is unable to cooperate. It is essential to explore the impact this level of communication impairment has on literacy development and the school environment in order to identify evidence-based practices for this population (Hourcade, et al, 2004; Kent-Walsh & Light, 2003; Light & Kent-Walsh, 2003).

The proof of accountability for successful learning outcomes lies in documentation of student achievement. When working with many special education

populations, particularly low incidence categories, difficulty arises when randomized experimental design is the preferred method for demonstrating educational outcomes (Edyburn, 2003). Using a randomized group research approach presents complications with validity issues when working with low incidence populations due to the diversity of the students' abilities, even within the same disability category. Students with a similar diagnosis may present extreme differences in learning styles, educational strengths and weaknesses, and physical ability. Producing evidence-based outcomes on the efficacy of AT is also complicated for the same reason. If an assistive technology device works with a specific individual, this does not dictate that it will work for other students with a similar diagnosis. For example, two students diagnosed with cerebral palsy may have completely different learning and assistive technology needs. Randomized group studies are not likely to be effective with low incidence populations (Edyburn, 2003; Light, Binger, Agate, & Ramsay, 1999; Schlosser, 2003).

Most of current research done on the efficacy of AT have been studies done during the exploratory or descriptive phases of research (Edyburn, 2003). The push through NCLB is to increase the studies of AT done in the empirical phase. This typically involves well-designed components that gather quantifiable data for analysis. Three benchmarks may be observed: group studies, research synthesis, and meta-analysis. It is difficult to have all three components with studies on AT. To date, studies are usually on single case studies, observational information, and/or anecdotal information (Edyburn, 2003). To meet the demands of NCLB, it is essential that research in AT strive to meet the standard set and seek methods that will clearly demonstrate the efficacy of assistive technology with students with disabilities. While not without controversy, standardized

testing provides documentation for accountability in the general education population and to some extent in the high incidence populations of exceptional education. However, students identified in low incidence categories are not as easily assessed for educational and assistive technology outcomes and require methods with flexibility. The qualitative research method through examination of case studies in an ethnographic approach will allow the researcher to explore the environment surrounding students who fit the eligibility criteria in regards to effective classroom practices. Meeting the demands of educational accountability through effective instructional practices for students with complex communication needs is an important issue to explore to meet both the student needs and to enhance the current research in this population.

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to examine teaching characteristics and practices across similar Exceptional Students Education (ESE) self-contained classroom settings which serve students with complex communication needs, requiring the use of AAC systems. The aim was to identify which of the characteristics and practices that have been identified in the literature to support language and literacy development for students with complex communication needs were observed in the research settings using a multiple case study design. This study was implemented in five educational settings which serve students with complex communication needs.

The case study design was preferred and utilized for exploratory and comparative studies which seek to answer how or why something is happening in a setting and how it affects other variables (Yin, 1984). The case study process allowed the researcher to more fully share the real-life context of the events being observed for deeper understanding (Yin, 1984). Merriam (1988) noted that this design is ideal for understanding and interpreting observations in educational settings. Yin (1984) described the distinction of a multiple case design as one which uses 'replication logic.' The assumption was that the characteristics and practices for each of the settings serving students with complex communication needs would be similar across settings and in tandem with those identified in the literature. Through examination of multiple cases, the researcher determined this assumption was correct and gained insight to the effect the

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identified characteristics and practices have when working with students with complex communication needs.

In this study, the researcher A) identified teacher characteristics which have been identified and confirmed through a review of the literature to have a positive effect on student achievement for students with complex communication needs through a survey; B) identified effective teaching practices through observation of the language/literacy block, in regards to primary reading instruction, supplemental reading intervention, and language/literacy instruction on AAC systems; and C) conducted semi-structured interviews with the participants to verify the characteristics and practices which were present in the settings as noted in the observation and offered the participants the opportunity to share concerns or issues which related to working with students with complex communication needs.

Four data collection instruments were used. First, a survey was administered to each of the participants' to collect information regarding teacher characteristics, such as preparation and training. Next, classroom observations were conducted for analysis of teaching practices. Observations were documented through both an observation form and field notes. Then, interviews using a semi-structured approach with each participant of the educational team were conducted to discuss survey information, academic and functional expectations of the students, and personal/professional experiences that influenced their practices in language and literacy instruction and the use of AT/AAC. Additional characteristics regarding curriculum and scheduling were also addressed with participants during the interview. Some of the information sought may not have been directly observable and was clarified through the interview process. Additionally,

participants were asked to self-report what they found to be effective practices as compared to those observed during the structured observations.

Research Questions

This study was designed to answer the following research questions:

Question 1: Which teaching characteristics which support language and literacy development for students with complex communication needs are present in these settings?

Question 2: Which effective teaching practices which support language and literacy development for students with complex communication needs are present in these settings?

Question 3: If these characteristics and practices are not present in the observed educational settings, what are the participant's explanations as to why?

Design and Methods

Overall approach and rationale

Using a multiple case study design, a grounded theory approach was utilized through an ethnographic style, allowing the researcher to have extended contact in the classroom settings over a six week period. This approach provided the opportunity for the observations and interpretations to develop with a fuller understanding of the participants, classrooms, and school dynamics which may play a significant role in the structure and social environment of the classroom. By using multiple data sources, ethnographic

methods allow for the reflexivity on the part of the researcher to clarify meaning and themes through multiple means (Miles & Huberman, 1994).

Data collection through the use of a survey on teaching characteristics, observation instrument, field notes, and interview protocols, identified teacher characteristics and effective teaching practices within the classroom during reading block, including practices in regards to use of AAC and/or AT (Odom, Brantlinger, Gersten, Horner, Thompson, & Harris, 2005).

A survey was designed to collect information about the preparation and professional development of each participant. An observation instrument was designed according to the characteristics and practices noted in the literature to specifically target educational settings which work with students with complex communication needs.

Merriam (1988) explains that the researcher is not able to understand the participant's behaviors, feelings, and interpretations of the environment through observation alone. Perceptions about experiences and events are private and subjective, stemming from the unique variables each participant brings to the setting (Merriam, 1988). Each participant contributed to the development of understanding and insight in each setting in regards to effective practices in teaching literacy and language to student who use AAC through the interview process. Three principles were necessary to conduct successful interviews: understanding the culture of the research environment, acknowledging the presence of a relationship between the researcher and participant, and understanding that the researcher was offering the participant a public voice in regards to the dynamics of the study (Rubin & Rubin, 2004). The researcher designed interview questions in a semi-structured format to allow for fuller, more detailed responses and

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deeper connection to the purpose of the study. The use of interviews enhanced the potential of each participant to contribute to the understanding and insight of the setting in regards to their own lived experiences within the context of the study (Merriam, 1988).

Comparisons between the settings were made with thought given to the diversity of characteristics of the students. Merriam (1988) explained that the observance of differences between groups may be explained by any number of explanations, including attrition rates, selection differences, and differences in histories. While replication is often the standard by which to gauge validity, it was not feasible with the low incidence population, therefore attention must be paid to social science theory and exploration of how human organizations work (Cook & Campbell, 1979). Comparison across settings needs to be done carefully with note to unique physical characteristics of disabilities in each child.

Setting

Educational settings for this study included self-contained varying exceptionalities (ESE) classrooms or general education classrooms in which students with complex communication needs were receiving language and/or reading instruction. The majority of the settings were self-contained ESE units. The study focused on five classroom settings within a large urban school system in Florida which serve students who use an aided communication system that requires electronic navigation through vocabulary folders. In addition, a fifth participant who taught a student in an inclusive 5th grade classroom participated in the interview phase of the study. Criteria for participation in this study included that the teacher was the primary instructor for reading and language

arts for a student who used an aided communication system for functional communication.

Participants

The student's characteristics defined teacher participants in the study based on the criteria of the student 1) having significant speech impairment, 2) not having a documented cognitive disability, 3) requiring the use assistive technology (AT), including an augmentative and alternative communication (AAC) system, and 4) demonstration of competent to proficient use of the system for functional communication. The student was able to demonstrate use by being able to successfully navigate through a dynamic AAC system, meaning that the student was able to access vocabulary stored in categories which the student navigates through folder management. Many of the students were non-verbal and demonstrated a number of other physical impairments as well. In addition, the study included members of the particular child's educational planning team specific to the area of language and/or reading. These members included both general education teachers and speech language pathologists.

Participants for this study were carefully selected resulting in a purposeful sample in order to meet the above mentioned criteria. A randomized selection process could not be utilized since the population of students who meet the criteria is extremely small. Due to privacy issues related with disability, all participants (teachers and students) were assured of confidentiality and elected to participate in the study through informed consent (Appendix A, B, C, D, & E). A pseudonym was used to protect each participant (teachers and students) throughout the study and in all final reports.

Instrumentation

With the special education environment being one in which it is virtually impossible to control for all variables to meet the requirements of experimental design, identifying and controlling those variables was important as they may reflect results that offer generalizability (Campbell & Stanley, 1963; Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). The use of quality indicators in the areas of conceptualization, sampling, implementation, measurement instruments, and data analysis lend substance to reliability and validity issues (Gersten, Fuchs, Coyne, Greenwood, & Innocenti, 2005). Four instruments (survey on teaching characteristics, observation instrument, and a semi-structured interview protocol was designed and tested through a pilot study by the researcher in an effort to ensure validity (Appendix F, G, & H). Table 1 delineates each research question and the method through which data was collected and analyzed.

Table 1 Research Questions and Methodology

Research Question	Method of Data Collection	Analysis Procedures
Question 1: Which teaching characteristics which support language and literacy development for students with complex communication needs are present in these settings?	Survey on teaching characteristics	Frequency count on characteristics Analysis and synthesis of findings
Question 2: Which effective teaching practices which support language and literacy development for students with	Observational tools used across settings Analytic memos and field notes	Coding and theme analysis on observation Analysis and synthesis of findings Coding and theme analysis on observation Analysis and synthesis of findings

complex communication needs are present in these settings?		
Question 3: If these characteristics and practices are not present in the observed educational settings, what are the participant's explanations as to why?	Anecdotal information on researcher's reflections Interview protocols	Coding and analysis of interview transcripts. Coding and analysis of reflection Documentation of researcher and assistant notes.

The methods used in the study included a survey of teacher characteristics, classroom observations for analysis of teaching practices and Interviews with each participant regarding background information, academic and functional expectations of the students, observed practices, and personal/professional experiences that influenced their perceptions. *Observe!* Observation Program, an electronic observation tool was attempted to be used for data collection but did not provide enough in-depth information to document the description of which characteristics and practices are present in the observed settings. Field notes and the observation form were utilized instead (Appendix G, I, and J).

Data Collection Procedures

After selection of the participants and approval of the Internal Review Board process at both the university and the school district, the researcher began with the teacher survey instrument and gathered information regarding teacher characteristics (Appendix F). Next, there was a pilot observation in one setting while observation instruments were being piloted. Then there were three videotaped classroom observations in each of the other settings. Each classroom observation was documented individually by the researcher and the research assistant using the observation instrument and field notes to document which practices were present in each setting. Throughout a six week period, the researcher conducted one formal, scheduled observation and one informal drop-in visit. The third observation in each setting was videotaped by a videographer, who remained in the classroom for the duration of the instructional period due to the need to closely direct the camera due to videotape permission issues. The researcher conducted

the third observation through analysis of the videotape. The differences between the observation protocols (one scheduled, one informal drop-in, and one without the researcher present) were to attempt to prevent an expectation (Hawthorne) effect and see the setting in as natural of a context as possible.

The research assistant documented observations from the videotapes using the observation form and field notes. The tapes were examined individually by both the researcher and a research assistant to document observed practices of teaching as they identified with the practices in the research (Appendix L). The researcher and assistant kept detailed field notes throughout the observations to record impressions, thoughts, and other notes both while observing the session and following the observation (Appendix I & J). Lastly, the researcher conducted semi-structured interviews which were transcribed for analysis and coding of themes (Appendix H, O, and P). The interview included clarification on the survey and observation information and allowed the researcher to conduct member checks with the participants on both the survey and observation findings, as well as allowing the participant to share their perceptions and thoughts about the current teaching characteristics and practices.

Data Analysis

Survey information was analyzed through frequency counts and documentation of responses. Observational data was analyzed and coded for themes through concept mapping (Boyzatsis, 1998; Cresswell, 1998; Rossman & Rallis, 2003). Throughout observations, the researcher and assistant utilized the strategy of documenting thoughts and patterns through the use field notes. This process allowed the researchers to commit emerging ideas and thoughts to paper for further analysis and connected concepts and

themes (Rossman & Rallis, 2003). Notes then allowed the development of themes and

theories to come to light across the span of the study by tying different parts of the data

together (Miles & Huberman, 1994). The use of field notes during the course of the

observations were employed to keep a running record of events unfolding within the

setting, along with reflective thoughts that came to mind through the course of the

observation. The field notes allowed for a richer description of the environment and

understanding of the analysis (Rossman & Rallis, 2003). The observation instruments

were compared for analysis and discussed between the researcher and assistant for clarity

and agreement between the two findings. Field notes were coded for themes utilizing

Boyatzis' (1998) five step procedure for coding data inductively. The five step procedure

includes 1) dividing information by thought units to change the raw data into manageable

units for analysis; 2) examination of the divided transcript by the researcher and assistant

for occurrence and recurrence of themes; 3) comparison of the themes across transcripts

for commonalities and differences; 4) development of themes into codes for

identification, and 5) independently coding of the transcripts. Following coding analysis,

40% of the transcripts were compared to reach inter-rater reliability of 99.1%. Interviews

with the teacher were conducted to using a semi-structured format to seek additional

information, present the findings, and discuss the teacher's impressions of the findings.

The interviews were transcribed and coded to identify emerging themes in relation to

emerging themes as described above (Boyzatsis, 1998; Rossman & Rallis, 2003).

Member checks were performed with the participants to further strengthen the validity of

the instruments. This final step was to insure the fidelity of the observations.

Pilot Study

The researcher performed a pilot study of the survey instruments in one educational setting similar to those identified for the study, given the small number of settings available which meet the criteria for participation in this study. In addition, the researcher performed a pilot observation at this site using videotape. The instruments and data collected from the pilot implementation of the video and interview were used to train the research assistant. Coding of the video observation allowed the researcher and assistant to compare data and discuss any discrepancies between analysis in order to discuss the ambiguity of the instrument, documentation of reflective thoughts during the observation, and address other questions regarding instrumentation and documentation.

Indicators / Limitations

The aim of the study was to use the knowledge gained to contribute to the research in regards to effective teaching characteristics and practices which affect language and literacy development for students with complex communication needs. Multiple methods of data collection were utilized for cross analysis and triangulation to an effort to increase validity and reliability (Cresswell, 1998; Edyburn, 2003).

Limitations of the study include the subjectiveness of participant responses and documentation using the observation instrument in relation to participant behavior. It was anticipated that responses and behaviors may have been impacted resulting in changed behaviors, a phenomenon known as the Hawthorne Effect. The Hawthorne Effect was identified by a group of researchers from Harvard in a study exploring working in the years 1927-1932 (Himmel, 1969). Results indicated that productivity and participant

behaviors changed as a direct result to being part of the study, as opposed to resulting from an intervention effect. Every effort was taken to allow for participant ease and comfort during all contact throughout the study.

Another limitation of the study was the influence of the researcher's and the research assistant's interpretation based on prior personal experiences. The researcher's biography was noted in Chapter One of this study. The research assistant for this study has experience with this population as well and is currently employed in private practice as an assistive technology advocate. Her background includes experience as a special education teacher, school administrator, and administration positions in state level assistive technology projects. Biases based on the researcher's and assistant's personal experiences cannot be completely eliminated and must be acknowledged through documentation of their biography (Denzin, 1989). However, because those experiences and perspectives relate to the educational setting being observed and past experiences with the student population exist, they can enhance the researcher's and assistant's understanding of the setting and prove helpful as a resource or guide to understanding situations or responses (Olesen, 1994). By using member checks between the researcher and assistant, follow up interviews with participants for clarification after the observations, and constant comparative methods throughout the process, the analysis made every effort to ensure accurateness and credibility of the noted information and documentation (Cresswell, 1998; Rossman & Rallis, 2003).

Summary

The purpose of this study was to critically examine effective teaching characteristics and practices in relation to teaching language and literacy to students who have complex communication needs. Specifically, what are the desired characteristics and behaviors according to the literature for this population? Are they present in educational settings currently serving this population? If not, why not? Given the limited amount of research available specific to effective classroom practices in regards to this population of students, this study is essential to the special education field and will likely lay the foundation for future research studies.

CHAPTER FOUR
FINDINGS

<u>Introduction</u>

The focus of this study was to examine teacher characteristics and practices identified as effective through a review of the current research for teaching students with complex communication needs. Through three phases of data collection, information was collected from five self-contained educational settings and one general education setting addressing the following questions: Question 1: Which teaching characteristics supporting language and literacy development for students with complex communication needs are present in these self-contained classrooms?

Question 2: Which effective teaching practices supporting language and literacy development for students with complex communication needs are present in these settings?

Question 3: If these characteristics and practices are not present in the observed educational settings, what are the participant's explanations as to why?

The first phase of data collection addressed effective teaching characteristics through analysis of a survey questionnaire filled out by the participants regarding licensure, professional development, knowledge of AT and AAC, and demographic information. The second phase of data collection addressed effective teaching practices through classroom observations. Anecdotal information and impressions were documented through the use of field notes, while an observational form guided the researcher in documenting observed practices. The researcher observed the pilot site on one occasion and each of the other settings on three occasions to identify which effective

practices were being facilitated in each educational setting. The third phase of data

collection allowed the participants to answer questions regarding their current practices

from the observations through responses in a semi-structured interview format.

Participants were also given the opportunity to share concerns or issues pertinent to the

population and/or setting, but not previously addressed by the researcher. The survey of

teaching characteristics and observation instruments of teaching practices were validated

in a pilot setting.

Pilot Study

Due to the low incidence for this population of students, there was only one

participant in the pilot study which allowed the remaining self-contained participants to

participate for the full study. The participant at the pilot site was given the survey to

identify teaching characteristics and demographics. The pilot survey analysis indicated

that questions specific to each setting would arise and need to be addressed with each

individual participant during the interview phase. One observation was conducted at the

pilot setting. Originally data collection on observations was to be collected through the

use of *Observe!* software. This software proved to be ineffective for several reasons.

First, the software primarily focused on frequency counts of teaching behaviors whereas

the practices being sought were more of a general nature, rather than specific. For

example, one of the practices to be identified related to the five areas of reading

(phonological awareness, phonics, fluency, vocabulary, and comprehension) addressed

through the reading block. Noting which area(s) was addressed was not a teaching

practice which required frequency count collection. Second, the classroom environment

required more focused attention to the video camera because of the dynamics of the

settings. In several settings, the assistive technology systems required use of the zoom lens to fully understand how the devices were being integrated into the lessons. In addition, several of the classrooms had students who did not have video release permission, therefore careful attention needed to be paid to camera angles to ensure that these children were not visible on tape. Finally, it became apparent that certain issues that affected the classroom environment would not be clear on videotape, specifically to the research assistant who would later be watching the tapes for validity documentation. For example, in one setting a paraprofessional cooked breakfast for herself three times during the course of one observation. The activity in the back of the room and the smells of breakfast wafting through the room at various times would not be noted by the research assistant and needed to be documented through field notes on site. Therefore, rather than use the *Observe!* software for observations, it was determined that SPSS software would allow comparison of teaching characteristics through the survey analysis, while field notes would allow a more complete narrative picture of the settings themselves. Finally, the pilot participant participated in a semi-structured interview to seek insights and reflections regarding current supports, expectations, challenges, paraprofessionals, recommendations for supports and resources, and other issues or concerns not previously addressed by the researcher.

Additionally, the pilot observation was used as a training tool for the research assistant. The researcher supplied the assistant with a review of the best practices noted in the literature review as a guide to the types of behaviors being sought. The observation form was reviewed, as well as an explanation of taking field notes while watching the videotapes (Appendix G). After viewing the pilot observation tape, the researcher and

assistant compared forms and discussed differences in documentation. After completing

the pilot observation, the research assistant watched six of sixteen videotaped

observations, accounting for 40% of the tapes. Field notes for these six observations by

both the researcher and assistant were placed in table format separated by each sentence.

Each of the sentences was categorized into themes individually and compared by both the

researcher and assistant. The themes correlated with those on the observation form and

noted the areas of modeling, engage students, and classroom management for

instructional practices. The themes noted for reading instruction were core instruction,

strategies for students with complex communication needs, and implementation of

technology and AT. Also noted along with the theme category was the distinction of

positive (++), neutral (+), or negative (-), designating whether it appeared that the

practice was used effectively. After coding the field notes, comparison of the themes and

their designation of effectiveness indicated an agreement of 99.1% between those coded

by the researcher and assistant (Appendix I & J). The items not in agreement were

discussed and designated in regards to effectiveness upon agreement from discussion.

Findings from the pilot study are included with the results of the other participants in the

study. This was done to strengthen the analysis and results of the small sample size of the

study since the data could be revisited for confirmation if needed.

Research Findings

Each of the teachers and their students were assigned a pseudonym in alphabetical

order to protect confidentiality throughout the study. The participants are discussed in a

hierarchy of effectiveness beginning with the teacher which demonstrated the highest level of effectiveness. The level of evidence was indicated using the following legend:

+ +   Excellent evidence of the characteristic or practice was visible.

+   Evidence of the characteristics or practice was visible, its' use could be enhanced through application and/or professional development.

O   Clear evidence shown that the practice or characteristic is not being utilized or utilized in a negative manner.

[ ]   [no mark] Use of the characteristic or practice was not evident through the time limitations of the study.

Teacher Demographics

All six of the participants in the study were White, non-Hispanic women. Ages ranged from the "22-28" category to the "56+" category. All of the participants were traditionally prepared through a four year teaching institution with a degree in education. Years of teaching experience ranged from 4 years to 20 years in education and 4 years to 15 years in special education. Two of the six participants hold a masters degree in special education. One of the participants was currently pursuing a master's degree in special education through an online teacher preparation program. One has completed the Florida Reading Endorsement program, while the other five are not currently working towards the Reading Endorsement. Five of the six participants have prior classroom experience in the elementary level, two in general education and three in other special education settings.

Student Demographics

Student demographics, including disability, reading level, AAC system, and proficiency level are indicated in Table 2.

Table 2. Student Demographics

Teacher Student	Gender	Age	Ethnicity	Grade	Disability	AAC System	Dedicated 1:1 Assistant	Current Reading Level	Proficiency on AAC*
Abbott									
Amy	Female	10	White, non-Hispanic	5	Cerebral Palsy	DynaVox	Yes**	Approx. 3 years below	Weak
Andrea	Female	8	White, non-Hispanic	2	Cerebral Palsy	DynaVox	No	Approx. 3 years below	Weak
Alex	Male	9	White, non-Hispanic	3	Cerebral Palsy	DynaVox	Yes**	Approx. 2 years below	Marginal
Andrew	Male	7	White, non-Hispanic	K	Cerebral Palsy	DynaVox	Yes**	Approx. 1 year below	Marginal
Anthony	Male	10	African-American	4	Cerebral Palsy	DV4	No	Approx. 3 years below	Capable
Butler									
Beth	Female	6	African-American	1	Cerebral Palsy	DynaMyte	Yes	Approx. 1 year below	Proficient to Capable
Carver									
Cindy	Female	7	Hispanic	2	Cystic Hygroma	DynaMyte	No	Approx. 1 year below	Proficient

Driver									
Dillon	Male	12	White, non-Hispanic	5	Multiple Sclerosis	Pathfinder	Yes**	On/above grade level	Proficient
Erwin									
Elizabeth	Female	9	White, non-Hispanic	3	Autism	DynaMyte	Yes**	Close to grade level	Proficient
Eaton	Male	10	African-American	3	Cerebral Palsy	DynaVox	Yes**	Approx. 2 years below	Weak
Foreman									
Ford	Male	8	African-American	2	Physically Impaired	DynaMyte	No	Approx. 3 years below	Weak
Faith	Female	11	Hispanic	5	Trainable Mentally Handicap	DynaMyte	No	Approx. 3 years below	Marginal

*Proficiency on AAC System: This scale was designed by the researcher to offer insight to the student's proficiency on the system according to their teacher.

Proficient	Able to use independently to express functional communication.
Capable	Able to express basic wants and needs through the system.
Marginal	Needs moderate assistance to access the system.
Weak	Needs maximum assistance to access the system.

** Ms. Abbott indicated that while her students have a specific paraprofessional trained on their system for support in academic instruction and inclusion environments, the IEP does not specify that it is a 'dedicated' paraprofessional. This was done intentionally in the hope to fade the use of paraprofessional as the student gains proficiency and independence. The students with Ms. Driver and Ms. Erwin who have a dedicated paraprofessional have indicated that it is in accordance with the IEP.

Survey Results of Teacher Characteristics

A survey was administered to each participant during the first phase of data collection for this study (Appendix F). The purpose of the survey was to gather participant responses in regards to teaching characteristics in the areas of reading, professional development in AAC and/AT, collaboration with colleagues, supports and resources available and utilized, as well as the demographic information shared above. Survey results have been analyzed by category citing the mean and mode for each item in the following sections: Reading Instruction, Augmentative and Alternative Communication, Collaboration, Assistive Technology, Supports and Resources, Paraprofessionals, and Perceptions. The values of participant responses were documented in the following manner: 1- Strongly Disagree, 2- Disagree, 3 -Agree; and 4- Strongly Agree.

Reading Instruction

In the area of reading instruction, participant responses indicated a moderate level of feeling effective in teaching reading. Two areas which indicated disagreement with the survey statements focused on the amount of instructional time for language and literacy that teachers are able to consistently provide. Participants shared that they are not able to consistently provide 90 minutes of core reading instruction, as well as 45 minutes of supplemental reading instruction as recommended through the research literature for teaching students with struggle with learning to read (M = 2.33, SD = 1.03).

AAC Instruction

In the area of augmentative and alternative communication, the participants noted a moderate level of feeling effective with facilitating AAC within instructional time. Additionally, they indicated being able to incorporate the system during instruction (M = 3.67, SD = 1.22).

While all participants stated that they strived to make the system accessible during all academic time, they indicated less effectiveness in being able to program and navigate the system themselves (M = 3.00, SD = 1.10). Those unable to program systems shared that they rely on the family or SLP to do so (M = 2.50, SD = .52).

Collaboration

In the area of collaboration, the participants indicated that they felt a moderate level of effectiveness with collaboration (M = 2.67, SD = 1.21). However, while they indicated that they felt comfortable, valued, and a part of the team, the areas of lowest indication were those of actual collaboration time and attending professional development on collaboration (M = 2.67, SD = 1.21). The amount of collaboration and planning time, specifically with the SLP was discussed more fully during the interview process.

Assistive Technology

In the area of assistive technology, the participants indicated a moderate feeling of effectiveness (M = 2.67, SD = 1.21). Most participants disagreed with having access to AT and being able to implement it within instruction. They strongly disagreed with the statement of having school-based technical support for assistive technology (M = 2.17, SD = 1.33). Technical support was slightly better indicated as coming from the district level assistive technology team (M = 2.50, SD = 1.05).

Supports and Resources

In the area of support and resources, participants indicated differing levels of effectiveness. The highest supports noted were from the SLP and families (M = 3.83, SD = .98 and M = 3.83, SD = 1.17, respectively). Support from administration and other pertinent staff members were documented as slightly less (M = 3.17, SD = .75). Most participants indicated that

they do not have enough resources to effectively teach reading and language, although one participant strongly agreed with the statement (M = 3.00, SD = .89).

Paraprofessionals

In the area of paraprofessionals, most participants indicated strong disagreement on the survey on questions 1 and 2 referencing the paraprofessionals ability to program AAC systems and if they have taken professional development in this area (M = 2.17, SD = 1.17). In question 3, all participants strongly disagreed that the paraprofessional's role was to offer primary instruction. Question 3 was analyzed separately due to the fact that a positive response would be a lower number on the scale since the teacher should have primary teaching responsibility while paraprofessionals support the teacher both during core instruction and through reinforcement activities during supplemental instruction (M = 1.67, SD = .82).

Perceptions

In the area of perceptions about teaching beliefs and expectations, participants indicated the feeling of a high level of effectiveness in classroom routines, expectations, classroom management, and personal accountability for student learning (M = 3.83, SD = .41). Additionally, participants indicated that they had realistic expectations for their students (M = 3.83, SD = .41). There was a moderately strong indication of having set routines and transitions, as well as assigning appropriate seatwork (M = 3.33, SD = .82).

Summary of Survey Results

The results of the survey indicated that while participants felt effective in their understanding and ability to facilitate reading instruction, they also indicated that they are unable to consistently provide a 90 minute reading and language block for core instruction and a 45

minute block for supplemental instruction in order to meet individualized needs. While all participants noted that they strive to make the AAC system available during instructional blocks (barring system break-downs), difficulty was noted in the participant's being able to program and incorporate the system effectively into reading and language instruction. Those unable to program systems shared that they rely on the family or SLP to do so.

Most participants noted a fairly strong agreement with the feeling of being comfortable and valued through a collaborative relationship with team members. They also noted that they do not have a consistent planning or collaborative meeting time with others. Most also indicated that they had not participated in professional development on collaboration, other than when it has been embedded in other types of professional development. Participants shared that while they have access to assistive technology, they felt less able to effectively implement it during instructional time. They also indicated there was not a school-based technology support for assistive technology. The majority of technical support was indicated as coming from the district level assistive technology team.

Participants indicated differing levels of effectiveness in the area of support and resources. The highest supports noted were from the SLP and families, while support from administrators and other pertinent staff members were documented as slightly less. Most participants indicated that they have enough resources to effectively teach reading, while indicating less agreement for having enough assistive technology available. One participant strongly agreed that there were enough supports and resources specific to reading.

Paraprofessionals were noted as not able to program AAC systems and not having attended professional development for AT or AAC. Participants all agreed that the teacher should have primary teaching responsibility while paraprofessionals support core instruction and

supplemental instruction. Participants also indicated high feelings of effectiveness in regards to classroom management and expectations for student learning. All strongly agreed that the teachers maintain primary responsibility for the student's learning.

Finally, the student demographic section noted that 11 of 12 student participants currently use an AAC system by Sentient Systems (i.e. DynaVox, DynaMyte, and DV4). Only one student used another type of system called the Pathfinder made by Prentke Romich. This was not further addressed with teacher participants, but it was noted that this is a high percentage for one vendor in a large school district.

Observations of Teacher Practices

Observations of teacher practices are discussed in regards to each participant in the study. Observations were guided by an observation tool (Appendix G) which oriented the observer to two main areas of teaching practices, instructional practices and reading instruction. Additionally each area was narrowed into three primary practices. In the area of instructional practices the areas being sought for observation were evidence of modeling, engaging students, and classroom management. In the area of reading instruction, the three areas being sought were evidence of core reading instruction, implementation of strategies for students with complex communication needs, and implementation of assistive technology.

Each section begins with a brief description of each setting, followed by a narrative description of teaching practices identified through the observations. The compilation of effective practices is summarized in Appendix L, while the following is a more in-depth, narrative description of each the settings and practices observed.

Ms. Abbott

Ms. Abbott's classroom was a self-contained, Varying Exceptionalities unit with seven students with physical impairments. Six students, Amy, Andrea, Alex, Andrew, Aron, and Anthony use AAC systems for communication. There were three full time paraprofessionals in the classroom, although during all three observations, only two were present. The other paraprofessional was a one-on-one assistant with a student who attended an inclusion setting for reading block.

Reading and literacy block began with a whole group lesson reviewing attendance, day, date, weather, and Daily Oral Language (DOL) sentences which addressed grammar and punctuation. Then the groups moved to small group instruction with the teacher doing instruction with 2-3 students, and the paraprofessionals each working with a small group (one on computers and the other on folder games reviewing skills).

Abbott: Instructional Practices

Modeling

Ms. Abbott demonstrated explicit modeling for language by restating what the students say (both verbal and on the device) giving an auditory model. She modeled both social (please & thank you) and academic behaviors (sight words, DOL rules, and use of the AAC system for the student). She demonstrated proficiency on each of her students' systems through ease of navigation, most of them different, although they are all using the same communication package, Gateway 40. This proficiency allowed explicit modeling on vocabulary organization specific for each student.

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<u>Engages Students</u>

Ms. Abbott used constant verbal reinforcement and praise to engage her students in learning. She maintained a good instructional flow and the activities moved smoothly from one to the other. This demonstrated exemplary planning. To maintain student focus and attention, she used divider boards to block views of other groups during small group instruction. She seemed skilled at using humor, tone, exaggeration, and examples to ensure that the students understood the material being addressed. She naturally used an immersion approach to teaching language through her own proficiency with the systems. She was able to reinforce skills on the system by simply stating which folder the student needs to look for, or if needed, modeling it explicitly for them. In addition, she used peers as mentors to help other students. For example, Anthony was familiar with both his and Alex's systems and assisted Alex with finding the correct folders for vocabulary, although the devices are different (one uses a DynaVox 3100 and the other uses a DV 4).

<u>Classroom Management</u>

There was ample evidence of ease of classroom management due to quality planning. All instruction was teacher-directed with paraprofessionals assisting with reinforcement of skills. Sentences for DOL activity were prewritten on the board and all materials for lessons were ready to go allowing no down time for students. Positioning (for physical therapy goals) was integrated to instructional time and transitions were executed seamlessly by the teacher and paraprofessionals during natural breaks in instruction. For example, students were positioned for whole group activities and then repositioned when the transition was made to small groups. While there were four interruptions during one observation, they did not seem to be disruptive to the instructional flow: One person put her head in the door, saw the observations taking place,

and left; the nurse entered to check a student's backpack that was at the computer but did not

draw anyone's attention; the nurse came back to assist Andrea (tube feeding), however she went

to the computer area and took the switch access off the tray herself without interrupting others

and then took Andrea to the back; and another person stuck her head in door and looked around,

but didn't say anything. Paraprofessionals assisted students during whole group as needed and

then each worked with students during small group, mainly facilitating an independent activity.

The activities seemed to transition from one to the next easily.

Abbott: Reading Instruction

Core Instruction

Instructional time was structured to build language and reading skills integrated together.

When taking attendance, students had to read the name of a classmate or teacher independently

with their AAC systems. Ms. Abbott provided prompts as needed and scaffolded the prompts

from verbal to physical. The students gave answers to grammar and punctuation questions using

their systems and answers were repeated verbally by the teacher to ensure all the students heard

the answers. This method allowed explicit modeling of language as well. Reading lessons

addressed both phonology and vocabulary and integrated vocabulary organization into the lesson

in a naturally occurring manner. Pages programmed for instructional lessons were pre-made and

allowed the students full active participation in the lesson

Strategies for Students with Complex Communication Needs

A multi-sensory approach was used and included non-examples to enhance student

understanding. Multiple opportunities for practice were provided through small group

reinforcement with paraprofessionals. During small group instruction, Ms. Abbott assisted the

students in forming words with the letter cards, then wrote the new word on sticky note and placed it on a board for visual supports

Implementation of Technology and AT

Ms. Abbott was familiar with each of the students' systems and its organization. She constantly monitored the displays to be sure that the students were navigating successfully to the correct pages.

Ms. Butler

Ms. Butler's class was a self-contained, Varying Exceptionalities ESE unit with five physically impaired students in the setting. Only one student, Beth, used an AAC system (DV4). There was one paraprofessional who primarily worked with the other four students in the class, taking care of functional, transitioning, and positioning needs. Ms. Butler assisted Beth in regards to the AAC system. The entire class attended reading block in a general education Kindergarten inclusion setting. The general education teacher, Ms. Booth, was the primary instructor during reading block, while Ms. Butler assisted Beth and the paraprofessional assisted the other four students from Ms. Butler's class.

Butler: Instructional Practices

Modeling

The inclusion/co-teach setting allowed both Ms. Butler and Ms. Booth to model social and academic behaviors throughout the instructional block. Both teachers had a quiet tone and stated expectations to students directly. Ms. Booth explicitly modeled "what not to do" and gave examples in both behavior and reading skills. Within the co-teach setting, Ms. Butler primarily supported Beth, but demonstrated 'with-it-ness' by addressing the needs of other students within the setting, both general education and special education. On several occasions, Ms. Butler left

Beth briefly to assist a general education student by redirecting attention and focus. Both Ms. Butler and Ms. Booth modeled how to interact with Beth in the large group setting, showing students appropriate wait time. One observation demonstrated the one-on-one language and literacy time that Ms. Butler has with Beth once a week where she mainly addresses IEP goals and builds language on the AAC system. While this session may occasionally be used to review reading skills from the inclusion setting, most often it does not due to individualized needs. During the one-on-one time, Ms. Butler explicitly demonstrated reading and language strategies and modeled them for Beth.

<u>Engages Students</u>

Strategies used by both teachers to engage students throughout learning time included circling the classroom and redirecting attention, having multiple changes in activities in the instructional flow, having activities which allow movement be interspersed throughout the lesson, and having the activities be fairly short, building on the previous skill. Both settings showed a bank of numerous reading resources to pull from throughout the lesson. There was clear evidence of planning, both in the general education and ESE settings. During the one-on-one time, Ms. Butler used rewards of the student's choosing to increase motivation and participated in the reward activity herself utilizing that time to engage Beth in communication.

<u>Classroom Management</u>

Ms. Booth's Kindergarten class followed classroom directions and was already seated for circle time as the ESE students joined them. The classroom routines seemed well set and easily followed by Beth, although she demonstrated delayed responses (approximately 5 seconds) to instructions. She carefully watched her peers and teachers to keep on track with the activities. Both teachers demonstrated high levels of "with-it-ness" through ease of behavior management

and redirection of student attention; with both general education and ESE students. There was only one interruption during this time when someone was dropping something off.

Butler: Reading Instruction

<u>Core Instruction</u>

The co-teach literacy block utilized the Houghton Mifflin curriculum and included music activities focusing on identifying body parts, colors (words and spelling) phonics and phonemic awareness (through songs and routines) and vocabulary (through songs, words with the beginning letters being addressed, and word walls). Other reading areas addressed were comprehension (through completion of the worksheets addressing the words learned during circle time with pictures); and fluency (through word wall activities).

Ms. Butler's one-on-one language time with Beth began with reinforcement of PA skills through a song and reinforcement of letters sounds. The next activity involved reviewing sight words during which Ms. Butler gave four cards as choices while Beth matched the initial sound of the word (with picture card for visual) to the appropriate letter using the AAC system. Ms. Butler scaffolded instruction through prompting. For example, when Beth tried to give the word, Ms. Butler prompted "Do you need me to tell you what the picture is?" and did so, when needed. The following protocol was used: Gave verbal prompt, then gave visual prompt, and finally, if needed, isolated the beginning sound.

<u>Strategies for Students with Complex Communication Needs</u>

In regards to strategies for students with complex communication needs, Ms. Butler and Ms. Booth both used a multi-sensory approach through kinesthetic, tactile, auditory, and visual modes of learning. Both teachers used visual supports implicitly and explicitly through body language and gestures, as well as picture supports. For example, during the circle time Beth

watched Ms. Booth closely for cues. Ms. Booth would subtly shake her head as Beth silently

asked if her card was the right one by starting to hold it up. When the yellow card was called

(which Beth had), Ms. Booth gave a slight nod and smile while Beth raised it high in the air.

During the seated circle time activities, Beth had access to her system while Ms. Butler sat next

to her within the group. Again, both teachers allowed and modeled appropriate wait time. Once

she gave the correct response, they both gave brief positive specific praise (as they were doing

for other students) and moved on with the activity.

<u>Implementation of Technology and AT</u>

Beth consistently had the system available during instructional time, although on one

observation the system was having problems with touch screen access. Several times throughout

the lesson, Ms. Butler attempted to fix the system by recalibrating the screen and rebooting the

system. It seemed to be a source of frustration since it disrupted the instructional flow and forced

the teacher and student to continue without the use of the device. Ms. Butler stated later that the

system had been out for repair several times and Beth did not have a back-up system, manual or

otherwise.

Ms. Carver

Ms. Carver's classroom was a self-contained, Varying Exceptionalities ESE unit with 11

students, one of whom used an AAC system, Cindy. Ms. Carver has one paraprofessional who

worked primarily as a one-on-one with a student who is blind and physically impaired (not the

student with the AAC system). In addition, she monitored small group independent work. Ms.

Carver taught reading in both whole group and small group settings, with the small groups

formed homogeneously.

Carver: Instructional Practices

Modeling

Ms. Carver modeled professional, polite behavior for students and colleagues. She naturally demonstrated high, yet realistic expectations for the students, both socially and academically. Academic skills such as pronunciation and word errors were modeled explicitly and social skills implicitly through interactions and turn-taking. Her students were engaged through the use of both general and specific praise.

Engages Students

Ms. Carver was a flexible teacher. She gauged student needs and adjusted the instructional day accordingly. She used methods such as a faster pace with larger group so that there was less wait time.

Behavior Management

Ms. Carver appeared skilled at behavior management and knew when to intercede and when it was not necessary. For example, after Cindy was asked a question and was working on the answer on her system, another student interrupted and gave the answer. Ms. Carver did not reprimand the student for interrupting Cindy, but before she asked Cindy another question, she directed the other students not to say the answer but give Cindy time to answer, thus modeling appropriate wait time.

The atmosphere in the classroom was calm and respectful. There was evidence of 'with-it-ness' while Ms. Carver addressed concerns going on around the room, while the paraprofessional monitored other students who were doing independent work. Classroom routines seemed well set and all of the students were engaged in the work routines. Each student had a picture schedule (made from clip art) that was individualized for them.

During one observation there were four interruptions: A paraprofessional from another room who needed something came into the classroom and spoke to Ms. Carver's paraprofessional; a teacher stopped the lesson to speak to Ms. Carver; a teacher from another room interrupted the speech group to ask the SLP a question about one of her students; and the same teacher who interrupted the SLP earlier returned and had a longer conversation with the SLP during the group session.

Carver: Reading Instruction

<u>Core Instruction</u>

Lessons for the core instruction included the areas of phonological awareness, phonics, fluency, and vocabulary. All instructional activities were teacher-directed with no down time for students. Ms. Carver used a direct instruction approach offering explicit examples of words for targeted sounds. Students practiced prior skills while working on punctuation and correct word form (plurals). Ms. Carver used strategies such as extension, choral reading, repeated readings, and scaffolding to build vocabulary and fluency. A multi-sensory approach was evident during the spelling activity as students used auditory (voice), visual (letter and picture cards), and tactile (EtchWriter) modes of learning.

The speech therapy session within the classroom involved a game focused on building vocabulary by choosing opposites of the word given. If the response was incorrect, the SLP said, 'No,' but did not always extend the lesson to explore or explain why. Occasionally he gave a short explanation. He modeled articulation and fluency, and asked comprehension questions about the story at the end.

Strategies for Students with Complex Communication Needs

In regards to strategies for students with complex communication needs, Ms. Carver utilized small group work to meet individualized needs of students. She provided multiple opportunities for practice. In addition, the alphabet page on the AAC system was used through its icon prediction mode. Instruction was scaffolded by using prompts for an independent answer first, and then, if needed, moved to having Cindy use prediction on system. Cindy used various modes of communication, including yes/no, signing, gestures, and the AAC system to allow for ease of communication. Both the teacher and the SLP allowed sufficient wait time for AAC during lessons and activities.

The session with the SLP demonstrated simple, basic skills with using the system. While the SLP requested a peer to work with Cindy with AAC system, the only thing that Cindy used the system for was to say the other student's name and to use it to answer questions about opposites by choosing the letters A, B, or C on the system. The choices were read to the students from a card by the SLP.

Implementation of Technology and AT

Ms. Carver demonstrated effective implementation of assistive technology by having the system available to Cindy and using it to participate in instructional time. The system seemed programmed well so Cindy could participate as she would if she could talk. It seemed clear that Ms. Carver knew what Cindy can do with the system and was familiar enough with the display to assist when needed.

The use of other types of technology was also evident during a writing exercise. Ms. Carver prompted Cindy to use Etchwriter before using her system (which has icon prediction) for independent writing, and then to find the word on her system to learn vocabulary organization.

Ms. Erwin

Ms. Erwin's classroom was a combination of self-contained Varying Exceptionalities ESE unit and an ESE resource room. She had four students who were in her homeroom and approximately 4-5 students that came to her for reading instruction from a general education setting. She had two students, Eaton and Elizabeth, who use an AAC system, and three full time paraprofessionals. Two of the paraprofessionals were designated as one-on-one assistants for the two students who use an AAC system. Reading instruction was done in two homogeneous small groups, one designated as "low" and the other as "high." Eaton was in the "low" group and Elizabeth was in the "high" group.

Erwin: Instructional Practices

<u>Modeling</u>

Ms. Erwin displayed a professional demeanor and modeled expectations (both social and academic) to more able-bodied students. There was less evidence of modeling with students who use AAC systems.

<u>Engages Students</u>

Paraprofessionals were primarily responsible for keeping students engaged by holding the book or materials at eye level and assisting with participation on the AAC system as needed. When the paraprofessional who worked with Eaton left to assist in the restroom with a lift, Eaton became a passive participant in the class as he waited for the paraprofessional to return. Elizabeth did not appear to be listening during instructional time and the paraprofessional did not appear to notice. She seemed to be teaching to the other students in the group while maintaining behavior with Elizabeth, constantly reaching over to calm her by touching her arm. During the independent work, Elizabeth copied the answers to the worksheet from the paraprofessionals

copy, as she was told to do. During one observation, Eaton had a speech session with an SLP who focused on oral motor work. The AAC system was not used during this observation of speech services.

Classroom Management

Ms. Erwin took primary responsibility for instruction with Group 1 while a paraprofessional worked on review work with Group 2. When finished with Group 1, the teacher and paraprofessional switched groups. However, as Ms. Erwin moved to group 2, Elizabeth was moved to the computer to work with a paraprofessional rather than take part in the reading lesson. During one observation there were five interruptions to instruction, two of which were unavoidable: The teacher stopped to set the temperature; the teacher and paraprofessional were talking off topic; a call from the office on the intercom; a fire drill; and a person came into the classroom and then left.

Erwin: Reading Instruction

Core Instruction

The classroom was a structured environment with a structured reading program (Reading Mastery). Routines have been established within the classroom. Instruction was mainly lecture and paper/pencil worksheets- not a multi-sensory approach or many accommodations (if any) to the program to address the needs of students with complex communication needs.

The Reading Mastery program has a teacher presentation book and its lessons review letter sounds through explicit modeling. Comprehension questions were scripted within the program. Students began the independent work completing the day's worksheet that goes with the program. However, worksheets were not adapted to be done independently, nor are the devices programmed to work well with the worksheets.

<u>Strategies for Students with Complex Communication Needs</u>

Strategies effective for students with communication deficits were evident through practices such as groups being divided homogeneously and the use of repeating strategies to model articulation. When setting up a writing activity, Ms. Erwin worked with Eaton to come up with a sentence after a one-word response on his system. Ms. Erwin gave a word- *look* – for Eaton to use to make up a sentence. Through yes/no questioning prompts from both teacher and paraprofessional, Eaton 'verbally' made up the sentence, "I'm going to look." The teacher asked, "At what?" Eaton looked at his paraprofessional, Mrs. Ennis. The teacher asked, "That's your sentence- I'm going to look at Mrs. Ennis?" Eaton nodded yes. The teacher wrote the words randomly on paper for visual cues and Eaton used these visual cues to put the sentence in order on the system, working on review of vocabulary organization. After working independently for about 5 minutes, his paraprofessional looked at the system and erased "I'm at the look" to "I'm …' so that he could correct the sentence. There was not any instruction or prompts to assist him. During one observation, Eaton did not have access to his system until over 40 minutes into the instructional lesson.

<u>Implementation of Technology and AT</u>

Elizabeth's system was in for repair throughout the observation phase of the study. She was relying on vocalizations and writing for communication, using an Alphasmart to formulate sentences and spell words. The researcher saw little evidence of her being able to use the Alphasmart independently as a successful communication mode. Elizabeth seemed to rely more on vocalizations and gestures, as well as her one-on-one paraprofessional who knows her well. She did not have a manual back-up system and was unable to let the teacher know what happened over the weekend for the writing activity.

Ms. Foreman

Ms. Foreman's class was a self-contained, Varying Exceptionalities ESE unit with 12 students, grades 1-5. There were two students who use AAC systems, Ford and Faith. In addition, there are three full time paraprofessionals. Reading was taught in homogeneous small groups, while typically only one group was in the classroom during instructional time and the other groups were in mainstreamed settings.

Foreman: Instructional Practices

Modeling

Ms. Foreman had a professional demeanor and was polite to students. She modeled socially polite behaviors, but did not explicitly address behavior issues in the classroom. An example would be when one student left his seat during the instructional time and was dancing and doing 'rapper' motions directly in front of the video camera. It was a minute or two before she seemed to realize that it was going on, despite the researcher motioning for the child to sit down. The other students were very active with talking and movement, so much to the point that this disruptive of a behavior went unnoticed.

Engages Students

Ms. Foreman attempted to engage students to instruction through motivational activities. One observation of a small group reading instruction showed 3rd through 5th grade students doing a painting activity without direction as a lead-in to reading the picture book, *The Very Hungry Caterpillar*. After being told to "just paint the blue, yellow, and green colors to the edge of the page," the students were asked to sit on the floor around the rocking chair while the teacher read the book to them.

<u>Classroom Management</u>

The 'Morning Meeting' time consisted of students reading the date from the board in a round robin fashion with each of them reading or repeating the sentence. It demonstrated low expectations and did not address reading skills and only minimally addressed language skills. Behaviors during this time were disruptive while students talked, colored, and walked around the classroom. Ms. Foreman rarely addressed these behaviors and focused mainly on the student whose turn it was to repeat the sentence. Fidgeting and disruptive behavior was evident in all three observations. While there were three paraprofessionals and two student assistants in the classroom, they did little to address behavior issues either. One was reading the newspaper and another was cooking breakfast for herself in each observation (three times in one observation). The third paraprofessional was standing by with the daily report papers to hand out and attempting to redirect attention to the teacher from the camera. Two student assistants sat at a back table and talked. The repetitive routine (each child saying the date sentence) seemed to contribute to restlessness as the lesson moved slowly through 12 students.

Foreman: Reading Instruction

<u>Core Instruction</u>

Structured reading instruction was not observed during any of the three observations. Morning Meeting appeared to be repetitive busy work without functional merit. After reviewing the day and date, the students filled out a worksheet independently that doubled as a parent communication form that went home each day. Students filled in name, date, and circled a picture of what they would be doing during the day (i.e. Specials). One reading lesson observed focused on *The Very Hungry Caterpillar* and was presented by having the 4th and 5th grade students sit on the floor around the rocking chair. When working on sequencing the events of the

story, rather than have the students attempt to sequence the events, the teacher did it and then requested the students to say it back to her. She asked simple yes/no, literal questions for comprehension and did not extend the lesson. The first academic task (sequencing) came 37 minutes into the lesson. The "reading" lesson on the third observation consisted of students finishing the sentence "Today we….." and illustrating it. For independent work the students practiced copying their names, while working on handwriting skills.

Strategies for Students with Complex Communication Needs

Ms. Foreman did not demonstrate effective strategies for working with students who use an AAC system. On several occasions, she asked for verbal responses from Faith rather than having her use the system, but was unable to understand her. At one time, after looking at the system, she asked Faith to "find the page with the little words" and it was clear that she was unfamiliar with vocabulary organization for the most rudimentary skills. She attempted to engage Faith in comprehension questions in *The Very Hungry Caterpillar*. However the answer to the question asked (which fruit was eaten on a particular page), was not a word that had been programmed into the system. [It should be noted that Faith demonstrated the desire and ability to initiate conversation with the researcher and showed the system off proudly. She answered a simple question with a one word response by navigating through several folders, demonstrating understanding of vocabulary organization.]

Implementation of Technology and AT

For two observations, Faith had her AAC system available on her desk. It was attempted to be used so that she could say the date during Morning Meeting. However, after Faith got the response ready on her AAC system, Ms. Foreman read it from the system and Faith never actually said it, so the system was not used for communication. On another observation, Ms.

Foreman asked Faith to get her system for instruction approximately 10 minutes after the lesson had started.

Ford's system was out for repair and there was not a manual system for him to use during the course of this study. On two of the observations, he spent the majority of the lesson with his head down on his desk; coming up only to do the independent work. He was not present in the third observation.

<u>Teacher Interviews</u>

At the completion of the observations, the researcher met with each participant for a semi-structured interview (Appendix H). Included in this section is an interview with Ms. Driver, a general education teacher who participated in two phases of the study, the survey of teaching characteristics and the interview about teaching practices and other issues within the classroom setting. She was not included in the observation phase of the study due to the student's parents' decline of participation. Ms. Driver's classroom was a general education 5th grade setting. She had one student, Dillon, who used an AAC system for communication and was full time in the general education setting with a dedicated one-on-one paraprofessional. Ms. Driver was recommended to participate in the study by several county and school level administrators who noted that this student has had a successful experience in a general education setting and therefore she would likely contribute an important voice to the findings.

The purpose of the interview was to clarify questions that arose during the observations, as well as offer participants a personal voice in the study, seeking their insights and suggestions in the areas of current supports, expectations, challenges, paraprofessionals, recommendations for supports and resources, and other issues or concerns not previously addressed in order to

increase effectiveness with students with complex communication needs. The interviews were transcribed on-site and placed in table format, separating individual statements for analysis. Responses were coded into one of the six areas and are shared in Appendixes O and P.

Current Supports

Current supports noted by participants include having the AAC system and other assistive technology available, whether it was made available through IDEA or other funds. In addition to having the technology, having a clear protocol for handling system break-downs was important. This protocol was different across settings. In two situations, the family took primary responsibility for sending the system in for repair. In the other four settings, the school team (whether it is the teacher, SLP, or staffing coordinator) handled this responsibility. Interestingly, none of the participants indicated that they would call the district AT team directly, even to request a back-up system.

Both Ms. Abbott and Ms. Butler, who seemed the most comfortable and confident working with students with complex communication needs, indicated that they would call the vendor who made the device directly and felt comfortable in that role. Ms. Butler shared their most recent experience which highlights the anxiety that comes with having system breakdowns, "This time I asked Ben (SLP) to call the company. But we call the company direct. Sometimes I do it. Sometimes he does it. He shipped it back this time. But we just call them. Actually the device came back yesterday and Ben said we lost everything that was [programmed by us] in it. I felt like crying. Then he left me the device. I don't think he realized how much time I had put into it -- anyway, I called the company back. It was there. I just had to find it. That was good. I had called mom and everything and told her, "I'm sorry, we lost everything." But we got it back" (Personal Communication, April 11, 2006). When the system is the students' primary

mode of communication and learning, having the systems in working order is critical. Several of the participants noted that they did not have back-up systems for the students, but also noted they do not request them due to expense and difficulty in getting one. Despite being unable to effectively teach these students without their system, if enough time passes without the system, the teacher will be out of compliance with the law in regards to fulfilling stated goals on the IEP.

Having a strong school-based ESE team, particularly with a knowledgeable SLP that is supportive in the classroom environment was also an often cited support. Ms. Butler shared, "The speech therapists here are wonderful. I go to them all the time. We really have a close relationship. Right now since I'm in the kindergarten classroom all the time and all the therapies are in there. The occupational therapist is very familiar. She can program and work with the AAC device also. We brainstorm a lot, the three of us, the speech, OT, and myself. And the general education teacher, too, on what's going to go on in there. And our local assistive technology team, I am very comfortable calling them if I have any kind of problem or need an idea." (Personal communication, April 11, 2006). Ms. Driver echoed the sentiments, stating, "Our ESE director [staffing coordinator], I don't even know the title for her at the moment off the top of my head. Her position is just -- you can't -- it's invaluable, just having support knowing I can go over to her." (Personal communication, April 8, 2006). Ms. Driver went on to include the principal indicating that, "Ms. Daniels found funds from the IDEA funds to make sure [Dillon] has a paraprofessional and the computer and his desk. All that will go with him next year, except for his desk. His paraprofessional and all that will -- that is allotted to him. That support is wonderful. If we didn't have this set up, it would be extremely hard for him to just feel normal in a classroom. In our classroom, he has responsibilities, he has to make sure he does his lunch count and attendance. He does that on his own. He is responsible for himself just like every

other child in the classroom. He does well. He does well." (Personal communication, April 8, 2006). Ms. Abbott went further to share the ongoing spirit of collaboration that she shares with the SLP in her setting, "I think next year the speech teacher and I are going to get together and we'll do a little scope and sequence of the year because we want to co-teach together more than what we're doing now. We want to have planned lessons together. We're working on the same themes, the same concepts. If she comes in and she wants to talk about wolves, then we'll be talking about it too. We're going to really try to integrate together." (Personal communication, April 10, 2006).

Another recurring theme for support was having a one-on-one paraprofessional that worked directly with the student. Having somebody trained on the system who knows the child well and can address needs as they arise was a key element to a successful inclusion experience. Ms. Driver discussed the relationship that her student shares with his paraprofessional, "I think this is her third year with [Dillon]. And they have their own signals. When they're doing math together and they're doing regrouping or adding or multiplying, he's doing stuff like this [gestures with hands] multiply, divide, whatever. I sit there and go, "Okay, whatever works for the two of you, this is good." When she's out, such as like today, at first Ms. Daniels is, "I've got to get you a paraprofessional" – sometimes that's more stressful if someone doesn't know him well. If I went every day without his paraprofessional, it would probably be a little more stressful on me…." (Personal communication, April 8, 2006). Ms. Butler also indicated that she felt a qualified one-on-one would be integral for success, while also touching on one of the primary reasons it is not being pursued, "With the one-on-one paraprofessional, [Beth] probably would be successful in there [general education kindergarten]. I feel like that's such a taboo thing to get right now with money situation." (Personal communication, April 11, 2006). Budgets may likely

a primary factor in making this decision for the districts, as they seem to be with requesting a back-up system for teachers.

However, Ms. Driver indicated that although the one-on-one with her student is dedicated to him, she also assisted in the classroom. She shared, "She's my paraprofessional support. A lot of times he's so independent, he's getting more and more independent, she's helping me with other things…. We keep an eye on him. She'll go back – "Hey, okay, now you need something. We're coming." That's all he has to do. If we don't see his hand raised, he'll holler at us, "Hey." "What you need?" "I need you to hook this in, I need to go off, or I'm done." (Personal communication, April 11, 2006).

Another important issue in choosing one-on-one paraprofessionals was voiced by Ms. Carver who shared, "I think it would just have to be somebody that wants to learn and wants to initiate some on their own, wants to get knowledge about it, and be able to use it." (Personal communication, April 11, 2006).The paraprofessionals in Ms. Erwin's classroom were both dedicated one-on-ones, but appeared less able to successfully assist the students and model navigating through the system than what Ms. Driver describes. Their role appeared to be more focused on providing physical support.

Home support for academics was another support noted by two participants for helping them to be more effective. Knowing that students would be using the system at home and doing reinforcement of skills taught in the school is thought to be critical to the student's success. However, this was most often cited as a challenge for participants and is discussed in the Challenges section.

Finally, as her strongest support, Ms. Abbott indicated her general education background as be crucial to be able to teach effectively, "I learned strategies of how to teach regular

education kids and I learned strategies on how to teach ESE kids in my regular education

classroom. I think just the push on academics-- I think part of it is me, that I want to be able to

teach reading and writing and math and I think my kids can do it. I think it's just my expectation.

That's what you do in my room. If you don't like it, hit the road. I mean I would never, but that's

what it is. I just have that love for -- and I know that they can all do it. Even the most profound

kid -- I've had profound kids, and you know what? They can find that repeated line in the story

and tell me by using a switch. They can do it. I've seen them do it. There's something in every

child, you just have to figure out how-- that's one of the challenges, how to get it out of them.

You know they have it, that little twinkle in their eye." (Personal communication, April 10,

2006).

Expectations

As Ms.Abbott indicated above, expectations play a significant role in student

achievement. The differences in expectations among participants were notable. Ms. Butler

expressed high expectations for Beth in the next year with changes to the communication system,

"I think the next year is just going to be huge. The day after our last visit, the device was

breaking down. So it went off. And in that time we just decided she needs -- she needs more

than what she's got right now. There's not any [structured] communication program in that

device. So she really needs Picture Word Power or something. And we're in the process now of

ordering that for her. Hopefully by the beginning of the year she'll get that [program]. I just

think she's just prime, she's really beginning to put sentences together and finding the words in

her device. It's not been very structured because we don't have that structured communication

package. It's just kind of what I've tried to hunt and peck and do. I think when she has that

structure, it's going to be huge because she's already putting five, six-word sentences together and finding the words somewhere in her device." (Personal Communication, April 11, 2006).

Ms. Driver indicated that she has the same high expectations for her student who uses AAC as for all the other students in the class. She said, "I discipline [Dillon] as much as I discipline anybody else. So he has punishment if he doesn't turn in [an assignment], he has to sit out. He really -- the only thing different about him in our classroom is that he physically can't get up and walk around our room and he physically can't tell me all the time whatever he needs. Therefore, my insisting that he's participating helps the kids insist that he participates. They don't let him slack. If it's his responsibility to turn in his part of the group work, it's his responsibility. They don't cut him any slack. Neither do I. But it's just -- we're not harsh. Kids are kids. If another group member in the group does that, same thing. They'll come tell me, "They're not doing their stuff."" (Personal communication, April 8, 2006).

The extension of teacher expectations over to peers was echoed by Ms. Abbott who uses peer coaching with the AAC systems. She shared, "To see Alex go from a Light Hawk to a Dynavox and learn the vocabulary and how to access it, it's a lot harder for him to learn how to do, but he's getting it. He's starting to make complete sentences with, I think, Anthony's influence. I think if Anthony wasn't there, Alex wouldn't be as far along because he has a positive role model which is nice to see. If Alex can't find the answer, Anthony will lean over, he'll go, "Here, go here." He'll help him navigate through the system." (Personal communication, April 10, 2006).

Teaching students to have the motivation to try harder is an important component of expectations. Ms. Driver discussed the issue, "That's been our struggle this year is to make [Dillon] see that he can be more independent. I guess that's been one of my challenges, too,

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letting him see he can do it, praising it when it happens. I say," Look, you did it yesterday, you can do it again today. Let's see if we can go further." Pushing him to get to the point where he feels that he is just as capable as anyone else in the room. I think there's still part of him that says, "I can't do that." At the beginning of the year there was a lot of "I can't do that." No, no, no, that's not acceptable. We can do whatever we can do. You do *something*. We went from there. He's come a long way just in this year. From the past years, he's really, really gained." (Personal communication, April 8, 2006).

Pushing students past their comfort level in order to make higher gains was shared by Ms. Abbott as well. In describing an incident regarding Andrea, she shared, "She can do it. The other day, -- I'm not one -- I don't want to say threaten my kids, sometimes you have to say, "All right. I'm going to call Dad if you don't do your work. I'm going to go get my phone and sit and call your father." She nailed every question during speech. She got every one. The speech therapist was like, "Holy cow, I've never seen you do this, you did such a phenomenal job!" At the end I told her [the SLP], I whispered to her, "I had to threaten her with calling her dad." She was like, "Well, it worked." (Personal communication, April 10, 2006).

In contrast, Ms. Foreman did not seem to exhibit high expectations for her students. The reading lesson with upper elementary students using *The Very Hungry Caterpillar* was not age appropriate and yet when questioned about book choices and whether she has tried chapter books with the older students, she said, "No" in a manner that indicated that it wasn't even an option. She said, "It would be picture books. And even then, to do a picture book -- because I have such different levels of children who are auditory learners, and so I find that – I do read to the whole group, but it's not a happy experience. It's not easy because they're all at such different levels. So somebody is getting something and somebody is on a different level.

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So I try to do those individually -- not individually, in the small groups, in my little four, yeah, when I do four. Because even *The Very Hungry Caterpillar*, although we all did it, we did it in small groups rotating because with each group you have to kind of do something a little different and explain things a little more. Some kids are more with it and can understand the flow of the story. Others you have to really point things out. The very first picture of *The Very Hungry Caterpillar*, when there's that little egg sitting on the leaf, I've got kids who, even though you read it, you really need to bring it out and talk about it, yeah, pay more attention to that sort of thing." (Personal communication, April 10, 2006). The defensiveness of her response indicated low expectations for her students. This was expressed again when during the interview the researcher shared that both the researcher and assistant commented about what a wonderful initiator of conversation that Faith seemed to be. She was constantly engaging other students, shared her AAC system with the researcher, and demonstrated understanding of how the system was organized. However, when the comment was shared that Faith seemed ready and willing to use the system as her voice, Ms. Foreman's response was, "I don't know if I agree with that…. I don't see her progressing that much with language." (Personal communication, April 10, 2006).

Ms. Erwin's expectations seemed realistic in light of the demands made through outside therapies, mainstream time for Science and Social Studies, physical needs, and the support received at home, particularly for Eaton. She shared, "A lot of days he's here all day till six. Imagine if you were a child in a chair like that and you can only use the computer -- you're already tired just activating the computer. If you have those issues all day long, how tired is he?.... He is probably in mainstream only 45 minutes to an hour every day. He's with me for a good two hours in the morning. Once he leaves me, he goes back to that classroom for a little while to wait for the nurse to come and give him his meds. He leaves me at 10:30. By 11:00,

they leave to go for lunch. By the time they're done with lunch he's coming back in my room by about quarter to 12 because he has to be pottied before we start math. He's with me from 12 to 12:40. After that he usually has specials or something like that. If his class is having PE and he doesn't have PE, then he goes to the library or something. He's usually there for science and social studies, which I think they do that after specials which is probably 1:30 till about 2:15, till he goes on the bus. He's there for a good 45 minutes. When he's there in the morning from say 10:35 till about 11, sometimes they're doing a spelling thing or whatever. But he's usually just there sitting and waiting for a nurse to come and for lunch to start." (Personal communication, April 8, 2006). Clearly, Eaton loses academic time in transitions to general education. Ms. Erwin remains optimistic, "This year when he came in to me, the IEP said he would read on a third grade level. He's only on first grade. For next year I put…. I'm hoping second grade level. I hope to get there." (Personal communication, April 8, 2006).

Challenges

Numerous challenges were noted by the participants. One of the primary ones specific to the classroom setting was dealing with the technology itself: having the system there and knowing how to teach non-verbal children reading skills. Ms. Butler addressed her frustrations with this issue, "I'm constantly telling her to use the voice in her head. I'm gone to workshops that say kids don't have that voice in their head until they're older, like maybe eight years old. That surprised me." (Personal communication, April 11, 2006). Ms. Erwin discussed the impact of having too much [available] on the device, not only for the teacher, but the student as well, "Sometimes when something goes wrong, I can't find the correct page to go back to. There's so much stuff on there, you have to look so carefully to find what you're looking for and you waste so much time trying to do that. But if it was a little bit simpler, maybe it would be a little easier

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for him to go through. They have loads of stuff on that device and he can't use it all." (Personal communication, April 8, 2006). Ms. Erwin went on to indicate that another related challenge was Eaton's access to the system through his head switch. While she felt the method of access seemed cumbersome and not efficient, she acknowledged that she had not called upon the district AT team or school-based therapists to reexamine access for Eaton.

Aside from understanding developmentally correct teaching methods for students with complex communication needs, the issue of having the time and opportunity to learn was echoed by several participants. Ms. Carver said, "My ability to be able to take and go to trainings, my ability to try to get someone here that's, maybe not on the campus, but somebody to come out in the room and just work with Cindy and myself and the paraprofessional where we could all -- try to get the most out of it." (Personal communication, April 11, 2006). Ms. Foreman also indicated that the time during the school day is limited and finding the time is a challenge, "I have to spend a lot of time getting to know that machine. I guess that's the other piece of it is that, you know, on a day to day basis, do I have time to sit down for half an hour with this thing? No." (Personal communication, April 10, 2006).

The other issue with time was not directed at the time needed for teachers to take professional development, but rather the impact of wait time for the child to use the system in the classroom environment, particularly in general education which tends to be a much faster pace academically. Ms. Driver explains, "The biggest challenge is time. Sometimes I'll wait because I don't want him to feel like he's always the last one done, so I'll wait and do something -- I would like to be able to speed up a little more in some instances, which really isn't a major deal, but sometimes it can be trying…. [the other students] don't realize what I'm doing. They don't realize that's why we haven't got on." (Personal communication, April 8, 2006).

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Training for paraprofessionals was also noted as a challenge. Ms. Abbott expressed the issue eloquently stating, "I would like for my paraprofessionals to be trained better because they come in not knowing why we do what we do. When I do a lot of repetitive activities, they get bored with it, but they don't understand that the kids need that repetitiveness in the same mode. They need that same thing is what I believe. And so they get bored with the activities, so they're not following through with how they should be doing it. Today a simple activity was -- we were doing spin art, and I asked my paraprofessionals to use just a Big Mac switch to have [the students] tell them when to stop or go. [The students] could pick which one they wanted to do. They wouldn't do it. The paraprofessionals wouldn't listen to the child. If they just did a drop of paint and the child said, "Stop", they would keep going because they didn't like what the picture looked like. It's like the paraprofessionals don't understand, they don't understand why they're using it. That's hard because we don't have training days before [school starts], if there were training days before so we could have them come in and say this is why we do what we do. Here are the things I want you to do. When the kids are there, we don't have time to do it. I don't have time to sit down and say, "Okay, here is how this is" or even for programming the devices. When they first come in -- I had [an AAC system] crash this year and a new device came in. So I had to customize a lot of pages. That's hours of work. But if a paraprofessional could do that for part of the day, it would just alleviate everybody's work load." (Personal communication, April 10, 2006).

The single, most overriding challenge noted by participants was parents. Ms. Abbott shared, "I think my biggest challenge, it's the parents. To get them to buy into what's going on in the classroom and that their kids can learn, a lot of my parents don't think their kids can learn because they can't walk or talk. The parents don't see the significance of what that device is."

(Personal communication, April 10, 2006). She goes on to explain that even parents who have sought the system through legal means do not always support its use in the home. Regarding one of her parents who received the system and one-on-one paraprofessional through litigation, she shares, "The parents aren't willing. The Dynavox stays at school every day except for the day she has private speech therapy, and they refuse to take it home." (Personal communication, April, 10, 2006). Ms. Abbott goes on to share that training has been offered to all of the parents.

One of the reasons that parents do not use the system at home is that often, familiar communication partners can understand the vocalizations, signs, and gestures, and this tends to be an easier mode of communication although it is more passive. One of Ms. Erwin's parents chooses not to use the system for this reason. Ms. Erwin shares, "Mom said he doesn't use it at home. She can understand his wants and needs. Sometimes she'll say, "Eaton, I don't understand you." She won't set up the Dynavox for him to try to spell it and try to find it. She should. She should have that for some access. I'm not saying all day long. There should be different times when Eaton could maybe get some practice using it and flipping through the pages and finding things." (Personal communication, April 8, 2006).

Although several settings indicated that trainings to parents have been made available, this was not the situation in Ms. Foreman's classroom. When discussing parent support of the system by using it in the home environment, she said, "Now, I can't fault them for that because we haven't sat down with the parents and even explained it." (Personal communication, April 10, 2006). When asked if the parents were part of the committee that chose the system for Faith, she said that they were, however they didn't seem to really understand what was happening.

Paraprofessionals

The issue of paraprofessionals was significant when discussing effective practices for working with students with complex communication needs. Ms. Abbott explained, "You can't do your day without them. If I didn't have a paraprofessional, I'd be feeding and pottying all day. They help me with a lot of the healthcare needs." (Personal communication, April 10, 2006). However, the need is high for paraprofessionals who work with this population to have more knowledge and skills with technology than might be required in another setting. It is important that paraprofessionals not only know how to do the lifts, positioning, and feeding for these students, but also how to facilitate academics through the communication system, whether it is to work on building language skills or programming the system with customized pages. Ms. Abbott goes on to explain her frustration as a teacher, "I would like to get them more involved in what they're doing, with what the kids are doing. I have them sitting at a computer making sure the computers don't crash. And I've asked them to guide them through the lessons and talk with them about what's going on, and they just sit there. I can't stop what I'm doing in my small group to reinforce what they're doing. So that's – it goes back to that importance, where they don't know why they're doing what they're doing. Even when you talk to them about it, they still don't have the training and the schooling that we've gone through to know that." (Personal communication, April 10, 2006).

The value of having a paraprofessional was discussed by Ms. Driver earlier. The strong relationship that develops with a good one-on-one is invaluable both to the student and teacher. Ms. Butler agreed, "A couple years ago I had a paraprofessional that worked very closely with a different AAC student, did all the programming, I told her what needed to be programmed. She [the student] went full time into a regular education classroom, fifth grade. That was so helpful.

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I've shown my [current] paraprofessional how. She's just not comfortable with technology. And again, it's not done the way I want it to be done when I do show her. So anymore, she doesn't even really work with Beth much. Beth is kind of mine." (Personal communication, April 11, 2006).

Recommendations for Supports and Resources Noted by Participants

Recommendation One: There is a need for appropriate assessment materials to work with students with complex communication needs in terms of school-based assessments, in addition to those specific to communication. Teachers seemed to feel at a loss to be able to say specifically what level the student is able to function at in regards to curriculum. One of the most easily understood measurement of progress is that of grade level performance and whether a child is able to function on grade level. However, with students that have this level of communication deficit, it is virtually impossible to answer the question simply. Ms. Butler shared, "Assessment is huge because I'd like to know what she knows. It would be helpful to be able to go to the next step. I kind of do. But again, that's something I always fight with and just worry about when I have a student." (Personal communication, April 11, 2006). The sentiment was echoed by Ms. Abbott, "You know what I would like for my kids is an assessment tool where we can test where they are, cognitively. Like I would love to see where they are because you really don't know. How can you test them cognitively? When you do a lot of those tests, they take into account if they can walk or if they can talk. How can we find a way to really assess our kids in what they know and give them an age, like when you do a psychological/educational evaluation? How can we give our guys an age so the parents know where they're functioning? I don't like for my kids to get a psycho/ed because they would fall into probably the PMH range. Is that fair to do to them because they can't walk or talk?" (Personal communication, April 10, 2006).

Recommendation Two: Participants would like to be able to have professional development with the student and/or paraprofessional. Ms. Foreman seemed to realize the value of attending professional development through the course of this study. She shared, "It [training] was made available, but the speech teacher went because it's two-day training. The speech teacher went, and I guess I just felt that that would be enough and I didn't realize that I really needed to go, too. And that would have been much more helpful because this way we have to wait for the speech teacher to program different things. But also the way she programs things sometimes, she'll do it when I'm not there. So if she programmed it the way I was teaching it, it would be much easier for Faith, for example." (Personal communication, April 10, 2006). She went on to discuss the need for being trained with this population of students, "I think more training. You know what? I am one person and it's a one-on-one thing. And if the paraprofessionals were trained -- if I was trained, maybe I could train the paraprofessionals or however it is that we want to do this. But I think the paraprofessionals should be trained too." (Personal communication, April 10, 2006).

Recommendation Three: Have a have a closer liaison between home and school since teachers change from year to year, something similar to a case manager. Ms Foreman explains, "I really think there needs to be a closer liaison between the home and the school because the home will always stay the same. The school will not. I think we [the teachers] are kind of the ones who are bopping in and out of her life. That would really get the parents more involved. I think it would definitely have to be a two-way thing. The parents are the ones who are going to have to really be the anchor. But I think that we have to teach the parents how to be the anchor, because they're not going to be obviously." (Personal communication, April 10, 2006).

Other Issues or Concerns

Two general concerns were also noted in the interviews that affect the other areas. The first touched on some of the issues surrounding attending professional development for teachers, but also specifically for paraprofessionals. Participants noted that at present, the district does not pay paraprofessionals for attending professional development during pre-planning and some administrators have not been willing to allow flexibility on the issue. Ms. Butler explains, "There is no comp time plain flat across the board anymore. That's just been hard – you can't expect people to work and not get paid for it." (Personal communication, April 11, 2006). To ask paraprofessionals to attend professional development on their own time in order to increase skills for the classroom without any benefit (monetary or privilege) to them does not seem professional.

Another area of concern was support within ESE teams. Several participants mentioned that their ESE team was not a strong, supportive unit. Ms. Abbott indicated that she has made an effort to support the ESE team, particularly in the area of AT. She said, "I've offered my classroom to everybody, from anywhere in the school, especially the ESE team. I've said, "Hey, if you guys want to come in and see…", because there are other teachers that are doing low tech stuff, one switches and stuff. I've offered to go in the classroom. They're just not willing to – I can't push them." (Personal communication, April 10, 2006).

<u>Summary of Results</u>

Results of the survey on teaching characteristics, a narrative description of the observations of teaching practices, and an in-depth discussion of themes from participant

interviews have been summarized separately. Additionally, Appendix N displays a summary of the characteristics and practices noted with each participant.

The first research question addressed in this study examined which teaching characteristics supporting language and literacy development for students with complex communication needs are present in classroom settings which serve students with complex communication needs. The participants shared a number of teaching characteristics, although to differing levels of effectiveness. All of the participants came from a traditional teaching preparation program, were licensed in the areas in which they were teaching, and most had pursued master's degrees in special education or reading endorsement certification The one participant who had not pursued higher education or reading endorsement was Ms. Abbott, who was noted to be the most effective teacher for this population in terms of observed practices.

Participants indicated that they felt effective in their ability to teach reading, although concerns were shared specific to teaching reading to students who are non-verbal and require the use of an AAC system. Effectively integrating the AAC systems was another area of concern with three of the participants sharing that they did not feel that they had adequate training in AT or AAC. None of the participants indicated that they felt they had a strong foundation in teaching language, particularly on an AAC system.

Each of the participants noted that they felt they had a collegial environment, as well as manageable caseloads and paperwork. In the area of collaboration, there were a range of responses in regards to the amount of collaboration time. Only one participant indicated an absence of collaboration time. This participant was Ms. Foreman who recognized during the interview process that she could have pursued that more personally.

The second research question addressed which effective teaching practices that support language and literacy development for students with complex communication needs were present in these settings. Practices of effective characteristics and practices found in the research literature were categorized broadly in two areas, instructional practices and reading instruction. Then each area was further categorized in three main sections. The area of instructional practices included the section of effective classrooms, modeling, engages students, and classroom management. The area of reading instruction included core instruction, strategies for students with complex communication needs, and implementation of technology and AT.

In the area of instructional practices, three of the five participants demonstrated many of the practices being sought for observation. The most common effective instructional practices noted were a demonstration of "with-it-ness", have realistic expectations for their students on an individual basis, and having good classroom management skills. This included having a positive attitude about the students and their needs, as well articulating high, realistic expectations for their students. In one setting however, many of these practices were exhibited in either a neutral or negative fashion. For example, Ms. Foreman clearly articulated that she did not expect Faith to make progress in language development in the coming year.

In the area of reading instruction, three of the five participants observed demonstrated many of the identified effective practices. Those most noted included using a direct instruction approach with homogeneous small groups. Only two participants used a structured reading program for core curriculum. Ms. Butler's class who is in an inclusive kindergarten class uses the Houghton Mifflin reading curriculum and Ms. Erwin uses Reading Mastery. Three of the other participants used a combination of materials, some teacher-made, to allow for multiple opportunities for practice and reinforcement, saying that their students require so much repetition

that it requires pulling from multiple sources of materials to keep reinforcing the same skills in new ways. The fifth participant did not demonstrate any structured reading instruction throughout the study.

Use of reading strategies and strategies for students with complex communication needs was more varied among participants. While many used common strategies such as systematically building on PA skills in an explicit manner, modeling articulation and fluency, using a multi-sensory approach, and the use of small groups, this was typically the focus of core instruction done in the form of supplemental instruction. Only two of the participants used practices specific to teaching language and literacy on AAC systems, such as the use of scripts and narratives or partner-focused communication techniques.

Paraprofessionals were noted by all participants as being critical to success in these settings. However, all participants shared that they were not trained in the AAC system, there were problems in getting the training needed (either by the paraprofessionals themselves or by administrators), and knowledge of instructional practices was also a weak area for them. Three of the five settings had three full time paraprofessionals while two of the participants only had one paraprofessional. When asked about the differences in the amount of support in different settings, the participants did not have an answer. Interestingly, the settings with the least support are both located in the same learning community of the school district, which is divided into five separate learning communities. It is not known if there is a difference in thinking among district administration about the issues of supports in special education, particularly in regards to this population.

Last, the difference among the participants themselves was noticeable, particularly with Ms. Abbott and Ms. Foreman. Both participants work in the same school setting, with the same

SLP, under the same administrator, and have access to the same supports and resources. An abbreviated version of noted characteristics and observed practices indicates that Ms. Abbot demonstrated excellent evidence in 67 of the 80 best practices being sought, with no practices being noted with a negative designation, while Ms. Foreman demonstrated of evidence of 18 of the 80 best practices in addition to 29 practices being noted with a negative designation. A table which shows these two participants side by side is offered as Appendix R. Ms. Foreman has a master's degree in special education and more than double the teaching experience than Ms. Abbott. The difference between two participants with virtually the same options and opportunities available to them underscores the importance of teacher choice. Clearly the notion of teacher choice envelopes a score of other questions which arise regarding why the teacher may make choices that could cause regression in students. Knowing the teacher's history would offer valuable insights into why motivation, drive, advocacy, and other empowering characteristics have been impacted, but is out of the realm of this study. In regards to the students which these teachers serve, the question arises as to school and district responsibility in ensuring that students with this level of need are served by teachers willing to meet the extra challenges associated with teaching students with complex communication needs. The concerns noted by participants illustrate the challenges teachers face with this population. These concerns include the need for professional development in AT/AAC, increased professional development on teaching reading and language, specifically to students with complex communication needs, effective training and use for paraprofessionals, school-based supports, and the need for families to be involved in the implementation of AAC and AT as well as supporting classroom instruction. All of these issues are all critical components for a successful learning experience for students with complex communication needs. The implications of these results are further

discussed in Chapter 5.

CHAPTER FIVE

CONCLUSIONS

Summary

This study focused on identifying teaching characteristics and practices noted in the literature as being beneficial for students with complex communication needs which are currently present in settings which serve these students. Research has indicated that more than 50% of the population of students with complex communication needs cannot read at a functional level (Koppenhaver and Yoder, 1992). Given the increase in educational accountability, particularly in the area of literacy development, understanding the supports and resources needed for all populations to learn is critical. Results from this study suggest that teachers working with students with complex communication needs require more foundational knowledge in the area of reading and language development to effectively teach language and literacy. Also, technology, assistive technology, and communication issues are more complex than those typically encountered in general education and special education settings which serve mild populations. In addition, the areas of support and resources, while strong in some settings, indicate a need for increased attention both in terms of physical supports and resources, including assistive technology and assessment tools, as well as collaborative supports both on the school and district level. The findings indicate that there were areas of concern both in teaching characteristics and teaching practices.

<center>Conclusions</center>

Conclusions are shared regarding research question 1 (Which teaching characteristics supporting language and literacy development for students with complex communication needs are present in these self-contained classrooms?) and research question 2 (Which effective teaching practices supporting language and literacy development for students with complex communication needs are present in these settings?). Findings for the third research question (If these characteristics and practices are not present in the observed educational settings, what are the participant's explanations as to why?) are related to the first two questions and participant responses are discussed within those contexts.

Research Question 1: Which teaching characteristics supporting language and literacy development for students with complex communication needs are present in these self-contained classrooms?

Findings

The characteristics which were consistent across the study included preparation through a traditional four year teacher preparation program. Additionally, each of the teachers in self-contained settings had completed special education certification. Only one participant had taken the certification test, while the others had completed their ESE certification through their teacher preparation program. Each of the participants felt comfortable with their reading foundations background and teaching reading. Each participant had the AAC accessible to the student at all times of the study. All indicated a sense of collegiality at their school site within the teams and stated that they had access to general supports and resources. Finally all of the participants also shared that they felt they had very manageable caseloads and paperwork.

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Characteristics which were not consistent across settings included being able to provide the 90 minute core reading instruction and an additional 45 minutes of supplemental instruction. Most participants strived for between 45-90 minutes of reading instruction total, while modeling that reading block on providing intensive intervention model using small groups. Also, while all indicated that they provided access to the AAC system, they indicated that they felt less effective in implementing the AAC system in instructional time. Additionally, not all participants were able to program the AAC system independently. Several participants shared that they felt less comfortable in teaching language, particularly to the non-verbal child. Finally, having regular collaboration with team members was not consistent across participants, particularly with the SLP. These inconsistencies can be accounted for due to scheduling difficulties when meeting the demands of multiple therapies, having inadequate time to professional development specific to the AAC system, professional development which addresses language development foundations for the non-verbal child, and needed collaboration time with a knowledgeable SLP. For these inconsistencies, it is likely that the effect on the student will be a negative one and remediation of the problem/issue is critical to effective practices.

Discussion

Each of the participants in this study received their teaching certification in traditional teacher preparation programs which has been shown to have a strong correlation with student achievement (Carlson, Lee, & Schroll, 2004; Cegelka & Alvarado, 2000; Darling-Hammond, 2000; Darling-Hammond & Sykes, 2003; Lovinghoss, Harris, & Graham, 2001, Mastopieri, 2001). All were licensed in special education and all except one had pursued master's degrees in special education or reading endorsement certification. The one participant who has not pursued higher education or reading endorsement was Ms. Abbott, who was noted to be the most

effective teacher for this population in terms of observed practices. In general, most of the participants indicated that they felt knowledgeable about teaching reading, but less knowledgeable when it came to teaching students who have complex communication needs and require the use of specialized technology for communication

In regards to reading research for instructional time, although the recommended amount of time for reading instruction for students with complex communication needs is 90 minutes of core instruction and an additional 45 minutes of supplemental instruction in the student's area of need, none of the participants were able to offer both the 90 minute core block and 45 minute supplemental block. Most indicated that they felt lucky to be able to get in the 90 minutes of core instruction, although this was mainly facilitated in homogeneous small groups similar to methods employed for supplemental instruction. A typical reading block used in general education classes has 90 minutes of core instruction, with possibly an additional 45 minutes of intensive intervention. Ms. Butler was the only participant in the study who was able to schedule one 45 minute one-on-one session per week with Beth, during which time she mainly addresses IEP goals which include language. However this session was weekly, not daily as is recommended in the research. Scheduling difficulties with therapies and general education mainstream/inclusion opportunities were cited as the primary reason the supplemental instruction is a virtual impossibility.

Integrating augmentative and alternative communication systems into the literacy and language block was mixed among the participants. While they all indicated that they strive to make the device accessible during academic time, they noted that often the systems have broken down and are off for repair. None of the participants whose students were currently without their AAC system due to breakdowns had a back-up communication system available. Ms. Erwin had

Elizabeth using a written output assistive technology device (Alphasmart) but this is not a communication device. Participants also noted that they felt less effective in being able to program and navigate the device themselves. Concerns were shared specific to teaching reading to students who are non-verbal and require the use of an AAC system. None of the participants indicated that they felt they had a strong foundation in teaching language, particularly on an AAC system. Of the six participants, only two- Ms. Abbott and Ms. Butler were able to program the systems in their class and both do so with a high level of proficiency. Ms. Carver demonstrated the ability to navigate the system somewhat but was unable to program, whereas Ms. Erwin and Ms. Foreman were not familiar with the systems and less able to assist students as needed

Ms. Abbott's and Ms. Butler's indication of SLP support both on the survey and during observations was exemplary. Interestingly, Ms. Foreman has the same SLP as Ms. Abbott but did not indicate the same strong relationship that is evident with Ms. Abbott. The SLP will program the system for Ms. Foreman as needed, but takes it from the room to do so. Ms. Carver's SLP used the device within the speech therapy setting, but did not address language goals with the device directly. Ms. Carver indicated that she believed the SLP was not able to program or facilitate the system since she had seen little evidence of its use in practice. This was noted also by the researcher's observation of the speech session in class. Additionally, Ms. Erwin's SLP worked primarily on oral motor work during the observation and did not use the system either. Ms. Erwin stated that she had not seen the current SLP use the system, although Eaton's previous SLP did use it.

Other important variables which relate to successful classroom experiences are a sense of professionalism and collegiality in the workplace (Coleman, 2001). Each participant indicated

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that they felt they had a collegial environment and manageable caseloads and paperwork.

Collaboration time was indicated by most participants with it being primarily on an informal

basis as the end of the school approached. Two participants shared that the school year began

with more formal times set aside for collaboration and then that faded in a naturally occurring

manner as routines became more set. Only one participant, Ms. Foreman indicated an absence of

collaboration time but shared in the interview that she could have done more to facilitate this. An

interesting outcome of this study was the relationships of teachers in the same setting and

working with the same types of communication issues and systems did not lead to this sense of

collegiality. In two cases, the two stronger teachers (Ms. Abbott and Ms. Driver) indicated

willingness to assist and support their colleagues; however the lesser effective teachers (Ms.

Erwin and Ms. Foreman) in those settings have not chosen to embrace that support, even though

it is easily accessed at the school site. Coleman (2001) states that environments which foster

communication and support, offer needed resources, and have clarity regarding roles and

responsibilities creates a successful work and learning environment. The reality in relation to this

study is that other variables need to be in place to make this statement valid. While several

barriers to a successful work climate in special education settings have been identified as large

caseloads, too much paperwork, and lack of collaboration time, another variable suggested here

is teacher choice and whether they choose to embrace the challenges and draw on available

supports and resources (Black, 2003; Coleman, 2001).

The idea of teacher choice in pursuing avenues of support and resources brings other

questions to mind. In the case of Ms. Foreman, she made it clear during the course of the study

about the challenges she faced, including finding time to learn the AAC system and attend

professional development. By the third phase of the study she seemed to be aware of the

inconsistencies between what she said she does during the survey phase and the practices

observable during the observational phase. During the interview, she stated that she needs

training and noted the value of being able to program the system without SLP support and being

able to train paraprofessionals. Therefore the question arises as to her past teaching experiences.

Were there experiences that had placed her in a position where she demonstrated decreased

motivation to embrace the unique challenges of working with students with complex

communication needs for likely the better part of the school year? What is the effect on student

learning to have a teacher unable to effectively embrace the needs of every student? Is regression

the consequence? In an era of critical shortages in special education, is this acceptable? This

researcher's answer is a resounding no. Clearly, knowing what leads to a teacher's 'falling

through the cracks' is an important area of research to pursue and find solutions in order to help

resolve this issue, however the school's responsibility to the child outweighs that need in the

short term. If the teacher is unable to meet the needs of child, the district has a responsibility to

remedy that situation immediately in an effort to prevent long term consequences.

    As noted in Chapter 2, research has shown that students being served in collaborative

classrooms co-taught by both the teacher and SLP demonstrate higher achievement on reading

tests (Farber & Klein, 1999; Hadley, Simmerman, Long, & Luna, 2000; Schumm, Moody, and

Vaughn, 2000). Components for effective collaboration include experience teaching reading and

language, joint curriculum planning, weekly reflective meetings, and natural language

integration into classroom activities (Fallon, Light, McNaughton, Drager, & Hammer, 2004;

Light, Binger, Agate, & Ramsay, 1999; Silliman & Wilkinson, 2004). In the area of

collaboration, the correlation with the teacher's level of effectiveness to high levels of

collaboration was evident, with Ms. Abbott and Ms. Butler indicating the highest levels of

collaboration, including actual meeting time. Ms. Erwin and Ms. Foreman said that they only

meet with the SLP on an 'as needed' basis and during annual review time. Ms. Erwin also said

that they did not meet to discuss progress reports each quarter. In contrast, Ms.Abbott indicated

that she meets with the SLP on a twice weekly informal basis after sessions and they also feel

comfortable meeting through an early morning 'pop-in' as well. Ms. Butler shared similar

experiences of collaboration with not only her SLP support, but other members of Beth's

educational planning team as well.

Communication and literacy skills need to be taught directly on the AAC system in

tandem with vocabulary to offer the student motivation to actively engage in instruction

(Tetzchner & Grove, 2003). Having access to technology and being able to implement AT within

instructional time was evident with Ms. Abbott, Ms. Butler, Ms. Carver, and Ms. Driver. Each of

them integrated the device within the lesson, knew what was on the device and could assist the

student with support. Ms. Erwin seemed to leave it up to the paraprofessionals (none of which

were trained) to assist the student while she focused on facilitating the lesson to the group. Ms.

Foreman had the system accessible on the student's desk, but it was not used in any functional or

academic way. It was clear through the observations that she was not familiar with the system

and couldn't assist Faith when she tried.

Support and resources seem to be easily available in most of the settings, even if they are

not always accessed. Participants stated that they generally feel supported by administration and

had enough resources to effectively teach reading and language. The issue was primarily having

the training to effectively use the things which were available. Paraprofessionals were seen by all

as an invaluable support with several participants noting that they couldn't do their instructional

day without them. That said they also discussed the need for the paraprofessional to have the

knowledge and training to effectively assist, particularly in the area of reading and language

instruction. Table 3 summarizes teaching characteristics noted with the settings of this study.

Table 3. Summary of Teaching Characteristics

	Consistent In all Six Settings	*Not Found In All Six Settings*
1. Licensure and credentials.	X	
2. Reading foundations.	X	
3. Language foundations.		X
4. Assistive technology and AAC training.		X
5. Collegial environment.		X
6. Manageable caseloads and paperwork.	X	
7. Adequate consultation and collaboration time.		X

Research Question 2: Which effective teaching practices supporting language and literacy

development for students with complex communication needs are present in these settings?

Findings

Teaching practices which were consistent across settings included the use of a variety of

reading strategies during reading instruction. Participants also all used homogeneous grouping in

an effort to meet individual learning needs for each students. All the participants shared that they

have access to needed resources (although actually utilizing them was inconsistent). Finally,

acknowledging the vital role that paraprofessionals play in being able to effectively serve

students with complex communication needs was consistent across settings. All participants

shared that they would not be able to do their job without this support, even if it is only on a

functional need basis.

Teaching practices which were inconsistent across settings included the use of a research

based core reading curriculum. Several participants noted that often the reading programs do not

offer enough opportunities for multiple practices which are needed for these students. Also

inconsistent was the level of expectations for students learning. While many of the participants shared that they believe their students will make realistic gains in accordance with their health needs and home support, one participant voiced that she did not expect the student to gain proficiency in the area of language. Another vital area for success which was inconsistent across settings was the amount of family support and involvement. Interestingly one of the families discussed in terms of their refusal to take the AAC system home for additional home-based practice was a family who went through the litigation process for the student to receive the system and paraprofessional support. Last, while the value and need for paraprofessionals was shared consistently across participants, their use in instruction and for support in the settings was inconsistent.

The inconsistencies in the area of teaching practices have more foundation for explanation and may not be a sign of weakness. For example, the use of a research-based curriculum was not the focus of reading instruction for three of the most effective teachers. Meeting the student at their individual functioning level and offering the repetition and reinforcement of skills was more critical for each student's measure of learning achievement as individual functional and medical needs play a role in assimilation of knowledge. However, family support and the use of knowledgeable paraprofessionals is critical to success.

Discussion

Current research cites the need to focus emergent literacy instruction using interventions which address each of the five major components of reading acquisition: phonological awareness, phonics, vocabulary, fluency, and comprehension (Cavanaugh, Kim, Wanzek, & Vaughn, 2004; National Reading Panel, 2000). While research clearly supports the use of a core research-based reading program, only two participants observed, Ms. Butler and Ms. Erwin used

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a structured reading program for core curriculum, Houghton Mifflin Reading Program and Reading Mastery, respectively. Three of the other participants used a combination of materials to allow for multiple opportunities for practice and reinforcement. When asked about the use of a core curriculum, each shared that their students require repetition so they pull from multiple sources of materials to keep reinforcing the same skills in fresh ways to aid student motivation. The fifth participant, Ms. Foreman, did not demonstrate any structured reading instruction throughout the study.

In addition, effective characteristics to engage students in instructional activities in reading include having specific goals for learning, teaching in real life contexts, using a variety of resources, use of supports and scaffolds, explicitly teaching the use of strategies, and collaborative support. (Cambourne, 2001; Guthrie & Cox, 2001; Good & Brophy, 2000). The most common of effective instructional practices noted were a demonstration of "with-it-ness" by the participants, having realistic expectations for their students on an individual basis, and having good classroom management skills. While many of these practices were visible in each of the settings, again, it is interesting to note that the two participants who exhibit the widest range of evidence of effective practices are both in the same school setting (Ms. Abbott and Ms. Foreman). They have identical access to administration support and school resources, yet show startling differences in implementation, expectations, leadership, and drive. The students in Ms. Abbott's class are more physically involved and require more physical support throughout the school day, yet the skills that she requires of her students are considerably higher than those being addressed by students in Ms. Foreman's classroom who are mainly independent in functional skills and also on average two years older.

Concerns expressed by several participants include needing a deeper understanding about teaching language and reading to nonverbal children who are unable to voice the sounds. Research indicates that phonological awareness skills should be taught to students at risk of reading failure (Cavenaugh, et al, 2004; Wagner, Torgesen, & Rashotte, 1994). This includes nonverbal children. In addition, effective teachers support language development by emphasizing vocabulary and language within other lessons, focusing explicitly on two critical reading skills: blending and segmenting words, asking students to define words and use them in sentences, and answer a hierarchy of questions (Coyne, Kame'enui, & Simmons, 2001; Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003; National Reading Panel, 2000). Using this type of focused language approach gives students better understanding of word construction and increase language awareness (Atkinson, Wilhite, Frey, & Williams, 2002; Nagy, et al, 2003). Effective teachers support communication interactions in a natural manner (Alant & Lloyd, 2003). The uses of individualized supports facilitated by the teacher are key components for success and this level of scaffolding which requires higher level teaching skills comes with experience and training (Alant & Lloyd, 2003). While participants may not feel as though they are meeting the student needs in this area, most appear to be doing well despite lack of professional development in this area. This level of teaching was evident in varying degrees in four of the six settings observed (Ms. Abbott, Ms. Butler, Ms. Carver, and Ms. Driver). By using a multi-sensory approach, including the use of visual supports, engaging in a dialogue approach to reading and the use of interactive storybooks, their students are engaged in learning on multiple levels (Fung, Chow, & McBride-Chang, 2005; Gentry, Chinn, & Moulton, 2004; Kaderavek, & Justice, 2002; Rivera, Koorland, & Fueyo, 2002). In the other two settings (Ms. Erwin's and Ms. Foreman's), examples of learned helplessness are visible through student

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behaviors, such as having their head on their desk for most of the instructional time or refusal to actively participate in activities. This phenomenon occurs when students give up easily because they are faced with a difficult task in which they have not felt success and therefore and may feel a lower sense of self-efficacy (Firmin, Hwang, Copella, & Clark, 2004; Seifert, 2004).

Teacher attitudes and expectations may be more important than the curriculum or intervention, particularly with students who use AAC systems (Basil & Reyes, 2003; Jamison, Lydon, Stewart, & Zanna, 1987; Light, 1993, Light & McNaughton, 1993; Parette & Brotherson, 2004; Zascavage & Keefe, 2004). To the observer, the settings presented very different levels of effectiveness including having a positive attitude about the students and their needs, as well as articulating high, realistic expectations for their student ability. In one setting, Ms. Abbott set the standard for demonstrating leadership, exhibiting high, yet realistic expectations for the students, challenging the students academically, incorporating paraprofessionals appropriately, and taking full responsibility for meeting her students' needs. In another setting with Ms. Foreman many of these practices were exhibited in either a neutral or negative fashion. Ms. Foreman demonstrated an extremely low level of expectations for her students. For example, she clearly articulated that she did not expect Faith to make progress in language development in the coming year. The researcher's concerns were echoed by the research assistant following her viewing of the observation tapes for validity. In reference to Ms. Foreman she said, "She has *no* expectations for any of her students." Ms. Foreman shared that she did not take the initiative to be trained (or send a paraprofessional to be trained) in the use of the system, and she did not demonstrate knowledge of how to integrate the system and address language goals directly within the instructional setting.

In another school setting, the differences in expectations between two teachers (Ms. Driver and Ms. Erwin) are prominent also, although to a lesser degree. Ms. Driver is a general education teacher who serves a student in an inclusive setting and demands equal responsibility and consequences for the student's learning and behavior. In contrast, Ms. Erwin does not demonstrate that level of expectations within her setting. Students were noted to be copying answers from paraprofessionals, rather than being given scaffolding support to increase independence and understanding of the material. The rest of the participants ranged between the two extremes in terms of their demonstrated level of effectiveness.

Family involvement and support are key components to literacy development for students with complex communication needs. Through the use of the AAC system in the home, reinforcement of language skills, multiple opportunities for practice, families can increase their child's chance of success in language and reading (Downing, 2000; Light & McNaughton, 2003; Moeller, 2000; Zascavage & Keefe, 2004). Participants in the study underscored the importance of family time and time again and voiced frustrations regarding inadequate follow-up and support in the home.

Cawthorn (2004) recognized that teaching in diverse classrooms is difficult when striving to meet the needs of all learners and cites homogeneous grouping as an effective method to support literacy development with students who struggle with learning to read. All of the classrooms employed this strategy of grouping. Other factors that affect the success of students with complex communication needs include susceptibility to distraction, frustration with communication or technology issues, and physical or mental fatigue (Tetzchner & Grove; 2003). These were all acknowledged by participants as being areas of concern as they strive to meet the needs of all of their students. Some are issues in which teachers can exert a measure of control

over, such as minimizing distractions and planning proactively for system break-downs. Combating issues such as fatigue require more family involvement.

Accessibility to needed resources, knowledge of strategies to meet the needs for developing language, explicit instruction in narrative discourse, and appropriate vocabulary selection and organization on the AAC system are vital for the success of teachers working with students with complex communication needs (Drager, & Hammer, 2004; Fallon, Light, & Achenbach, 2003; Koppenhaver & Erickson, 2003; Tetzchner & Grove, 2003). In addition, inclusive environments are integral for successful transfer of skills (Tetzchner & Grove, 2003). Evidence was clear throughout the study, albeit stronger in some settings than others, that these practices are being pursued. Strategies consistently noted included systematically building on PA skills in a direct instruction manner, modeling, use of visuals and a multi-sensory approach, and the use of homogeneous small groups. Only two of the participants, Ms. Abbott and Ms. Butler demonstrated practices specific to teaching language and literacy on AAC systems, such as the use of scripts and narratives or partner-focused communication techniques. Interestingly, these two participants were also the ones who described the strongest relationship with the district assistive technology team. Both indicated that they sought the assistance and expertise of the district team and felt comfortable calling on them for assistance at any time. This relationship was not evident among other participants, most of whom stated they knew of the team and were made aware of the professional development offering by them at the beginning of the school year. However, this appeared to be the extent of their relationship.

The use of paraprofessionals was noted by all participants as being vital to success of teaching students with complex communication needs. However, concerns about paraprofessionals included that they were not trained in the AAC system and there was difficulty

in getting the training. Knowledge of instructional practices was also a weak area for paraprofessionals. Several participants shared frustrations of paraprofessionals not understanding the reasons behind scaffolding support, repetition, and allowing the student's voice to be heard and followed.

The number of paraprofessionals who supported each setting indicated a significant difference. While the five settings observed were fairly close in size and need, three of the five settings had three full time paraprofessionals while two of the settings only had one paraprofessional. Table 4 shows the class size and number of students who require physical support for functional life skills, (i.e. Mobility, access to instruction, bathrooming, and eating).

Table 4. Comparison of Needs and Paraprofessional Support

	Number of students	*Number who use AAC*	*Number who need assistance with functional life skills*	*Number of Paraprofessionals*
Abbott	5	5	5	3
Butler	6	1	7	1
Carver	8	1	3	1
Erwin	5	2	3	3
Foreman	12	2	1	3

When asked about the differences in the amount of support in different settings, the participants did not know why some settings received a high number of paraprofessional support while others did not. Interestingly, the settings with the least support are both located in the same learning. It is not known if there is a difference in thinking among district administration in each learning community about the issues of supports in special education, particularly in regards populations that require a high level of functional support.

Differences for the consistent use of effective practices among the participants were conspicuous and seem to underscore the importance of teacher choice. Appendix Q shows the practices noted consistently among all five settings, as well as those which were not consistent. While many of the practices noted as inconsistent column were present in some settings, the question arises as to school and district responsibility in ensuring that students with this level of need are served by teachers willing to meet the extra challenges associated with teaching students with complex communication needs. The amount of student engagement seems closely correlated with the teacher's use effective practices. Table 5 shows the researcher's impressions of student engagement in a hierarchy of whether they were engaged in instruction the majority of the time, some of the time, or little of the time during the observations.

Table 5. Impressions of Student Engagement

	Engaged Majority of Time	*Engaged Some of the Time*	*Engaged Little of the Time*
Abbott	X		
Butler	X		
Carver	X		
Erwin		X	
Foreman			X

Students with complex communication needs are dependent on school settings and the absence of these opportunities may have a strong negative impact (Tetzchner & Grove, 2003). It becomes the role of the teacher to model and guide both student and families. Administration and district personnel have shown evidence of support. While there are a number of ways to increase support for teachers, one of the strongest recommendations came from a participant in the study who clearly struggles to meet the needs of her students, both in terms of personal expectations and in concrete areas. Ms. Foreman voiced her feelings eloquently when she said, "I

guess I'm feeling like I'm the one who is going to have to step up to the plate more than I have --

I think there are trainings out there, and take the trainings -- and about training

paraprofessionals. I think that I need to, if I feel the paraprofessionals want to be trained, I'm

sure that I can figure out a way that they come with me to the training and the parent as well and

do something like that. I think that would be a great place to start because I feel that I'm not

trained. Well, I'm not trained. Not *I feel I'm not trained.* I'm not trained." (Personal

communication, April 10, 2006). Indeed, although supports and resources are necessary for

success, in the end the teacher may stand alone in making the decision to make it work.

Challenges

A number of concerns were noted by participants and observed by the researcher. These

concerns illustrate the challenges faced when serving students with complex communication

needs. These concerns include the lack of back-up systems for device break downs, the need for

increased professional development on teaching reading as well as in the area of language

development, specifically to students with complex communication needs. Additionally,

professional development is needed for both AT and AAC training for teachers and

paraprofessionals. There is a need for increased school based supports, particularly in AT/AAC

assistance. Also, the need for families to be involved in the implementation of AAC and AT as

well as supporting classroom instruction is a major concern for all participants. Each of these

issues are critical components for a successful learning experience for students' with complex

communication needs.

Ms. Foreman was one participant in particular who appeared to have a difficult time

meeting the needs of students with complex communication needs. Her responses to the survey

at the outset of the study indicated that she felt she was an effective teacher. However, through the course of the study, she appeared to notice the setting and her performance through the eyes of outside observers and indicated in the interview responses that she knew she had a long way to go in regards to professional development and getting the environment set up to meet the needs of this population to be an effective teacher, specifically for this population. Given the small number of participants in this study, it is not known if Ms. Foreman is representative of typical teachers who serve students with complex communication needs. However, it does signify the need to replicate the study in other districts in order to determine the prevalence of teachers who are not embracing the challenges and meeting the needs of all students. Further studies would also be needed to determine psychosocial factors which may affect a teacher's willingness to meet the challenges, such as motivation to seek the increased training needed, comfort with technology and AAC, confidence in both teaching academic and functional skills, as well as resilience to continue to move forward despite hurdles such as not having adequate SLP support on site or inadequate family support.

Limitations of the study

As noted in Chapter One, limitations of the study include the subjectiveness of participant responses and documentation using the observation instrument in relation to participant behavior. The Hawthorne (research) effect was observable in several of the population settings. When visiting classrooms through both scheduled and unscheduled observations, it was apparent what was being done within the normal routine of the classroom and if the routine seemed disrupted by the researcher's presence. Typically, one would expect it to be a sanitized, more positive look at the setting than what the students typically experience. In several of the classrooms, this effect was not as noticeable as in others. Ms. Abbott, Ms. Butler, and Ms. Carver all seemed to be

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relatively typical days with the student's and paraprofessional's behavior indicating a normal course of events, although they may have run more smoothly and with fewer interruptions with the video camera in the room. The most notable indication of the Hawthorne effect was in Ms. Foreman's classroom where the paraprofessionals seemed ready to hand out independent work while the she told them, "Not yet." This indicated that the paraprofessional was unsure of the day's routine in reference to what was normally done. In addition student behavior seemed to indicate that the morning meeting time was being extended as they were fidgeting and disruptive as the lesson was extended to have each student repeat a sentence with the date. Students seemed less sure of the routine and seemed easily bored with what was happening. On the occasion of the unscheduled visit, there were cooking items out for a pancake lunch when the researcher arrived. The teacher and paraprofessionals appeared to be trying to shift gears and pull together a lesson at the last second. The lesson ended up being writing folders in which students practiced copying their own names. Most likely, had the observation not happened that day, it seemed that the students would have been preparing for the cooking activity, which would have been a wonderful lesson and one in which the AAC system could be easily integrated into, but for whatever reason, that didn't happen. They copied their names instead.

Another limitation was while the results gave specific findings pertinent to team relationships within this population (administrators, SLP's, district level teams, and school based teams), this study did not directly address the findings or issues with those populations. Rather the findings suggest areas for future research in relative to those relationships.

Next, while this was not a causative study, it was difficult for the researcher to know the student's ability level through observations of the classroom setting. While it appeared to both the researcher and research assistant that a number of students were not being challenged and

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may be victim to low expectations, the limitation here was not being able to work directly with the child to have a better understanding of their aptitude and better understand how/if the child was being academically challenged.

Another limitation of the study is the influence of the researcher's and the research assistant's interpretations based on prior personal experiences. Being familiar with the types of issues and interruptions which happen in these settings does lead to a deeper understanding of why things may be happening in certain environments. It also had the effect of causing frustration and irritation on the part of both the researcher and assistant at seeing negative practices being implemented. This seemed to color the lens in which the settings were being viewed. Questions were asked between the researcher and assistant such as, "Where is the principal and why does she think this is okay? What do the families think of these issues?" And "Why doesn't the teacher seek assistance from *someone*?" In direct contrast, seeing the negative very clearly portrayed forced the researcher and assistant to view better settings through rosier lenses. It is difficult to avoid the effect of seeing the better setting as perhaps being better than it may be in reality when viewing it against settings which seem to be causing regression. While this issue was explicitly discussed between the researcher and assistant, careful attention was paid to viewing the observations as objectively as possible and offering the teacher the benefit of the doubt, at least until proven wrong through the interview answers.

Finally, Ms. Erwin's participation in the study was limited due to the student's family declining participation. While the interview process with Ms. Erwin strengthened findings from other participants, such as the need for high expectations, a strong level of school-based support, and the importance of a trained paraprofessional as support, the limitation to her participation is that the researcher was unable to view practices first-hand and relies on self-report.

Implications for Practice

The findings of this study have numerous implications for practice in terms of serving students with complex communication needs as effectively as possible. The following recommendations were compiled through the participant responses and researcher observations to the challenges faced by those serving students with complex communication needs. Many of these recommendations suggest future directions for research to allow for a fuller understanding of variables outside of the context of this study. The recommendations are discussed below.

Recommendations for Teachers

Recommendation One: Pursuit of professional development in the areas of reading foundations, language foundations, assistive technology, and training specific to the student's AAC system.

Recommendation Two: Pursuit of professional development in collaboration techniques to increase leadership skills on the school-based team while working with speech language pathologists, other therapists, and families.

Recommendation Three: Pursuit of qualified assistance through district-based teams, if it is not available at the school site, particularly with the speech language pathologist as they play a critical role in successful reading and language development for students with complex communication needs.

Recommendation Four: Seek supports and resources explicitly through the school and district based administration. Concerns were shared about budgets and feeling like each should be able to carry the load. Research and this study show the need for increased support and resources to effectively serve students with complex communication needs. Differences in

supports and resources on the same school sites in this study suggest that supports and resources have not been explicitly sought.

Recommendation Five: Seek professional development opportunities for paraprofessionals and ask for administrative support for them to attend.

Recommendation Six: Invite administrators to come into the classroom and share explicitly what types of planning, supports, and resources are needed to make the instructional time more effective.

Recommendation Seven: Seek and build a relationship with the district-level assistive technology team. As the team serves a large school district with few team members, they may not be able to reach out as much as possible to all the teachers who use assistive technology in the county. By seeking the assistance, the teacher puts their name at the forefront and is better aligned to receive help.

Recommendation Eight: Accept responsibility for teaching students with complex communication needs. Not seeking assistance and training will cause regression as these students move through teachers throughout their school career. It is every teachers' responsibility to be able to pick up where the previous teacher left off and move the student forward.

Recommendations for Related Professionals

Recommendation One: School-based SLP's should seek professional development specific to needed AAC systems for supporting classrooms.

Recommendation Two: School-based SLP's should work with the teacher to build a collaborative relationship to better meet the needs of the child.

Recommendation Three: School-based administrators should pursue knowledge related to compliance and litigation issues which affect accountability with AT and AAC systems.

Recommendation Four: Administrators should insure teachers and paraprofessionals have access and support for receiving professional development to meet the needs of these students.

Recommendation Five: District-based assistive technology teams should insure that teachers are aware of protocol for requesting back up systems.

Recommendation Six: District AT teams should work with the teacher and school team to document follow up regarding the system match to the child.

Recommendation Seven: District AT teams should increase efforts to provide professional development opportunities in multiple formats/settings to meet the needs of teachers and paraprofessionals, as well as families.

Recommendation Eight: District AT teams should device a method of maintaining a record of contact with teachers to ensure all are being contacted and tracked in regards to supports and training.

Many of the recommendations for professionals also suggest areas for systemic change within the field in order to better meet the needs of students with complex communication needs. First, the issue of paraprofessionals leads to significant questions to be addressed at the district level or beyond. Areas to be address on this issue include the need for qualified one-on-one paraprofessionals, as well as the need for increased support for paraprofessional training in order to effectively work with teachers and students in this population. Is there adequate motivation and support for paraprofessionals to take on added challenges than those in other general education or special education classrooms?

Another area of systemic change lies with an investigation of the district assistive technology team and how to best meet the needs of a large urban school district. While the district AT team was not specifically addressed in this study, it is known that there are only 5

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members of the team to serve a district with over 150 schools. This information alone suggests

the explanation of why some teachers do not a strong relationship with the team and why it is

stronger for those who acknowledged that they personally sought out that support.

Finally, the issue of school leadership and its effect of teacher motivation and choice

suggest avenues of change. What supports and resources are available to provide teachers with a

sense of renewal through team or school leadership and are they of the same caliber for special

education teachers as those for general education teachers?

Future Directions for Research

Several areas of interest for future research emerged throughout the study for further

exploration. The results of the study branch into the roles and responsibilities of others,

specifically the SLP, paraprofessionals, families, administrators, and the district assistive

technology team. These implications for practice are discussed in each area.

Speech language pathologist

As they are often assumed to be the 'expert' in the area, in two settings of this study, the

SLP's did not appear to be knowledgeable in regards to AAC implementation. What is their

role/responsibility in providing knowledgeable support on the AAC system?

Paraprofessionals

Issues need to be addressed pertinent to professional development opportunities both in

instruction and assistive technology. How may they be better utilized as instructional assistants?

Are there district-wide standards on the appropriate number of paraprofessionals?

Families

      What are the families responsibilities in providing technology support (ex. sending the system in with the battery already charged and/or sending the charger in) and instruction support by providing (access to the system for practice?)?

Administrators

      What protocols are in place if the teacher is not using the system and is out of compliance on the IEP? Whose responsibility is it to report this if noted? Are administrators knowledgeable in the area of compliance and litigation in regards to AAC systems? Are appropriate supports and resources needed to effectively teach students with complex communication needs being provided?

District assistive technology team

      Is the district team able to meet the teachers' needs in a large school district? Are students being tracked through the system and documentation of teacher use and training being kept? Is there enough professional development being offered to teachers (and other staff) at times when it is feasible for them to attend? Are teachers followed up on a consistent basis so that they (and subsequently the student) do not "fall through the cracks?" Is the right AAC system being assigned to the child? (Eleven out of twelve systems in this study were from the same vendor.)

      The pursuit of these future directions of research will offer a more comprehensive look at the issues and challenges faced by teachers and those who serve students with complex communication needs. As NCLB continues to address the need for accountability for the learning of all students, it is clear this population of students requires a higher level of teacher knowledge and commitment to meet the need the needs of these students in the area of language foundations and specialized technology skills. The array of supports and resources required (both human and

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material) are higher than the needs in general education classrooms. Visualizing a pyramid of knowledge places specialized skills on top of effective practices needed for all populations.

The question arises on the issue of 'highly qualified' in regards to students with complex communication needs in terms of the findings of this study. The least effective teacher appeared to be among the most qualified in terms of education and experience. However, a different dynamic is at work in these settings. It is vital that teachers who work with students with complex communication needs be supported as well as be held accountable for learning gains in both academic and functional goals; otherwise the consequence is regression in student achievement. It was heartbreaking to hear Ms. Foreman state clearly that she did not expect Faith to make gains in language development on the AAC system. In conclusion of this study, the hope lies with the teachers who can look past the challenges and see the potential in all students. As Ms. Abbott shared, "There's something in every child, you just have to figure out how-- that's one of the challenges, how to get it out of them. You know they have it, that little twinkle in their eye." (Personal communication, April 10, 2006). And therein lies our hope to help teachers and teams develop the skills and resources to meet every child where they are at, embrace the challenges and advocate for needed supports and resources, and thus ensure that we do in fact leave no child behind.

APPENDIX A. INFORMED CONSENT

April 3, 2006

Dear Educator:

I am a doctoral candidate at the University of Central Florida. For my dissertation study, I am conducting a qualitative study exploring teaching characteristics and practices which affect language and literacy development for students who use augmentative and alternative communication (AAC) systems. The title of the study is "Teaching Characteristics and Practices Which Affect Language and Literacy Development for Students with Complex Communication Needs." The research methodology will include a demographic survey, three observations of literacy instructional block which will be videotaped, and a semi-structured interview with the participant.

You are invited to participate in this study because you have been identified as an educator who is primarily responsible for language/literacy instruction for a student (or students) who uses an AAC system for functional communication. Participants will be asked to complete a survey regarding teaching characteristics, consent to being observed during literacy instructional block on a minimum of three occasions (one scheduled, one information drop in, and one videotaped without the researcher present), and participate in an interview lasting approximately 60 minutes.

The survey is a paper and pencil instrument in which you will check the box of the response which applies best to your situation in reference to teaching certification and training. Additionally, you will be asked to answer simple demographic types of questions regarding the classroom setting (ex. Which type of AAC system and assistive technology is used?).

The observations and interviews will be recorded for analysis and the tapes will be destroyed at the completion of the study. Observations will take place during the language/literacy instructional block. All observations will be videotaped. The videotape will be set to film the classroom setting throughout the instructional time stated by the teacher. During observations by the researcher, the researcher will remain unobtrusively in the classroom. One observation will be videotaped by the student assistant. During this time, the assistant will set up the recorder and wait outside the classroom until the designated time of completion to avoid disruption of the classroom routine. If questions about the video camera arise during this time, the teacher is free to ask the student assistant for assistance.

The interview will be administered by the researcher and audiotaped. You may refuse to answer any question at any time. The interview will be transcribed, removing any identifiers during transcription, and confidentiality of participants, students, and schools will be protected at all times. Tapes and transcripts will be kept in locked cabinet in the Teaching Academy (TA 103) or in the researcher's home throughout the study. The tapes will be erased and/or destroyed after transcription is complete. Participating educators must be 18 years of age or older to participate.

There are no anticipated risks to you as a participant in this study. For compensation for your participation, you will receive an assistive technology product (valued at approximately $200.00) to be used to support language and literacy development in your classroom. To qualify for this compensation, you must complete all three phases of the study: the survey, three videotaped observations, and the semi-structured interview. You are free to withdraw your consent to participate and may discontinue your participation in the study at any time without consequence.

Following completion of the study, the researcher will meet with each participant to share individual results and a review of the best practices noted in the research review for working with students with complex communication needs. Participants will be given a list of the conditions identified in the literature to positively affect language and literacy development and instructional practices for this population of students.

If you have any questions about this research project, please contact me through email at lhking@mail.ucf.edu. I may also be reached through a TDD phone at (407) 823-0099. To access the TDD, please call the relay station at 711 for operator assistance. My faculty supervisor, Dr. Lee Cross may be contacted at (407) 823-5477 or by email at lcross@mail.ucf.edu. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12443 Research Parkway, Suite 302, Orlando, FL 32826-3252. The telephone number is (407) 823-2901.

Please sign and return this copy of the letter in the enclosed envelope. A second copy is provided for your records. By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my dissertation committee for partial fulfillment of degree requirements. Results will be shared with members of the dissertation committee and participants in the study. Additionally, the final manuscript may be published in peer-reviewed professional journals.

Consent forms will be kept on file in a locked cabinet in the UCF Teaching Academy (TA Room 103) for a period of three years and then destroyed. Videotapes will be destroyed at the completion of the study. Data collected will be filed for a period of three years and then destroyed. Please sign and return this copy of the letter in the enclosed envelope. A second copy is provided for your records. By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my dissertation committee for partial fulfillment of degree requirements. Results will be shared with members of the dissertation committee and participants in the study. Additionally, the final manuscript may be published in peer-reviewed professional journals.

Sincerely,

Laura H. King, M. Ed.

APPENDIX B: PARENTAL INFORMED CONSENT

April 3, 2006

Dear Parent/Guardian:

Your child has been nominated by the **** County Local Assistive Technology Team to participate in a study that is being conducted for dissertation research in conjunction with the University of Central Florida, College of Education. The primary participant in the study is your child's teacher(s). Your child's identifying information has not been shared in any way with the researcher at this time. Your child was chosen because he/she meets the criteria for this study as a user of an augmentative and alternative communication system (AAC) and you, as parent, are being offered the opportunity to have your child participate.

The research project involves a case-study analysis of your child's learning environment in relation to language and literacy instruction. The researcher wants to document and write about classroom instructional time specifically focused on language and/or literacy development in regards to students who use AAC systems. It is important to document effective conditions for language and literacy instruction for students with complex communication needs. The observations will take place in the general academic day during the instructional block and will not cause disruptions to your child's school schedule. Non-participation in the study will not affect the child's grade in any way. The results of this study may someday help educators provide more effective instructional practices for students who use AAC systems in relation to language and literacy development. You and your child should feel good about assisting with this important research.

With your consent, your child will be observed by the primary researcher, Laura King, a doctoral candidate at the University of Central Florida. Three observations will take place during regular classroom instructional time and will be videotaped for analysis. The length of the study in regards to observations will be completed within 6 weeks of the start of the study. All tapes will be stored in a locked cabinet in the Teaching Academy office (TA103) and will be destroyed soon after the research process is complete.

Your child's name, the names of his/her teachers, and the name of your child's school will be kept confidential and will not be used in any report, analysis, or publication. All identifying information will be replaced with alternate names or codes.

You may contact me at 407-381-0136. The phone is a TDD device for hearing impaired. To access the TDD, simply call 711 for the relay operator who will assist you in making the call. You may also use email at lhking@mail.ucf.edu or my professor, Dr. Lee Cross at 407-823- 5477 or by email at lcross@mail.ucf.edu, for any questions you have regarding the research procedures. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, Orlando Tech Center, 12443 Research Parkway, Suite 302, Orlando, FL 32826-3252, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday except on University of Central Florida official holidays. The telephone number is (407) 823-2901.

Sincerely,

Laura H. King, M.Ed.
Doctoral Candidate, Exceptional Education
College of Education, University of Central Florida

_____

____ I have read the procedure described on the previous page.

____ I have received a copy of this form to keep for my records.

____ I have received a copy of the child assent script which will be read to my child.

____ I give consent for the teacher to share information specific to the AAC system and its use (type, how long the child has used it, etc.)

I voluntarily give my consent for my child, _____, to participate in Laura H. King's study entitled, "Teaching Characteristics and Practices Which Affect Language and Literacy Development for Students Who Use Augmentative and Alternative Communication Systems," and to be observed in the classroom instructional setting.

	/
Parent/Guardian	Date

	/
2nd Parent/Guardian	Date

(or Witness if no 2nd Parent/Guardian)

Please sign and return one copy of this page to your child's teacher.

APPENDIX C: PARENTAL INFORMED CONSENT; SPANISH VERSION

Consentimiento Informado Parental

De abril el 4, 2006

Padre Querido Guarda:

Al equipo local de la tecnología de Assistive del condado anaranjado ha nominado a su niño para participar en un estudio que se está conduciendo para la investigación de la disertación conjuntamente con la universidad de la Florida central, Universidad de la educación. El participante primario en el estudio es teacher(s) de su niño. La información que identificaba de su niño no se ha compartido de ninguna manera con el investigador en este tiempo. Eligieron a su niño porque élella resuelve los criterios para este estudio como usuario de un sistema de comunicación aumentativo y alternativo (AAC) y usted, como padre, se están ofreciendo la oportunidad de hacer que su niño participe.

El proyecto de investigación implica caso-estudia análisis del ambiente que aprende de su niño en lo referente a la instrucción de la lengua y de la instrucción. El investigador desea documentar y escribir sobre el tiempo educacional de la sala de clase centrado específicamente en lengua yo desarrollo de la instrucción en respeto a los estudiantes que utilizan sistemas de AAC. Es importante documentar las condiciones eficaces para la instrucción de la lengua y de la instrucción para los estudiantes con necesidades de comunicación complejas. Las observaciones ocurrirán en el día académico general durante el bloque educacional y no causarán interrupciones al horario de la escuela de su niño. La no participación en el estudio no afectará el grado del niño de ninguna manera. Los resultados de este estudio pueden ayudar algún día a educadores a proporcionar prácticas educacionales más eficaces para los estudiantes que utilizan sistemas de AAC en lo referente al desarrollo de la lengua y de la instrucción. Usted y su niño deben sentirse bien sobre asistir con esta investigación importante.

Con su consentimiento, al investigador primario observará a su niño, Laura King, un candidato doctoral en la universidad de la Florida central. Tres observaciones ocurrirán durante tiempo educacional de la sala de clase regular y serán grabadas para el análisis. La longitud del estudio en respeto a las observaciones será terminada en el plazo de 6 semanas del comienzo del estudio. Todas las cintas serán almacenadas en un gabinete bloqueado en la oficina de enseñanza de la academia (TA103) y destruidas pronto después de que el proceso de la investigación sea completo.

Nombre de su niño, los nombres el suyosus profesores, y el nombre de la escuela de su niño será mantenido confidencial y no utilizado en ningún informe, análisis, o publicación. Toda la información que identifica será substituida por nombres o códigos alternos.

Usted puede entrarme en contacto con en 407-381-0136. El teléfono es un dispositivo de TDD para la audiencia deteriorada. Para tener acceso al TDD, simplemente llamada 711 para el

operador del relais que le asistirá en la fabricación de la llamada. Usted puede también utilizar el email en el lhking@mail.ucf.edu, o mi profesor, Dr. Las heces se cruzan en 407-823- 5477 o por el email en el lcross@mail.ucf.edu, para cualquier pregunta usted tiene con respecto a los procedimientos de la investigación. La investigación en la universidad de la Florida central que implica a los participantes humanos se realiza bajo descuido del comité examinador institucional (IRB). Las preguntas o las preocupaciones por las derechas de los participantes de la investigación se pueden dirigir a la oficina de UCF IRB, Universidad de la Florida central, Oficina de la investigación y de la comercialización, Centro Del Tech De Orlando, Parkway De la Investigación 12443, Habitación 302, Orlando, Fl 32826-3252, o por el correo 32816-0150 del campus. Las horas de la operación son 8:00 hasta 5:00 P.M., De lunes a viernes exceptúa en la universidad de los días de fiesta centrales del funcionario de la Florida. El número de teléfono es (407) 823-2901.

Sinceramente,

Laura H. King, M.Ed.
Candidato Doctoral, Educación Excepcional
Universidad de la educación, Universidad de la Florida central

_____

_____ I ha leído el procedimiento descrito en la página anterior.

_____ I ha recibido una copia de esta forma para guardar para mis expedientes.

_____ I ha recibido una copia de la escritura del asentimiento del niño que será leída a mi

niño.

_____ Consentimiento de la elasticidad del I para que el profesor comparta específico de la información al sistema y a su uso (tipo de AAC, cuánto tiempo el niño lo ha utilizado, etc.)
Doy voluntariamente mi consentimiento para mi niño, _____, para participar en Laura H. King estudio del rey dado derecho, "características y prácticas de enseñanza cuáles afectan el desarrollo de la lengua y de la instrucción para los estudiantes que utilizan sistemas de comunicación aumentativos y alternativos," y ser observado en el ajuste educacional de la sala de clase.

PadreFecha Del Guarda   _____

2do PadreFecha Del Guarda   _____
(o testigo si ningún 2do padreGuarda)

Por favor muestra y vuelta al profesor.

APPENDIX D: VIDEOTAPE AUTHORIZATION

To Parents of Students Within the Classroom Setting:

My name is Laura King. I am a doctoral candidate at the University of Central Florida in the area of Exceptional Education. My dissertation research project has been approved to be conducted within your child's classroom setting. The study will examine teaching characteristics and practices in regards to teaching literacy to students who use an augmentative and alternative communication (AAC) system.

The primary participant in the study is your child's teacher. Throughout the study, there will be three videotaped observations of the literacy instructional block. While your child is not the focus of the study, s/he may appear in the videotaped observations. Your child will not be identified by name or any other identifying characteristics during any subsequent analysis or report. If something is to be reported in the analysis and reports, a pseudonym will be used. If you choose to withhold your permission for your child to be videotaped, they will be seated strategically so that they do not appear in the video.

The videotapes will only be seen by the researcher, a research assistant, and members of the dissertation committee. Videotapes will be kept on file until the end of the study in a locked cabinet the UCF Teaching Academy (TA 103). All videotapes will be destroyed within one week upon completion of the dissertation defense.

If you have any questions regarding this study, please feel free to contact me at lhking@mail.ucf.edu or my dissertation advisor, Dr. Lee Cross at lcross@mail.ucf.edu .

- I give my permission for my child to be videotaped within the literacy instructional block. _____.
  (Child's name)
- I **DO NOT** give my permission for my child to be videotaped within the literacy instructional block. _____.
  (Child's name)

_____
(Signature)   (Printed name)
Date

APPENDIX E: VIDEOTAPE AUTHORIZATION; SPANISH VERSION

Autorización para la Grabación del Menor

Niño(a) en Escuela de Educación Primaria:

A. (Autorización Verbal) Mi nombre es Laura King y yo soy una estudiante en la Universidad Central de la Florida. Estoy realizando un proyecto de investigación con estudiantes que utilizan sistemas de comunicación como el suyo y yo estoy interesada especialmente en verlo hablar y leer utilizando su sistema de comunicación. Estoy realizando esta investigación como parte de mis estudios en la Universidad Central de la Florida.

Para hacer este estudio, yo quisiera hacer una videograbación en tres ocasiones diferentes mientras usted está leyendo. Si se siente incómodo siendo observado en sus clases, por favor déjeme saber. Solo tres profesores y yo veremos las grabaciones. Las cintas serán destruidas cuando se haya terminado el estudio. Todos los nombres serán cambiados para que nadie sepa que usted participó en el proyecto. Usted no recibirá remuneración por participar en esta investigación, pero su maestro recibirá algunos productos de tecnología que podrá utilizar en el aula para facilitar el proceso de enseñanza de lectura. ¿Le gustaria ser parte de este proyecto de investigación?

_____ Quiero participar en el proyecto de investigación de la Sra. Rey.
_____ Acepto ser filmado durante la entrevista.
_____ Acepto ser observado en clase.

_____   _____
Firma del Estudiante   Fecha

_____
Nombre Impreso del Estudiante

Laura H. King, M. Ed.
Doctoral Candidate, University of Central Florida

APPENDIX F: TEACHER SURVEY

TEACHER SURVEY

Mark your response to each number that best describes your response to the statement.	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree	5 I have no opinion on this.
Reading Instruction					
1. I am comfortable teaching reading in general.					
2. I am comfortable teaching reading with students who use AAC.					
3. I have the materials and supports I need for reading instruction.					
4. I am able to provide 90 minutes of reading instruction daily.					
5. I am able to provide 45 minutes of supplemental instruction (either through myself or another staff member).					
AAC Instruction					
1. I am able to program my student's AAC system independently.					
2. I incorporate teaching language on the AAC system in tandem with reading instruction.					
3. I give the student access to the AAC system at all instructional times.					
Collaboration					
1. I meet with the speech language pathologist on a regular basis for planning and collaboration.					
2. I am comfortable discussing issues with the team					
3. I feel that my input is listened to and valued by the team.					
4. I am a part of a collaborative team.					
5. I have attended workshops on effective collaboration.					

Continue to the next page.

	1	2	3	4	5
	Strongly Disagree	Disagree	Agree	Strongly Agree	I have no opinion on this
Assistive Technology					
1. I have access to AT materials which support literacy.					
2. I can effectively implement the AT materials within instruction.					
3. I have had adequate training on AT by the district assistive technology support team.					
4. I have adequate support from the school-based technology support personnel.					
Support and Resources					
1. I feel supported by the administrators.					
2. I feel supported by the general education teacher.					
3. I feel supported by the speech language pathologist.					
4. I feel supported by the students and families.					
5. I receive adequate materials and resources to effectively teach my students.					
6. I have adequate physical support within the classroom (paraprofessionals, etc).					
Paraprofessionals					
1. My paraprofessional is able to do programming on the AAC system.					
2. My paraprofessional has attended professional development on either the AAC system or other AT.					
3. My paraprofessional has primary responsibility of teaching the student who uses the AAC system.					
4. My paraprofessional supports instruction through supplemental activities.					

Continue to the next page.

	1	2	3	4	5
	Strongly Disagree	Disagree	Agree	Strongly Agree	I have no opinion on this
Perceptions					
1. I accept personal responsibility for my students learning.					
2. I have realistic expectations (neither too high nor too low) for my students who use AAC.					
3. I have clearly defined classroom rules and apply them appropriately.					
4. I have set routines and the classroom transitions typically flow smoothly.					
5. I assign appropriate seatwork and homework to enhance literacy instruction.					

Continue to the next page.

TEACHER DEMOGRAPHICS

Gender
Male
Female

Age
22-28
29-35
36-45
46-55
56+

Ethnicity
African American
American Indian/Alaskan
Native/Pacific Islander
Asian
Hispanic
White non-Hispanic

Highest education completed

Bachelor's degree
Master's degree
Ed.S.
Ed.D.
Ph.D.

Are you currently pursuing a higher degree?

Yes   No

Total number of years employed in an instructional position in the field of education _____

Total number of years employed in an Exceptional Education instructional position in the field of education _____

Identify other positions held in the field of education.
Elementary teacher
Middle school teacher
Secondary teacher
ESE Teacher
Secondary teacher
Reading/literacy coach
Other

_____

Are you currently teaching in or out of field?

In field   Out of field

Certification
4 year college; Degree in Education
Alternative Certification Program.
Took the certification test.

Reading Endorsement
Finished.
Working on.
Not currently addressing

Continue to the next page.

STUDENT DEMOGRAPHICS

Gender
    Male
    Female   **Age** _____

Ethnicity
    African American   **Grade**
    American Indian/Alaskan   PreK
Native/Pacific Islander   K
    Asian   1
    Hispanic   2
    White non-Hispanic   3
                                4
                                5

Type of Disability

_____

Type of AAC System

_____

Student uses a dedicated 1:1 assistant?   Yes   No

Current Reading Level

    On or above grade level
    Approximately 1 year below grade level
    Approximately 2 years below grade level
    Approximately 3 years below grade level

Student Proficiency on AAC System

    Proficient – Able to use independently to express functional communication.
    Capable – Able to express basic wants and needs through the system.
    Marginal - Needs moderate assistance to access the system.
    Weak – Needs maximum assistance to access the system.

Finished.   *Thank you for your time*

APPENDIX G: CLASSROOM OBSERVATION TOOL

Participant: _____ **Observer:** _____ **Focus of Reading Lesson:**_____**Date of tape:**_____

Directions: Mark each characteristic observed as follows: + +(positive); - (negative); or + (neutral: observed but neither +/-).

				Notes (details)
Instructional practices	*Modeling*	Demonstrates professionalism		
		Models social behaviors		
		Models academic behaviors		
	Engages students	Good instructional pacing		
		Uses motivational strategies (i.e.: shares expectations, uses specific praise, intrinsic rewards)		
		Uses cooperative groups/student directed learning		
	Classroom management	Demonstrates 'with-it-ness' (awareness of the classroom activities at all times)		
		Maintains behavioral control of the		
		Interruptions to instruction		
Reading Instruction	*Core instruction*	Concentrates on five areas: Phonological awareness, Phonics, Vocabulary, Comprehension, and Fluency		
		Direct instruction approach		
		Draws on prior knowledge		
	Strategies for students with complex comm. needs	Multisensory approach		
		Small group, homogeneous instruction		
		Multiple opportunities for practice		
	Implementation of technology & AT	Access to AAC throughout reading block		
		Use of partner focused interactions (with teacher, peer, or paraprofessional)		
		Use of picture supports, scripts, narratives, etc.		

APPENDIX H: SEMI-STRUCTURED INTERVIEW

Participant _____   *Date _____*

       Interviews will take place with participants who have completed the survey and observations in the study. The interviews will be conducted face to face with the researcher and participant and should take no longer than one (1) hour. Sessions will be audio-taped and the tapes transcribed for analysis. Tapes will be kept in a locked cabinet at the UCF Teaching Academy (TA 103) and destroyed at the completion of the study. Names of participants and locations will be changed and privacy protected throughout the analysis and reports.

Topics	*Sample Probe*
Integration of AT and AAC	Describe your reading block, including how you integrate AAC and AT
Current Supports	What types of supports would you say are now in place for you to effectively work with students who use AAC?
Expectations	Thinking about a specific child in your classroom who uses an AAC system, describe the type of progress that you anticipate them making through this year. Through the next five years?
Challenges	What are the challenges you face when teaching reading to students who use AAC?
Needed Support/Resources	If money were not an issue, describe the types of supports, resources, and/or materials that

	you feel would help you to teach reading more effectively to students who use AAC.
Paraprofessionals	Describe the role of paraprofessionals in your classroom. What are the benefits and challenges to working with paraprofessionals in regards to this population of students?
Other Issues or Concerns	Discuss any other issues or concerns that you have which affect reading instruction.

Plus: Questions specific to the participant that arose from the Teacher Survey instrument or

Classroom Observation Form.

.

APPENDIX I: SAMPLE OF FIELD NOTES- RESEARCHER

Abbott 4/13

Instructional Practices

1. Modeling
2. Engages students
3. Classroom management

Reading Instruction

4. Core instruction
5. Strategies for students with complex comm. Needs
6. Implementation of technology & AT

Theme #	+/-/0	Notes
		Morning large group circle time
		Five students using three D'Vox's, one eye gaze, and one verbal
		Students positioned in a semicircle and the paras were integrated in the circle to help two students at a time
		Lesson reviewed the attendance through name recognition
		Students did not repeat the name given by the teacher, instead they had to read the name card and then say whether the student or teacher was present
		Card was placed in categories of here or not here
		Great wait time for responses of students with AAC
		Positioning (PT therapy) is well integrated
		Abbott demonstrates 'with-it-ness' through posturing and positioning throughout the lesson
		Next activity is DOL sentences, students correct five sentences orally with the students using the alphabet pages on D'Vox
		Differences between Foreman and Abbott are startling and show evidence of expectations of teachers in the choice of activities-Abbott's class is much more physically involved and requires far more support, yet the skills that she is requiring of her students are considerably higher
		Abbott has word cards at easy access for Andrea's eye gaze communication method so that she is fully integrated in the lesson
		DOL activity is completed with a review of the rules of capitals and punctuation
		Whole group finishes and small groups are assembled like

		clockwork, two students are placed in new positions and chairs seamlessly
		Divider boards are used to maintain attention within groups, a board blocks the view of the students doing reading with the teacher of the computers being used by two other students
		One student works one on one with a para on folder games (made with Boardmaker) focused on word families
		Two students work with Abbott on reading
		Reading activity focuses on 7 letters with both students have access to D'Vox and actively participating independently
		Interruption- one person put her head in the door, saw me, and left
		Interruption- nurse entered to check a student's backpack who was at the computer but did not draw anyone's attention
		Andrea is working on a signing program on the computer
		The other student is reading an ebook on the computer with words highlighting as they are being read
		Para is sitting between them and helping as needed
		Reading group is focused on PA skills and CVC words with connections being made to word families by changing initial sounds to make new words
		Next activity is a letter board using Velcro
		Abbott assists the students in forming words with the letter cards then writes the new word on sticky note and places it on a board
		Abbott is constantly checking progress on both D'Vox's as students spell the words independently
		Abbott uses humor, tone, exaggeration, examples, etc to drive home word meanings
		Interruption- nurse came back to assist Ravan (tube feeding), she went to the computer area and took the switch access off the tray herself without interrupting others and then took Ravan to the back
		Para's show 'with-it-ness' also by constantly monitoring what's needed on the computers even while assisting the nurse with a lift
		Students on the computers switched places/programs
		This seems like a long time for Andrew to be focused on word family folder games but he is engaged and has a good rapport with the para
		Both para's show evidence of real caring- impulsively reaching out to smooth hair while the student works
		Room runs like a well-oiled machine
		Abbott finished the reading lesson, moved Anthony to the computer with Andrea, and worked 1:1 with Alex
		The lesson used the sticky notes with words they had made to

		fill in the blank in sentences using a dry erase board
		? Lesson really focused on these two boys- when do the others receive reading instruction?
		Interruption- person stuck head in door and looked around but didn't say anything

APPENDIX J: SAMPLE OF FIELD NOTES- RESEARCH ASSISTANT

Foreman   4/24

Instructional Practices

1. Modeling
2. Engages students
3. Classroom management

Reading Instruction

4. Core instruction
5. Strategies for students with complex comm. Needs
6. Implementation of technology & AT

Theme #	+/-/0	
		Faith came to table with teacher without the device
		Small group instruction
		Non-academic activity (painting)
		Told Faith – you're not listening; Faith says nothing, Faith is the first one done
		Why isn't Faith in general education classes for some activities (is she?)?
		Motivates for story through painting activity
		Ten minutes into lesson, the teacher said, "Faith, I want you to go get your computer"
		Faith said, "My page is purple" (on the device) and the teacher did not understand it- Faith repeated it and the teacher still did not understand.
		Another child said the message
		Teacher said "Your paper is green, not purple"
		Faith said on device, "My page is yellow and green and blue"
		Faith can put original sentences together
		Should have opportunity to interact more with general and ESE peers
		Teacher helps Faith construct sentence
		Says, "Where are your little words? You must have them. Faith, can you go to the page that has letters and find a-m
		Story was not age appropriate
		They are going to put a caterpillar or butterfly on painted paper
		Faith finds information on DM without request
		Wonderful initiator of communication
		Teacher just acknowledges her efforts

		"Can you find what he ate on Monday?" She said (on device), "Apple"
		Teacher does not ask open-ended questions
		Needs training as a message partner for AAC user
		Teacher should have made sure Faith had words she needed to respond to comprehension questions (did not have plums)
		Asked Faith comprehension questions which she had shared at the beginning of the story
		Faith answered in voice-answer was on the device (egg)
		Teacher did not understand verbal response and did not ask Faith to give answer using the device
		Instead of students sequencing events, the teacher did it
		When she does understand Faith's verbalization (a one word utterance), she does not repeat it to give Faith a good verbal model
		She just acknowledges it
		Really do not know if teacher understood message
		First academic task came 37 minutes into the observation video
		Teacher has no expectations for students

APPENDIX K: EXAMPLE OF INTERVIEW TRANSCRIPT

Q   First I wanted you to describe your reading block as far as how you're integrating A.T. and AAC.

A   Okay. Let me see. Right now where my kids are at, I'm trying to get them to navigate through their pages because there's so much on their Dynavox's. They're all in   Gateway 40 right now. So there's so much vocabulary that we're just trying to explore the vocabulary so they learn where a lot of the stuff is. And then I also do, like making words where they can utilize their letters and sounds and try to make the bigger -- try to find the words so we're adding the phonics and that kind of stuff in there.

Q   That's basically your core curriculum and you're building it from a language background and not a specific program?

A   Right.

Q   Are there any programs you try to integrate into your reading?

A   Not that we have right now. I've just been introduced to Balanced Literacy. This year I started with that and I'm getting into Classroom Suite next year to integrate some writing and also starting the Start to Finish series. I'm allowed to purchase that kind of stuff. Since all that is pretty new, too, I'm trying to keep up with what's new with it. It's constantly changing. They're going to purchase that. That's kind of science and social studies with those -- with that Start to Finish. I'm going to try to tie a lot of that in through my reading program, too.

Q   What types of supports would you say are now in place which help you as a teacher?

A   Like who is out there to help?

Q   Or what you physically have in your classroom with supports and resources.

A   The computers are great that I have. That's IDEA funded stuff. Those go with the kids when they go, with two of my students. I can tell you my biggest asset is having assistive technology around. They have me linked up with Caroline Musselwhite who has given me a lot of background and knowledge in the area of reading and writing. I've also seen Karen Erickson for a lot of good ideas, too. So I come back and implement a lot of what they taught me or try.

Q   You have pretty strong relationships with the AT team?

A   Yes, with * particularly.

Q   How often would you say you chat or talk?

A   This year it hasn't been as much as the past. They're letting me do the same things. With my class make up this year I've been so overwhelmed. I started with 8, moved up to 13, anywhere from pre-K to fifth grade and then we lost some kids and I was at 11. Then they finally split the class in February so there was a pre-K class and I have all the assistive technology kids. I think the assistive technology team this year just kind of said, "Make it through the year." I've had so many levels it was impossible to hit what every student needed every day. It was virtually an impossibility based on what they gave me. You couldn't do it.

Q   You have the strongest connection to the A. T. team in this study. I'm curious if you think back how you built that relationship?

A   My background was not in ESE. I'm a regular ed teacher. That's my first certificate is in general ed 1-6. So when I took a position in a physically impaired classroom, one of my students had a Light Hawk and I had no idea. So * got me in contact with the assistive technology team and they kept helping me and coming out. Then they saw potential in the students which then in turn kind of forced me to keep going with what they need. They helped me find the potential in the kids. I really had no idea what I was getting into.

Q   Do you feel like you were the person drawing on that relationship or they were? Who was pulling it?

A   I think -- I don't know -- both of us. I don't know if they saw potential because I had a regular ed background. But then I also pushed my kids. I think it was kind of a joint effort.

Q   What comes to mind is they saw a teacher who wanted to get proficient at everything.

A   Yeah.

Q   Thinking about one specific child in your classroom, how much progress do you see her/him having in both reading and language separately within the next year?

A   Do you want me to name the child or no?

Q   You can so I have a visual picture of who it is.

A   I think -- well, there's two that pop in my head that will make great progress. One of them is * and one of them is *. * has already started -- since the question is for the year his parents didn't enforce the Dynavox and the school he was at didn't either. His speech, unless you know him, is so bad, and his language- he didn't have it. Now he's had a year to explore with the Dynavox and learn he's already starting to make complete sentences and telling us things. He's made the most growth. He understands how it's categorized. He can find the different components. * is getting it too-- I've had him for four years. To see him from a Light Hawk to a Dynavox and learn the vocabulary and how to access it, it's a lot harder for him to learn how to do, but he's getting it. He's starting to make complete sentences with, I think, *'s influence. I think if * wasn't there, * wouldn't be as far along because he has a positive role model which is nice to see. If * can't find the answer, * will lean over, he'll go here, go here. He'll help him navigate through the systems.

Q   Are their systems are the same?

A   No. One is on the 3100 and one is on the DV 4. They are on two different systems.

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Q   He's learned his buddy's too.

A   Yeah. He'll look over because he understands the vocabulary in it, so he'll say, oh, you need to find it, it's over here. He'll kind of guide him to it. He doesn't just say go to this one, go to this one. He helps guide.

Q   Think about one of your more challenging students and their progress over a year.

A   Let's see. With * it's behavior. She would be successful if she could constantly joke with it. She hasn't made the connection of how important speaking and language is to her because everything is done for her at home. So that's that home/school kind of thing going on here.

Q   Are you doing anything to help that situation?

A   The parents aren't willing. The Dynavox stays at school every day except for the day she has private speech therapy, and they refuse to take it home. They're moving and mom has all of the sudden become very interested in it. She's going through the pages, navigating, and wants it backed up. She wants me to have a copy of it backed up because they're leaving.

Q   Leaving the district?

A   Yeah. They're moving to *. So she doesn't know who is going to know anything there. So mom has really taken an interest within the past month.

Q   Are you planning to pass on information so that that teacher can contact you?

A   Yes. I'm going to give her e-mail, phone numbers, anything, because * is a very challenging child. She can do it the other day -- I'm not one -- I don't want to say threaten my kids, sometimes you have to say, all right. I said I'm going to call dad if you don't do your work. I'm going to go get my phone and sit and call your father. She nailed every question during speech. She got every one. The speech therapist was like,"Holy cow, I've never seen you do this, you

did such a phenomenal job." At the end I told her, I whispered to her, "I had to threaten her with calling her dad." She was like, "Well, it worked."

Q   If motivation is high enough.

A   It's like she knows how to do it but I haven't found that good connection for her. She doesn't get why it's so important because I think it's not done at home.

Q   I think that is part of it right there. She saw that connection in what communication can do for her.

A   Even her private speech path says, "I want to get in the van, take her in her wheelchair that she can drive, go to McDonald's let her order her milk shake so she can do it all herself. The parents will never get it all together. Oh, we forgot to pick up her wheelchair at school, we forgot to pick up her Dynavox. There's always an excuse.

Q   I had a family similar to that, too. Unfortunately they moved down south and the school dropped the ball, too. So now there's neither. It's bad. I cried the whole way home from visiting her. I told* about it because * worked with her. What are some of the challenges you face now teaching this population of students?

A   I think my biggest challenge, it's the parents. To get them to buy into what's going on in the classroom and that their kids can learn. A lot of my parents don't think their kids can learn because they can't walk or talk. The parents don't see the significance of what that device is.

Q   When * received her device, were you part of that?

A   No, not for *.

Q   I was wondering if you knew how all that went.

A   No, I know the parents threatened with attorneys.

Q   And then now they don't use it at home?

A   Right. Same thing for the power wheelchair. It's like they want everything for their child but expect only the school to do it and none of the family -- they don't have any responsibility in it. Like there's going to be this miraculous occurrence at the school.

Q   If money were not an issue, what are the types of supports or resources that you would want to further increase what you can do?

A   Wow. I would like for my paras to be trained better because they come in not knowing why we do what we do. When I do a lot of repetitive activities, they get bored with it, but they don't understand that the kids need that repetitiveness in the same mode. They need that same thing, is what I believe. And so they get bored with the activities, so they're not following through with how they should be doing it. Today a simple activity was -- we were doing spin art, and I asked my paras to use just a Big Mack switch to have them tell them when to stop or go. They could pick which one they wanted to do. They wouldn't do it. The paras wouldn't listen to the child. If they just did a drop of paint and the child said stop, they would keep going because they didn't like what the picture looked like. It's like the paras don't understand they don't understand why they're using it. That's hard because we don't have training days before, if there were training days before so we could have them come in and say this is why we do what we do. Here are the things I want you to do. When the kids are there, we don't have time to do it. I don't have time to sit down and say, okay, here is how this is or even for programs the devices. When they first come in -- I had one crash this year and a new device come in. So I had to customize a lot of pages. That's hours of work. But if a para could do that for part of the day, it would just alleviate everybody's work load --

Q   Both of mine did take Dynavox training.

A   I had one of mine take it and the other one won't. She won't go to do it.

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Q   She's been offered the opportunity?

A   Oh, I make sure they all know about them every year.

Q   We also did something different-- I had Dynavox themselves -- it was * at the time. He's no longer there. He came to the school and taught the three of us because I had seven devices and they knew that there was a lot of money from their company involved. That might also be an option?

A   That's a good idea. I'll talk to * and see if she can get me hooked up with whoever it was now.

Q   What was interesting is even though I opened up the training to anybody in the school that wanted to come, only paraprofessionals showed up. I was the only teacher there.

A   I don't think that we could get a turnout at our school at all.

Q   Which is a shame..You have enough devices around. Even specials teachers could go just to have an idea of, "Okay, I can add something for this particular activity."

A   Even the administration so they know what's in the school. It's across the board where nobody really knows.

Q   Describe the role of paraprofessionals in your classroom and the benefits and challenges. You mentioned a couple right there.

A   Yeah, challenges. But you couldn't do it without them. This has been the best year I've ever had with paras because a lot of times, there's so many people in one room,   adult wise, there's four of us, four ladies, completely different personalities, completely different backgrounds, that makes for a great challenge. If somebody has a bad day or somebody isn't in a great mood, it can change the dynamics of the classroom which I think is one of the hardest things to deal with. But you can't do your day without them. If you didn't have a para, I'd be feeding and pottying all

day. They help me with a lot of the healthcare needs. I would like to get them more involved in what they're doing, with what the kids are doing. I have them sitting at a computer making sure the computers don't crash. And I've asked them to guide them through the lessons and talk with them about what's going on, and they just sit there. I can't stop what I'm doing in my small group to reinforce what they're doing. So that's – it goes back to that importance, where they don't know why they're doing what they're doing. Even when you talk to them about it, they still don't have the training and the schooling that we've gone through to know that. One of the ladies I worked with for three years. And so it's become a friendship which is hard because then she thinks she can get away with some of the things. I would like to see more turn over -- you want to see turn over but you don't because if you get a good person that's willing to do the stuff, you don't want them to go. But then there are the ones that just kind of linger around and I'm sure you know.

Q   Exactly. And once you overstep on some boundaries, you can't pull it back.

 A   Right. It's very difficult. And then also if two paras don't get along.

Q   Or if one thinks that you are friends with the other and that there is favoritism. That was another issue.

A   There's a lot of different things. This year has been the best. We haven't had any of those problems and everyone is willing to pitch in. So I use them for a lot of the transitions because we move the kids all day. They're in a bolster chair, in stander, on the floor, they're in this group, that group. We're constantly moving them from one thing to another. There's no way physically that I could do it every day. So that all kind of plays a role in it.

Q   You've mentioned three paras. On every observation there were two.

A   One of my students goes to regular Ed in the morning. So she's gone with them.

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Q   You have three in the classroom in the afternoon?

A   Right. She goes strictly with him to a kindergarten class.

Q   Always the same para?

A   Yes.

Q   Do you ever interchange?

 A   No. Two of my paras, the two you have seen are both one-on-ones. So they're assigned to their particular students. If the other para, she's a general para, and she goes with him to regular Ed. That's how we utilize her. We didn't assign him a one-on-one because then we don't have to wean a one-on-one off of him and mom. Once you assign that one-on-one, they think they're going to have them a little different. We said para assistance in the classroom. She goes with him daily. If she's out and a sub doesn't pick up, I generally go, which is nice because I can see how he's doing every once in a while. So I go in that way when she's not around.

Q   Okay. So the challenges are the personalities and working with that many adult in the classroom?

A   And just the understanding of what we do, why we do it.

Q   Three full time paras…you need that amount of support?

A   Yeah. You have to. With the kids' needs, there's tube feeders, not many walkers. There's just so much. Even, say, a fire drill happened, I couldn't have gotten out of the room. At the beginning of the year, everybody would come running towards my room because they knew -- the hands, there weren't enough of us. It was two, three wheelchairs per adult.

Q   I remember those days. One time when they tried to replace my carpet they blocked the front door, so all they left me was a door with steps in the back. I said, "Let's think about this."

Are there any other concerns or issues that come to mind about administration support or

resources, district, ideas or recommendations that would make things better?

A Just more curriculum. There's not a lot out that's adapted for our kids. It's coming. But it's

slow.

Q Something for you to write.

A Yeah.

Q I'm serious. You'd make a lot of money.

A I know. You know what I would like for my kids is an assessment tool where we can test

where they are, cognitively. Like I would love to see what they know….where they are…

because you really don't know. How can you test them cognitively? When you do a lot of those

tests, they take into account if they can walk, if they can talk. How can we find a way to really

assess our kids in what they know and give them an age, like when you do a psych-ed, how can

we give our guys an age so the parents know where they're functioning? I don't want for my kids

to get a psych-ed because they would fall into probably the PMH range. Is that fair to do to them

because they can't walk or talk.

Q Right. So, fully developed assessments that covers everything and shares a narrative side?

A Right.

Q That you see the full child.

A Uh-huh. It's hard to -- a lot of the parents ask, "Where is my child functioning?"

Q "In this range."

A Yeah. It's really hard. If there was a more concrete -- I know it's hard based on all their

different disabilities, but that's something I would love to see happen if there was a way -- I don't

see how there is.

Q   And in most A. T. assessments, they deal more with access and that kind of thing than cognitive assessments.

A   It's not like who's reading what, what math are they doing? What can they actually do? That's my drive. They can all learn, and let's figure out what they can do.

Q   I guess what comes to mind to me is quantifying everything that they can do. They can recognize X number of words, X number of letters, X number of sounds.

A   That's what I do. As well as alternative assessment, I make my own check off list based on skills based on kindergarten, first and second grade because that's kind of where my group is right now. I take a lot of those skills and see what they can do and arrange it around there.

Q   The other three questions that I had were more specific to you. Some of the issues we've already touched on. Obviously you're a very effective teacher for this population, one of the best I've seen. I wonder what you think are the keys to you becoming that?

A   Regular ed background.

Q   Okay.

A   I really think it is. From my going through school and I learned strategies of how to teach regular ed kids and I learned strategies on how to teach ESE kids in my regular Ed classroom. I think just the push on academics– I think part of it is me, that I want to be able to teach reading and writing and math and I think my kids can do it. I think it's just my expectation. That's what you do in my room. If you don't like it, hit the road. I mean I would never…, but that's what it is. I just have that love for it -- and I know that they can all do it. Even the most profound kid -- I've had profound kids, and you know what, they can find that repeated line in the story and tell me by using a switch. They can do it. I've seen them do it. There's something in every child,

you just have to figure out --that's one of the challenges, how to get it out of them. You know

they have it, that little twinkle in their eye.

Q   I was excited to see you use the eye gazing board as a back up.

A   Right. We do that.

Q   The small group reading I saw where you did one-on-one -- it was two-on-one. How or

when do you get the other students in the class into that group?

A   We'll rotate groups.

Q   Every day?

A   Well, it depends on what the activity is. It's not consistent because it's just based on what

I'm doing for that day. If I know I need 45 minutes to an hour with that group, then I'll do my

week like that. But if I know it's just a short lesson, then we'll rotate groups, so some kids will

go to folder games or handwriting and then rotate to the computers and then back to my group.

It depends on what's happening that week. I want to try to find a more consistent way of doing

it. I think next year the speech teacher and I are going to get together and we'll do a little scope

and sequence of the year because we want to co-teach together more than what we're doing. We

want to have planned lessons together. We're working on the same themes, the same concepts.

If she comes in and she wants to talk about wolves, then we'll be talking about it, too. We're

going to really try to integrate together.

Q   Okay. I want to be careful how I word this. Your relationship with the speech language

pathologist is different from others in your school.

A   Is it?

Q   It's much stronger. Do you think that's because you choose to pursue that or is there another

dynamic that you don't have any control over?

A   I don't know. I've never -- this is the first year I've worked with her. It's not like we've built

a relationship through past years. I think that she really took a liking to assistive technology. It

was brand new to her and she took off with it. And I respect her for that, and I think that really

helped us build a relationship together to sit and talk and let's figure out how often we can do

that.

Q   How often do you guys meet?

A   After speech a lot of times we'll go outside so the kids can go out and stretch and get in their

standers.

Q   Speech is one time a week?

A   Twice a week. So we have an opportunity to talk after that. The kids will go out and we'll

chitchat or in team meetings once a week we'll meet. Sometimes in the morning it's random,

we'll pop into each other's rooms. So I think a lot of that --

Q   There's a personality connection?

A   If she didn't take a liking to assistive technology, it would be very difficult to work with her.

She won't do any of the programming in my room because she knows that I know how to do it. I

know she helps * more than she would help me because * doesn't have the programming

background. So she does a lot of that for her so I can do myself -- and I do it for my room.

Q   Okay. Do you and * (another ESE teacher) work together?

A   No, huh-uh.

Q   That will probably be one of my recommendations, not specifically for you two, but that

teachers who need more assistance are able to visit model classrooms and be referred to model

classrooms.

A   I've offered my classroom to everbody any the school, especially the ESE team. I've said,

"Hey, if you guys want to come in and see," because there's other teachers that are doing low

tech stuff, one switches and stuff. I've offered to go in the classroom. They're just not willing to

– I can't push them –

Q   That's interesting. It's a shame they're not taking advantage of what they have.

A   I've tried. Our ESE team isn't very strong together. It's real -- across the board --

Q   But it's not distracting you from moving ahead with your leadership and that's really good.

A   Right. I do my own thing. I get here, go in my classroom and stay there. That's the best

way to do it.

Q   Those are all the questions I have. Is there anything else you want to add?

A   No, I don't think so.

Q   Thank you for your time.

APPENDIX L: EFFECTIVE PRACTICES BY CATEGORY

Teacher Characteristics

1. Licensure and credentials (Berry, 2005; Darling-Hammond, 2000)
2. Reading foundations (Silliman & Wilkinson, 2004)
3. Language foundations (Silliman & Wilkinson, 2004)
4. Assistive technology and AAC training (Light & Kent-Walsh, 2003)
5. Collegial environment (Good & Brophy, 2000; Guthrie & Cox; 2001)
6. Manageable caseloads and paperwork (Good & Brophy, 2000; Guthrie & Cox; 2001)
7. Adequate consultation and collaboration time (Good & Brophy, 2000; Guthrie & Cox; 2001)

Effective Classrooms

8. Demonstrates "with-it-ness" (Good & Brophy, 2000; Guthrie & Cox; 2001)
9. Realisitic expectations (Good & Brophy, 2000; Guthrie & Cox; 2001)
10. Modeling both social and academic behaviors (Good & Brophy, 2000; Guthrie & Cox; 2001)
11. Positive attitude (Good & Brophy, 2000; Guthrie & Cox; 2001)
12. Effective management skills (Good & Brophy, 2000; Guthrie & Cox; 2001)
13. Uses positive language (Good & Brophy, 2000; Guthrie & Cox; 2001)
14. Good instructional pacing (Good & Brophy, 2000; Guthrie & Cox; 2001)
15. Uses motivational strategies (Good & Brophy, 2000; Guthrie & Cox; 2001)
16. Uses specific praise (Good & Brophy, 2000; Guthrie & Cox; 2001)
17. Monitors comprehension through a hierarchy of questions (Good & Brophy, 2000; Guthrie & Cox; 2001)
18. Flexible (Good & Brophy, 2000; Guthrie & Cox; 2001)
19. Reflective (Good & Brophy, 2000; Guthrie & Cox; 2001)
20. Teaches within real world contexts (Good & Brophy, 2000; Guthrie & Cox; 2001)
21. Incorporates student directed activities (Good & Brophy, 2000; Guthrie & Cox; 2001)
22. Cooperative learning (Good & Brophy, 2000; Guthrie & Cox; 2001)
23. Offers meaningful evaluations (Good & Brophy, 2000; Guthrie & Cox; 2001)

Reading Instruction

24. Research-based curriculum (Coyne, Kame'enui, & Simmons, 2001; National Reading Panel, 2000; Torgesen, 2000).
25. Integrates the five components in instruction: PA, Phonics, Vocabulary, Fluency, Comprehension (Coyne, Kame'enui, & Simmons, 2001; National Reading Panel, 2000; Torgesen, 2000).
26. Implements instruction systematically. (Gentry, Chin, & Moulton, 2004).
27. Implements instruction explicitly. (Gentry, Chin, & Moulton, 2004).
28. Uses motivational strategies (Salinger, 2003).
29. Uses ongoing assessments (Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003).
30. Non-interrupted reading blocks (Coyne, Kame'enui, & Simmons, 2001)
31. Is a reflective practitioner. (Good & Brophy, 2000; Guthrie & Cox; 2001)

Reading Strategies

32. Length of intervention is a minimum of 6-8 weeks (Pokomi, Worthington, & Jamison,

2004).

33. Frequency of 2-3 times a week or daily intervention (Foorman, Francis, & Shaywitz, 1997; Torgesen, 2000).
34. Intensity of 15-30 minutes per session (Foorman, Francis, & Shaywitz, 1997; Torgesen, 2000).
35. Intervention time is additional to primary instruction (45 minutes) (Foorman, Francis, & Shaywitz, 1997; Torgesen, 2000).
36. Increased application to reading (spelling and decoding) (Pokorni, Worthington, & Jamison, 2004).
37. Explicit, direct instruction (Cavenaugh, 2004; Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003; National Reading Panel, 2000; Torgesen, 2000).
38. Draws on prior knowledge (Cavenaugh, 2004; Torgesen, 2000).
39. Use of basal programs (LaSasso & Mobley, 1997; Paul, 1997).
40. Regular comprehension checks (Cavenaugh, 2004; Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003; National Reading Panel, 2000; Torgesen, 2000).
41. Systematically builds PA skills (Cavenaugh, 2004; Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003; National Reading Panel, 2000; Torgesen, 2000).
42. Use of comprehensive reading strategies (Cavenaugh, 2004; Foorman, Franics, & Shaywitz, 1997; Gersten & Geva, 2003; National Reading Panel, 2000; Torgesen, 2000).
43. Models strategies (Salinger, 2003).
44. Uses multi-sensory approach (Hasselbring, Coin, Taylor, Bottge, & Daley, 1997).
45. Uses graphic organizers (Salinger, 2003).
46. Incorporates paced silent reading (Salinger, 2003).
47. Uses thematic teaching (Barrera & Jimenez, 1999).
48. Uses culturally relevant materials (Barrera & Jimenez, 1999).
49. Emphasizes vocabulary/language (Foorman, Frames, & Shaywitz, 1997; Gersten & Geva, 2003)
50. Supports native language (Brice, 2003; Mohr, 2003; Valdes & Figueroa, 1996).
51. Students have opportunity to self-select books (Brice, 2003; Mohr, 2003; Valdes & Figueroa, 1996).
52. Small group (no more than 3:1) instruction (Cavenaugh, 2004).
53. Uses additional programs to augment core program (Hasselbring, Coin, Taylor, Bottge, & Daley, 1997).
54. Multiple opportunities for practice (Golova, Alario Vivier, Rodriguez, & High, 1999).
55. Visible support and consistent collaboration with SLP (Brice, 2003; Mohr, 2003; Valdes & Figueroa, 1996).

Populations with Language and Communication Issues

56. Uses scaffolding techniques I (Golova, Alario, Vivier, Rodriguez, & High, 1999).
57. Supports native language and use of L1 to L2 (Brice, 2003).
58. High level of family involvement and support (Moeller, 2000).
59. Explicit teaching of PA and vocabulary (Cavenaugh, 2004; National Reading Panel, 2000; Torgesen, 2000).
60. Length of exposure to augmentative and alternative communication system (Moeller, 2000)
61. Inclusive settings (Light & McNaughton, 1993).

62. Early intervention (Moeller, 2000).
63. Use of visuals supports (Schirmer, Bailey, & SchirmerLockman, 2004).
64. Uses interactive story-books (Fung, Chow, & McBride-Chang, 2005; Kaderavek, & Justice, 2002).
65. Homogeneous grouping (Cawthon, 2004).

Students with Complex Communication Needs

66. Explicit phonics instruction (Fallon, Light, McNaughton, Drager, & Hammer, 2004).
67. Teacher is proficient in the AAC system being used (navigation and programming) (Tetzchner & Grove, 2003).
68. Appropriate selection of vocabulary (Fallon, Light, & Achenbach, 2003).
69. Organization of vocabulary on AAC (Fallon, Light, & Achenbach, 2003).
70. Reading/ language instruction infused throughout all activities (Light & Kent-Walsh, 2003)
71. Accessible print rich environments (Koppenhaver & Erickson, 2003).
72. Assistance of a trained paraprofessional (Kent-Walsh, 2004).
73. Student has access to the AAC system during instructional time (Light & Kent-Walsh, 2003).
74. Appropriate engagement in literacy instruction (Light & Kent-Walsh, 2003).
75. Increased natural learning opportunities (Koppenhaver & Erickson, 2003).
76. Use of needed scripts, narratives, and conversational supports (Tetzchner & Grove, 2003).
77. Use of partner focused questions to enhance communication interactions (Light, Binger, Agate, & Ramsay, 1999).
78. High level of support for appropriate interaction (Tetzchner & Grove, 2003).

Technology

79. Utilizes technology support to support learning style (Hasselbring, Coin, Taylor, Bottge, & Daley, 1997).
80. Uses CBI for reinforcement of skills (Hasselbring, Coin, Taylor, Bottge, & Daley, 1997).

APPENDIX M: RESULTS OF SURVEY DATA

Participant responses were documented in the following manner:

1- Strongly Disagree, 2- Disagree, 3 -Agree; and 4- Strongly Agree.

READING INSTRUCTION	Mean	Mode	SD
I am comfortable teaching reading in general.	3.33	3	.52
I am comfortable teaching reading with students who use AAC.	3.00	3	1.10
I have the materials and supports I need for reading instruction.	3.17	3	.75
I am able to provide 90 minutes of reading instruction daily.	2.33	2	1.03
I am able to provide 45 minutes of supplemental instruction (either through myself or other staff)	2.17	2	.75

AAC INSTRUCTION	Mean	Mode	SD
I am able to program my student's AAC system independently.	2.50	2	1.22
I incorporate teaching language on the AAC s stem in tandem with reading instruction.	3.00	3	1.10
I give the student access to the AAC system at all instructional times.	3.67	4	.52

COLLABORATION	Mean	Mode	SD
I meet with the speech language pathologist on a regular basis for planning and collaboration.	2.67	2	1.21
I am comfortable discussing issues with the team	3.83	4	.75
I feel that my input is listened to and valued by the team.	3.67	4	.52
I am a part of a collaborative team.	3.67	4	.52
I have attended workshops on effective collaboration.	2.67	2	.82

ASSISTIVE TECHNOLOGY	Mean	Mode	SD
I have access to AT materials which support literacy.	2.67	2	1.21
I can effectively implement the AT materials within instruction.	2.67	2	1.21
I have had adequate training on AT by the district assistive technology support team.	2.50	2	1.05
I have adequate support from the school-based technology support personnel.	2.17	1	1.33

SUPPORTS AND RESOURCES	Mean	Mode	SD
I feel supported by the administrators.	3.17	3	.75
I feel supported by the general education teacher.	3.33	3	1.37
I feel supported by the speech language pathologist.	3.83	4	.98
I feel supported by the students and families.	3.83	4	1.17
I receive adequate materials and resources to effectively teach	3.00	2	.89

my students.

	Mean	Mode	SD
I have adequate physical support within the classroom (paraprofessionals, etc).	3.50	4	.84

PARAPROFESSIONALS	**Mean**	**Mode**	**SD**
My paraprofessional is able to do programming on the AAC system.	2.17	1	1.17
My paraprofessional has attended professional development on either the AAC s stem or other AT.	2.33	1	1.51
My paraprofessional has primary responsibility of teaching the student who uses the AAC system.	1.67	1	.82
My paraprofessional supports instruction through supplemental activities.	3.67	4	.52

PERCEPTIONS	**Mean**	**Mode**	**SD**
I accept personal responsibility for my students learning.	3.83	4	.41
I have realistic expectations (neither too high nor too low) for my students who use AAC.	3.83	4	.41
I have clearly defined classroom rules and apply them appropriately.	3.83	4	.41
I have set routines and the classroom transitions typically flow smoothly.	3.33	4	.82
I assign appropriate seatwork and homework to enhance literacy instruction.	3.33	4	.82

APPENDIX N: EFFECTIVE PRACTICES BY PARTICIPANT

	Abbott	Butler	Carver	Erwin	Foreman
Teacher Characteristics					
Licensure and credentials.	+	+ +	+	+ +	+ +
Reading foundations.	+	+	+ +	+	+
Language foundations.					
Assistive technology and AAC training.	+ +	+ +	O	O	O
Collegial environment.	+ +	+ +	+	+	+ / O
Manageable caseloads and paperwork.	+ +	+ +	+	+	+
Adequate consultation and collaboration time.	+ +	+ +	+	+	O
Effective Classrooms					
Demonstrates "with-it-ness."	+ +	+ +	+ +	+	O
Realistic expectations.	+ +	+ +	+ +	+	O
Modeling both social and academic behaviors.	+ +	+ +	+ +	+	+
Positive attitude.	+ +	+ +	+ +	+	+
Effective management skills.	+ +	+ +	+ +	+	O
Uses positive language.	+ +	+ +	+ +	+	+
Good instructional pacing.	+ +	+ +	+ +	+	O
Uses motivational strategies.	+ +	+ +	+ +	+	
Uses specific praise.	+ +	+ +	+ +	+	
Monitors comprehension through a hierarchy of questions.	+ +	+ +	+	+	O
Flexible.	+ +	+ +	+ +	+	+
Reflective.	+ +	+ +	+ +	+	
Teaches within real world contexts.	+ +	O	+ +		O
Incorporates student directed activities.	+ +	+ +	+	+	
Cooperative learning.	+ +	+ +	+		
Offers meaningful evaluations.					
Reading Instruction					
Research-based curriculum.	+	+	+	+ +	O
Integrates the five components in instruction: PA, Phonics, Vocabulary, Fluency, Comprehension.	+	+	+	+ +	O
Implements instruction systematically.	+ +	+ +	+ +	+ +	O
Implements instruction explicitly.	+ +	+ +	+ +	+ +	
Uses motivational strategies.	+ +	+ +		+ +	

Uses ongoing assessments.				+	
Non-interrupted reading blocks.	O *	+	O	O *	O
Is a reflective practitioner.	+ +	+ +	+ +	+	
Reading Strategies					
Length of intervention is minimum of 6-8 weeks.					
Frequency of 2-3 times a week or daily intervention.					
Intensity of 15-30 minutes per session.					
Intervention time is additional to primary instruction (45 min).					O
Increased application to reading (spelling and decoding).	+ +	+	+ +		
Explicit, direct instruction.	+ +	+ +	+ +	+	O
Draws on prior knowledge.	+ +	+ +	+ +	+	+
Use of basal programs.	+	+	+	+	O
Regular comprehension checks.	+ +	+ +	+ +	+	+
Systematically builds PA skills.	+ +	+ +	+ +	+	
Use of comprehensive reading strategies.	+ +	+ +	+ +	+	
Models strategies.	+ +	+ +	+ +	+	+
Uses multi-sensory approach.	+ +	+ +	+ +	+	+
Uses graphic organizers.	+ +	+		+	
Incorporates paced silent reading.					
Uses thematic teaching.					
Uses age appropriate / culturally relevant materials.	+ +	+ +	+ +	+	O
Emphasizes vocabulary/language.	+ +	+ +			O
Supports native language.	+ + **	+ +			
Students have opportunity to self-select books.		+ +		+	
Small group (no more than 3:1) instruction.	+ +	+	+ +	O	
Uses additional programs to augment core program.	+ +	+ +	+ +		
Multiple opportunities for practice.	+ +	+ +	+ +		
Visible support and consistent collaboration with SLP. *[SLP weak in AAC]*	+ +	+ +	+ **	+	O
Populations with Language and Communication Issues					
Uses scaffolding techniques.	+ +	+ +	+	+	
Supports native language and use of L1 to L2.	+ +	+ +	O	O	O
High level of family involvement and support.				+	
Explicit teaching of PA and vocabulary.	+ +	+ +	+ +	+	O
Length of exposure to augmentative and alternative communication system.	+ +	+ +	+	O	

Inclusive settings.		+ +		+	+
Early intervention.	+ +	+ +			
Use of visuals supports.	+ +	+ +	+ +	+	+
Uses interactive story-books.	+ +	+ +	+ +	+	+ *
Homogeneous grouping.	+ +	+ +	+ +	+	+
Students with Complex Communication Needs					
Explicit phonics instruction.	+ +	+ +	+ +	+	O
Teacher is proficient in the AAC system being used (navigation and programming).	+ +	+ +	O	O	O
Appropriate selection of vocabulary.	+ +	+ +	+	O	O
Organization of vocabulary on AAC.	+ +	+ +	+	+	O
Reading/ language instruction infused throughout all activities.	+ +	+ +	+		O
Accessible print rich environments.	+ +	+ +	+	O	+
Assistance of a trained paraprofessional. [Routines, not AAC]	+ +	+	O *	+ **	+*
Student has access to the AAC system during instruction.	+ +	+ +	+ +	O	+ +
Appropriate engagement in literacy instruction.	+ +	+	+ +	O	O
Increased natural learning opportunities.	+ +	+	+ +		
Use of needed scripts, narratives, and conversational supports.	+ +	+	O	O	O
Use of partner focused questions to enhance communication interactions.	+ +	+	O	O	O
High level of support for appropriate interaction.	+ +	+ +	+	+ + ***	O
Technology					
Utilizes technology support to support learning style.	+ +	+ +		O	
Uses CBI for reinforcement of skills.	+ +	+ +		+	

APPENDIX O: OPERATIONAL DEFINITIONS OF THEMES

Operational Definitions of Coding Themes

1. Current Supports – Any materials, resources, or assistance named by participants as offering a benefit in support of the participant or student in terms of instructional practices, including but not limited to professional development, academic materials, logistical support in the school environment, and technology assistance in terms of AT and/or AAC, by district personnel, school personnel, or families.

2. Expectations – Statements which relate to the expectations for learning for students with complex communication needs whether they indicate high or low expectations for student learning and achievement.

3. Challenges – Any issues (personal, professional, or logistical) that prevent the successful integration of best practices within the instructional environment specific to serving students with complex communication needs.

4. Paraprofessionals – Any issue, practice, challenge, concern, benefit, or support relating specifically to the use of paraprofessionals in classrooms which serve students with complex communication needs.

5. Recommendations by Participants – Suggestions made by participants in regards to ways of overcoming challenges faced by teachers working with students with complex communication needs, in regards to AAC/AT, effective instruction, paraprofessionals, and other concerns specific to this population.

6. Other issues and/or concerns – Any issue of concern addressed by participants that did not specifically fit into the above categories and were outside the scope of survey or observational data and was not specifically addressed through the interview process.

APPENDIX P: INTERVIEW THEMES AND SUBTHEMES

Themes	Subthemes	Examples of issues discussed by participants
Current Supports	Technology and assistive technology	Having AT available
		Working with the district AT team and learning from researchers in the field (Caroline Musselwhite and Karen Erickson)
		IDEA funding for technology and resources.
	Academic training	Having a general education background.
	Speech Language Pathologists	Having a knowledgeable SLP at the school site.
	Protocol for system breakdowns	Staffing coordinator, SLP, and family responsibilities are clear.
	Other ESE team members	Occupational therapists and physical therapists are involved at the school level.
	Paraprofessionals	Having a dedicated one-on-one paraprofessional for the student.
Expectations	Student achievement	Realistic expectations for student learning based individual student characteristics. Use of peer models Parent support in the home environment Within constraints of medical and fatigue issues
	Language Development	Moving to a structured communication package customized for the student. Teacher belief that student relies on vocalizations and gestures and will not make gains using the AAC
	Behavior	Treat students with complex communication needs the same as all others in regards to responsibilities and consequences. Training in knowing best practices for behavior in relation to disability (autism).
Challenges	Parents	Parents and getting them to support (buy in) what is happening in the classroom Parents do not know how to program the system. Parent will send the system in with a dying battery and there isn't a charger at school Parent forcing FCAT when student reads 2 years below grade level

	Paraprofessionals	Parent doesn't use system at home
		Paraprofessionals not understanding the importance of repetitive routines.
		Paraprofessionals not wanting to "listen" to the child as they gave directions on AAC
	Curriculum	Having curriculum adapted to teach reading and language on AAC.
		Knowing how to teach phonological awareness to a non-verbal child
		Lost academic time as student attends general education at the parent's request
	AAC	System breakdowns and no back up system available
		Time for programming the system
		Time- wait time for students to finish before the class goes on.
		Understanding communication- student may prefer to use voice first and then system as last resort
		Access issues may lead to fatigue
	SLP	Having the SLP address language goals
		Better collaboration with the SLP
Paraprofessionals	Professional Development	Need to take training in reading, language, and AAC
		Need for the paraprofessional to be comfortable reinforcing academics
	Management	Managing four personalities can be difficult
		Not enough paraprofessional support
	Technology/AAC	Would like to have a paraprofessional comfortable with technology
		A one-on-one is needed with students who need significant supports
	Substitutes	Substitute paraprofessionals are hard to work with since instructional staff has to really know these students
Recommendation by participants	Materials	Need for appropriate assessment materials
		Math programs that work well with AT/AAC
		Laptop, accessible printers, etc.

		Textbooks and other materials available in both home and school settings
	Paraprofessionals	A one-on-one paraprofessional may allow student to be more successful
		Being able to attend training, either individually or with teacher.
		Need for hiring paraprofessional who want to work with this population.
	Case manager at district level	Have a closer liaison between home and school since teachers change from year to year (similar to a case manager)
Other issues or concerns	ESE team	School ESE team is not strong.
	Professional development support	No comp time given to teachers or paraprofessionals to balance personal time needed to learn the system
	Match between school and district expectations	Staffing coordinator felt that Faith had potential to develop speech through the system, parents did not really understand during the IEP meeting what was happening

APPENDIX Q: PRACTICES CONSISTENT AND INCONSISTENT ACROSS SETTINGS

	Practice was Consistent	*Practice was Inconsistent*
Effective Classrooms		
Demonstrates "with-it-ness."		X
Realistic expectations.		X
Modeling both social and academic behaviors.		X
Positive attitude.	X	
Effective management skills.		X
Uses positive language.	X	
Good instructional pacing.		X
Uses motivational strategies.	X	
Uses specific praise.	X	
Monitors comprehension through a hierarchy of questions.		X
Flexible.		X
Reflective.		X
Teaches within real world contexts.		X
Incorporates student directed activities.	X	
Cooperative learning.	X	
Offers meaningful evaluations.	*Not observed*	
Research-based curriculum.		X
Integrates the five components in instruction: PA, Phonics, Vocabulary, Fluency, Comprehension.	X	
Implements instruction systematically.		X
Implements instruction explicitly.		X
Uses motivational strategies.	X	
Uses ongoing assessments.	*Not observed*	
Non-interrupted reading blocks.		X
Is a reflective practitioner.		X
Reading Strategies		
Length of intervention is minimum of 6-8 weeks.	*Not observed*	
Frequency of 2-3 times a week or daily intervention.	*Not observed*	
Intensity of 15-30 minutes per session.	*Not observed*	
Intervention time is additional to primary instruction (45 minutes).		X
Increased application to reading (spelling and decoding).		X
Explicit, direct instruction.		X
Draws on prior knowledge.		X

Use of basal programs.		X
Regular comprehension checks.	X	
Systematically builds PA skills.		X
Use of comprehensive reading strategies.		X
Models strategies.	X	
Uses multi-sensory approach.		X
Uses graphic organizers.		X
Incorporates paced silent reading.		X
Uses thematic teaching.	*Not observed*	
Uses age appropriate / culturally relevant materials.		X
Emphasizes vocabulary/language.		X
Supports native language.		X
Students have opportunity to self-select books.		X
Small group (no more than 3:1) instruction. (4-1)	X	
Uses additional programs to augment core program.		X
Multiple opportunities for practice.		X
Visible support and consistent collaboration with SLP.		X
Populations with Language and Communication Issues		
Uses scaffolding techniques.		X
Supports native language and use of L1 to L2.		X
High level of family involvement and support.	*Not observed*	
Explicit teaching of PA and vocabulary.		X
Length of exposure to augmentative and alternative communication system.		X
Inclusive settings.		X
Early intervention.	*Not observed*	
Use of visuals supports.	X	
Uses interactive story-books.	X	
Homogeneous grouping.	X	
Students with Complex Communication Needs		
Explicit phonics instruction.		X
Teacher is proficient in the AAC system being used (navigation and programming).		X
Appropriate selection of vocabulary.		X
Organization of vocabulary on AAC.		X
Reading/ language instruction infused throughout all activities.		X
Accessible print rich environments.	X	
Assistance of a trained paraprofessional. [Routines, not AAC]		X
Student has access to the AAC system during instruction.	X	
Appropriate engagement in literacy instruction.		X
Increased natural learning opportunities.		X

Use of needed scripts, narratives, and conversational supports.		X
Use of partner focused questions to enhance communication interactions.		X
High level of support for appropriate interaction.		X
Technology		
Utilizes technology support to support learning style.		X
Uses CBI for reinforcement of skills.		X

APPENDIX R: COMPARISON TABLE OF ABBOTT AND FOREMAN

Teacher Characteristics	Abbott	Foreman
Licensure and credentials.	+	+ +
Reading foundations.	+	+
Language foundations.		
Assistive technology and AAC training.	+ +	O
Collegial environment.	+ +	+ / O
Manageable caseloads and paperwork.	+ +	+
Adequate consultation and collaboration time.	+ +	O
Effective Classrooms		
Demonstrates "with-it-ness."	+ +	O
Realistic expectations.	+ +	O
Modeling both social and academic behaviors.	+ +	+
Positive attitude.	+ +	+
Effective management skills.	+ +	O
Uses positive language.	+ +	+
Good instructional pacing.	+ +	O
Uses motivational strategies.	+ +	
Uses specific praise.	+ +	
Monitors comprehension through a hierarchy of questions.	+ +	O
Flexible.	+ +	+
Reflective.	+ +	
Teaches within real world contexts.	+ +	O
Incorporates student directed activities.	+ +	
Cooperative learning.	+ +	
Offers meaningful evaluations.		
Reading Instruction		
Research-based curriculum.	+	O
Integrates the five components in instruction: PA, Phonics, Vocabulary, Fluency, Comprehension.	+	O
Implements instruction systematically.	+ +	O
Implements instruction explicitly.	+ +	
Uses motivational strategies.	+ +	
Uses ongoing assessments.		
Non-interrupted reading blocks.	O *	O
Is a reflective practitioner.	+ +	
Reading Strategies		
Length of intervention is minimum of 6-8 weeks.		
Frequency of 2-3 times a week or daily intervention.		
Intensity of 15-30 minutes per session.		
Intervention time is additional to primary instruction (45 minutes).		O
Increased application to reading (spelling and decoding).	+ +	
Explicit, direct instruction.	+ +	O
Draws on prior knowledge.	+ +	+

Use of basal programs.	+	O
Regular comprehension checks.	+ +	+
Systematically builds PA skills.	+ +	
Use of comprehensive reading strategies.	+ +	
Models strategies.	+ +	+
Uses multi-sensory approach.	+ +	+
Uses graphic organizers.	+ +	
Incorporates paced silent reading.		
Uses thematic teaching.		
Uses age appropriate / culturally relevant materials.	+ +	O
Emphasizes vocabulary/language.	+ +	O
Supports native language.	+ + **	
Students have opportunity to self-select books.		
Small group (no more than 3:1) instruction.	+ +	
Uses additional programs to augment core program.	+ +	
Multiple opportunities for practice.	+ +	
Visible support and consistent collaboration with SLP.	+ +	O
Populations with Language and Communication Issues		
Uses scaffolding techniques.	+ +	
Supports native language and use of L1 to L2.	+ +	O
High level of family involvement and support.		
Explicit teaching of PA and vocabulary.	+ +	O
Length of exposure to augmentative and alternative communication system.	+ +	
Inclusive settings.		+
Early intervention.	+ +	
Use of visuals supports.	+ +	+
Uses interactive story-books.	+ +	+ *
Homogeneous grouping.	+ +	+
Students with Complex Communication Needs		
Explicit phonics instruction.	+ +	O
Teacher is proficient in the AAC system being used (navigation and programming).	+ +	O
Appropriate selection of vocabulary.	+ +	O
Organization of vocabulary on AAC.	+ +	O
Reading/ language instruction infused throughout all activities.	+ +	O
Accessible print rich environments.	+ +	+
Assistance of a trained paraprofessional. [Routines, not AAC]	+ +	+*
Student has access to the AAC system during instruction.	+ +	+ +
Appropriate engagement in literacy instruction.	+ +	O
Increased natural learning opportunities.	+ +	
Use of needed scripts, narratives, and conversational supports.	+ +	O
Use of partner focused questions to enhance communication interactions.	+ +	O
High level of support for appropriate interaction.	+ +	O

Technology	
Utilizes technology support to support learning style.	+ +
Uses CBI for reinforcement of skills.	+ +

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